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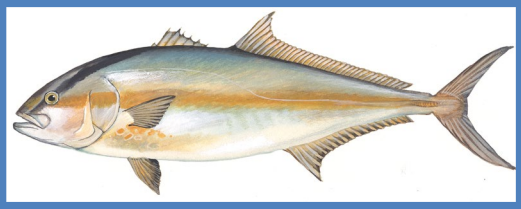

Amendment 49
to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Catch Level Adjustments and Management Measure Modifications for Greater Amberjack and Removal of Recreational Annual Catch Targets for Snapper Grouper Species

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

March 2022 DRAFT

South Atlantic Fishery Management Council
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Award Number FNA15NMF4410010

Amendment 49 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Proposed action(s): Revise annual catch limits, sector allocations, commercial and recreational minimum size limits, commercial trip limits, and the April spawning closure for greater amberjack; Remove recreational annual catch targets for snapper grouper species.

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Summary

Why is the South Atlantic Fishery Management Council considering action?

The Council is considering action to respond to the most recent stock assessment for South Atlantic greater amberjack (SEDAR 59 2020). The assessment followed a standard approach with data through 2018 and used revised estimates for recreational catch from the Marine Recreational Information Program (MRIP) based on the Fishing Effort Survey (FES), which is considered more reliable and robust compared to the Marine Recreational Fisheries Statistics Survey (MRFSS) previously used to derive recreational catch estimates for greater amberjack. The results indicated that South Atlantic greater amberjack are not overfished nor experiencing overfishing. Updated projections of catch and data changes incorporated in the assessment provided information to update the overfishing limit (OFL), acceptable biological catch (ABC), annual optimum yield (OY), and annual catch limits (ACL). The Council is also considering changes to sector minimum size limits, the seasonal commercial trip limits, and the April spawning closure in response to public feedback concerning sector equity and fishing efficiency for greater amberjack.

Additionally, the Council is considering action to remove recreational annual catch targets (ACT) from the Snapper Grouper FMP. In 2012, the Comprehensive ACL Amendment established ACLs and recreational ACTs. The latter are intended as a precautionary buffer to account for uncertainty in the recreational catch estimates. While ACTs were developed and established as part of the management process (thus, they must be changed through plan amendments as the ACL changes), these values were not used in developing regulations and were not included in codified regulatory text. Given their lack of regulatory use, in March 2021, the Council's Snapper Grouper Committee directed staff to include an action in Amendment 49 that would consider removal of recreational ACTs throughout the Snapper Grouper FMP.

Purpose for Action

The *purpose* of this amendment is to revise the acceptable biological catch and catch limits for greater amberjack in the South Atlantic based on the results of the latest stock assessment; revise sector allocations, minimum size limits, commercial trip limits, and the April spawning closure for greater amberjack; and remove recreational annual catch targets for the Snapper Grouper Fishery Management Plan.

Need for Action

The *need* for this amendment is to ensure catch limits are based on the best scientific information available and to ensure overfishing does not occur in the South Atlantic greater amberjack fishery, while increasing social and economic benefits through sustainable and profitable harvest of South Atlantic greater amberjack, consistent with the Magnuson Stevens Fishery Conservation and Management Act and its National Standards. This amendment is also needed to make administrative efforts more efficient by removing recreational annual catch targets, which are not actively used in management, from the Snapper Grouper Fishery Management Plan.

What actions are being proposed in this amendment?

Amendment 49 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) proposes the following:

Action 1. Revise the Greater Amberjack total acceptable biological catch, annual catch limit, and annual optimum yield

Purpose of Action: The latest stock assessment (SEDAR 59 2020) indicated the stock is not overfished and not experiencing overfishing. Action is needed because the SSC recommended a new ABC based on results of SEDAR 59, and the ABC, total ACL, and annual OY must be adjusted accordingly. The Council cannot set the total ACL above the SSC's recommended ABC.

Preferred Alternative 2. Revise the acceptable biological catch based on the recommendation from the Scientific and Statistical Committee. Revise the total annual catch limit and annual optimum yield for Greater Amberjack and set equal to the recommended acceptable biological catch based on the results of the latest stock assessment (SEDAR 59 2020). The 2026-27 total annual catch limit and annual optimum yield would remain in place until modified.

Year	Total ACL (lbs ww)
2022-23	4,380,000
2023-2024	3,233,000
2024-2025	2,818,000
2025-2026	2,699,000
2026-2027+	2,669,000

Action 2. Revise the Greater Amberjack sector allocations and sector annual catch limits

Purpose of Action: The Council's Allocations Trigger Policy states the Council will review sector allocations upon completion of a stock assessment. In addition, recreational landings estimates have been revised to adopt the new MRIP FES methodology. This action allows the Council to consider how to allocate the total ACL between the commercial and recreational sectors from the 2022-2023 fishing year onwards under the revised catch levels.

Preferred Alternative 1 (No Action). Retain the current recreational sector and commercial sector allocations as 59.34% and 40.66%, respectively, of the revised total annual catch limit for greater amberjack.

Action 3. Increase the recreational minimum size limit for greater amberjack

Purpose of Action: In response to public feedback gathered during scoping of this amendment and given the current stock status, the Council is considering changes to minimum size limits to reduce the difference between the current recreational (28 inches fork length) and commercial (36 inches fork length) size limits. This action is intended to increase fairness and equity between sectors.

Preferred Alternative 2. Increase the recreational minimum size limit to 30 inches fork length.

Action 4. Reduce the commercial minimum size limit for greater amberjack

Purpose of Action: In response to public feedback gathered during scoping of this amendment and given the current stock status, the Council is considering changes to minimum size limits to reduce the difference between the current recreational (28 inches fork length) and commercial (36 inches fork length) size limits. This action is intended to increase fairness and equity between sectors.

Preferred Alternative 3. Reduce the commercial minimum size limit to 30 inches fork length.

Action 5. Increase the Season 2 commercial trip limit for greater amberjack

Purpose of Action: In response to public feedback gathered during scoping of this amendment and given the current stock status, the Council is considering increasing the Season 2 (September-February) commercial trip limit (1,000 pounds whole or gutted weight) to make it equal to the Season 1 (March-August) commercial trip limit. This action is intended to allow some increase to harvest of a stock that is not overfished and above its reference biomass level.

The Council has not yet selected a preferred alternative for this action.

Action 6. Revise the April spawning closure for greater amberjack

Purpose of Action: In response to public feedback gathered during scoping of this amendment, the Council is considering revising the April spawning closure of the commercial fishery to be a closure of both the recreational and commercial fisheries in April. This action is intended to increase fairness and equity between sectors.

The Council has not yet selected a preferred alternative for this action.

Action 7. Remove recreational annual catch targets from the Snapper Grouper Fishery Management Plan

Purpose of Action: Recreational annual catch targets are not currently used in management of snapper grouper species, but are included as part of the FMP and must be updated when the recreational ACL changes. This action is intended to reduce administrative burden while not significantly altering effective management of the snapper grouper fishery.

Preferred Alternative 2. Remove recreational annual catch targets for species managed under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

Chapter 1. Introduction

1.1 What actions are being proposed in this plan amendment?

The proposed actions in this plan amendment would revise the acceptable biological catch (ABC), annual catch limits (ACL), annual optimum yield (OY), and sector allocations for greater amberjack in the South Atlantic based on the results of the latest stock assessment. Other actions would modify the commercial and recreational minimum size limits, the commercial season 1 and season 2 trip limits, and the April spawning closure for greater amberjack. The plan amendment would also remove the recreational annual catch target (ACT), which is not actively being used in the management of species under the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP).

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks in the South Atlantic Region.
- Consists of 13 voting members who are appointed by the Secretary of Commerce, 1 representative from each of the 4 South Atlantic states, the Southeast Regional Administrator of NMFS, and 4 non-voting members.
- Responsible for developing fishery management plans and amendments under the Magnuson-Stevens Act; recommends actions to NMFS for implementation.
- Management area is from 3 to 200 nautical miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West, except for mackerel which is from New York to Florida, and dolphin and wahoo, which is from Maine to Florida.

1.2 Who is proposing the amendment?

The South Atlantic Fishery Management Council (Council) is responsible for managing fish stocks in the South Atlantic Region. The Council develops the amendment and sends it to the National Marine Fisheries Service (NMFS), who publishes a rule to implement the amendment on behalf of the Secretary of Commerce. NMFS is an agency of the National Oceanic and Atmospheric Administration within the Department of Commerce. Guided by the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act), the Council works with NMFS, other partners, and stakeholders to assess the status of fish stocks, specify catch limits, reduce bycatch, and ensure compliance with fisheries regulations.

The Council and NMFS are also responsible for making this amendment available for public comment. The draft environmental assessment (EA) is combined with the amendment and will be made available to the public during the scoping process, public hearings, and in Council meeting briefing books. The final EA and amendment will be made available for public comment during the proposed rule stage of the rulemaking process. The final EA and amendment will be found on the Council's website at http://www.safmc.net.

1.3 Where is the project located?

Management of the federal snapper grouper fishery located off the southeastern United States (South Atlantic) in the 3-200 nautical miles U.S. exclusive economic zone (EEZ) is conducted under the Snapper Grouper FMP (SAFMC 1983) (Figure 1.3.1). There are fifty-five species managed by the Council under the Snapper Grouper FMP.

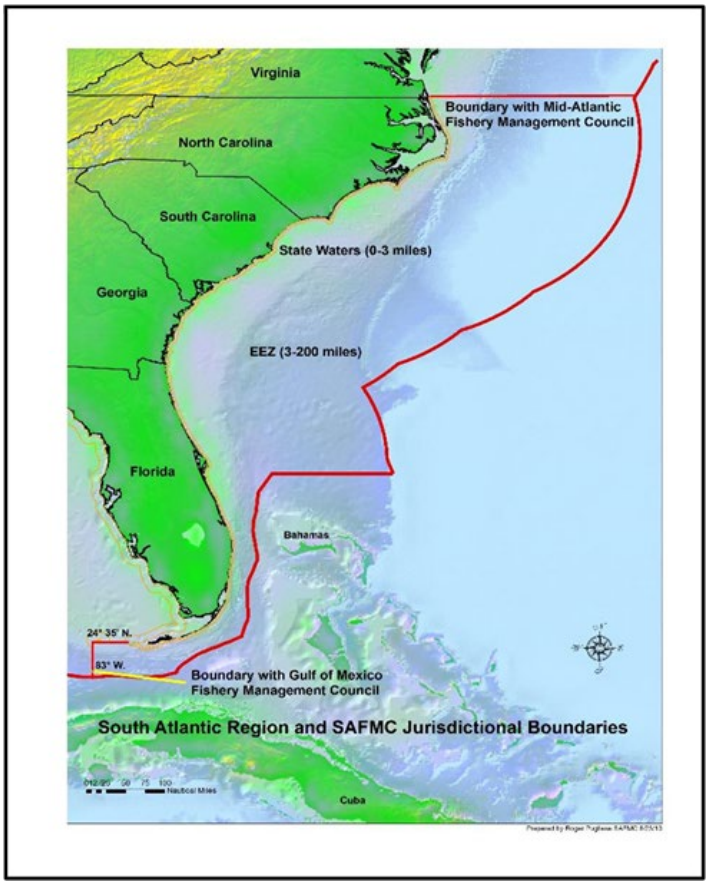

Figure 2.1.1.1. Jurisdictional boundaries of the Council.

1.4 Why is the Council considering action (Purpose and Need statements)?

Purpose: The *purpose* of this amendment is to revise the catch limits for greater amberjack in the South Atlantic based on the results of the latest stock assessment; revise sector allocations, minimum size limits, the commercial trip limit, and the April spawning closure for greater amberjack; and remove recreational annual catch targets for the Snapper Grouper Fishery Management Plan.

Need: The *need* for this amendment is to ensure catch limits are based on the best scientific information available and to ensure overfishing does not occur in the South Atlantic greater amberjack fishery, while increasing social and economic benefits through sustainable and

profitable harvest of South Atlantic greater amberjack, consistent with the Magnuson Stevens Fishery Conservation and Management Act and its National Standards. This amendment is also needed to make administrative efforts more efficient by removing recreational annual catch targets, which are not actively used in management, from the Snapper Grouper Fishery Management Plan.

Background

The Council is considering action to respond to the most recent stock assessment for South Atlantic greater amberjack (SEDAR 59 2020). The assessment followed a standard approach with data through 2018 and used revised estimates for recreational catch from the Marine Recreational Information Program (MRIP) based on the Fishing Effort Survey (FES), which is considered more reliable and robust compared to the Marine Recreational Fisheries Statistics Survey (MRFSS) previously used to derive recreational catch estimates for greater amberjack The assessment results indicated that South Atlantic greater amberjack are not overfished nor experiencing overfishing. Updated projections of catch and data changes incorporated in the assessment provided information to update the overfishing limit (OFL), ABC, annual OY, and ACLs. The Council is also considering changes to management measures in response to public feedback concerning sector equity and fishing efficiency for greater amberjack.

Table 2.1.1.1. South Atlantic greater amberjack stock status criteria recommendations based on the results of SEDAR 59 (2020).

Criteria	Deterministic	Probabilistic
Overfished evaluation (SSB/SSB_{MSY})	2.10	2.39
Overfishing evaluation	0.40	0.28
MFMT (F_{MSY})	0.69	1.07
SSB_{MSY} (mt mature female biomass)	3,291	2,642
MSST (mt mature female biomass)	2,468	2,066
MSY (1000 lbs.)	2,342	2,474

Additionally, the Council is considering action to remove recreational ACTs from the Snapper Grouper FMP. In 2012, the Comprehensive ACL Amendment established ACLs and recreational ACTs. The latter are intended as a precautionary buffer to account for uncertainty in the recreational catch estimates. While ACTs were developed and established as part of the management process (thus, they must be changed through plan amendments as the ACL changes), these values were not used in developing regulations and were not included in codified regulatory text. Given their lack of regulatory use, in March 2021, the Council's Snapper Grouper Committee directed staff to include an action in Amendment 49 to the Snapper Grouper FMP that would consider removal of recreational ACTs throughout the Snapper Grouper FMP.

1.5 How has recreational data collection changed in the southeast?

The Marine Recreational Fisheries Statistics Survey (MRFSS) was created in 1979 by the National Marine Fisheries Service (NMFS). The program included the Access Point Angler Intercept Survey (APAIS), which consists of onsite interviews at marinas and other points where recreational anglers fish, to determine catch. MRFSS also included 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.

The Marine Recreational Information Program (MRIP) replaced MRFSS in 2013 to meet increasing demand for more precise, accurate, and timely recreational catch estimates. However, some species, such as greater amberjack, retained used of the MRFSS methodology. A description of MRIP may be found https://www.fisheries.noaa.gov/recreational-fishing-data/about-marine-recreational-information-program. MRIP is 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 improved 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. The 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 2021a).

MRIP also transitioned from the legacy CHTS to a new mail survey (FES) beginning in 2015, and in 2018, the FES replaced the CHTS. A detailed explanation and description of the changes may be found at https://www.fisheries.noaa.gov/recreational-fishing-data/effort-survey-improvements. 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 the FES and CHTS are substantially different, the catch estimates produced from the data obtained through the two methods are not directly comparable, i.e., an estimated number of fish harvested by one method is not equivalent to the same estimated number of fish harvested by the other method. Consequently, 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, MRIP-CHTS, MRIP-APAIS [collectively MRFSS]) into MRIP-FES. In general, landings estimates are higher using the MRIP-FES as compared to the MRFSS estimates. This is because the FES is designed to more accurately measure fishing activity than the 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 the FES. The new effort estimates alone do not lead to definitive conclusions about stock size or status in the past or at current. NMFS determined that the MRIP-FES data, when fully calibrated to ensure comparability among years and across states, produced the best available data for use in stock assessments and management (NMFS 2021a).

1.6 Are these actions within the bounds of scientific recommendations?

The SSC reviewed SEDAR 59 (2020) during their April 2020 meeting and found that the assessment addressed the terms of reference appropriately, was conducted using the best scientific information available, is adequate for determining stock status and supporting fishing level recommendations, and the methods to address uncertainty were consistent with expectations and available information. The SSC recommended revising the OFL based on projections under a fishing mortality rate that would produce maximum sustainable yield ($F = F_{MSY}$) and applied the ABC control rule to recommend the ABC for greater amberjack. These recommendations were updated to account for additional projections from the Southeast Fisheries Science Center (SEFSC) that applied management from 2022 through 2026 (Table 1.5.1). Discards were projected as separate values from the landings shown in Table 1.5.1.

When developing options for ACLs, years for annual ABCs were considered to apply to the start of the non-calendar fishing year used for greater amberjack (March-February). For example, the 2022 ABC from Table 1.5.1 would be used to define the ACL for the March 2022-February 2023 fishing year.

Table 2.1.1.1. South Atlantic greater amberjack OFL and ABC recommendations, in pounds whole weight (lbs ww), based on projections from SEDAR 59 (2020). The assessment and these projections use recreational data calibrated to the MRIP FES.

Year	OFL (lbs ww)	ABC (lbs ww)
2022	4,615,000	4,380,000
2023	3,283,000	3,233,000
2024	2,839,000	2,818,000
2025	2,719,000	2,699,000
2026	2,691,000	2,669,000

1.7 How were the ACL alternatives determined?

The total ACL alternatives (Action 1) were determined based on ABCs recommended by the SSC, based on the results of SEDAR 59 (2020). Considered alternatives are based on 100% (**Preferred Alternative 2**), 90% (**Alternative 3**), and 80% (**Alternative 4**) of the recommended annual ABCs. The total ACL may not exceed the ABC recommended by the SSC for a given year.

The current allocation percentages used to determine commercial and recreational ACLs from the total ACL are based on an allocation formula that takes a weighted average of long-term (1986-2008) and short-term (2006-2008) proportions of landings from each sector. This time period was chosen because it did not include currently required sector ACLs that limit annual harvest. In 2018, MRIP fully transitioned its estimation of recreational effort to the mail-based FES. Previous estimates of recreational catch for greater amberjack were made using methodology of the Marine Recreational Fisheries Statistics Survey (MRFSS). Alternatives for allocation percentages (Action 2) are based on reapplication of the current allocation formula to

landings data that includes the updated recreational estimates (**Action 2-Alternative 2**) and an approximate middle allocation between percentages resulting from original and re-application of the allocation formula (**Action 2-Alternative 3**).

1.8 What is the history of management for the greater amberjack?

Snapper grouper regulations in the South Atlantic were first implemented in 1983. Below are amendments to the Snapper Grouper FMP addressing South Atlantic greater amberjack catch levels and management measures, as well as recreational ACTs within the South Atlantic EEZ. An application providing an overview of the South Atlantic greater amberjack stock, including a more complete management history, landings, and assessment information is available here: https://safmc-shinyapps.shinyapps.io/SA_FisheryDataGreaterAmberjack/.

Snapper Grouper FMP (1983)
The 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 (TL) minimum size limit for vermilion snapper; and included additional harvest and gear limitations.

Amendment 4 (1991)
The amendment prohibited the use of various gear, including fish traps, the use of bottom longlines for wreckfish, and powerheads in special management zones off South Carolina; defined overfishing/overfished and established rebuilding timeframe: greater amberjack ≤ 10 years (year 1 = 1991); established bag limits (3 recreational greater amberjack per person per day) and minimum size limits for several species (28-inch FL minimum size limit for recreational greater amberjack; 36-inch FL or 28-inch core length minimum size limit for commercial greater amberjack); required permits (commercial and for-hire) and specified data collection regulations; and required that all snapper grouper species possessed in the South Atlantic EEZ must have heads and fins intact through landing.

Amendment 9 (1998; resubmitted in 1999)
The amendment established a 1-fish recreational bag limit for greater amberjack, a commercial greater amberjack quota of 1,169,931 pounds, and started the fishing year for greater amberjack on May 1. The amendment also prohibited purchase, sale, or possession of more than one greater amberjack per person during April and prohibited coring. The resubmitted version of this amendment additionally established a 1,000-pound commercial trip limit for greater amberjack.

Amendment 11 (1998)
The amendment amended the Snapper Grouper FMP to make definitions of MSY, optimum yield (OY), overfishing, and overfished consistent with National Standard Guidelines. Amendment 11 also identified and defined fishing communities, addressed bycatch management measures, and defined the greater amberjack F_{msy} proxy as F30% static spawning potential ratio (SPR).

Regulatory Amendment 9 (2010)

The amendment increased the commercial trip limit for greater amberjack to 1,200 pounds.

Amendment 25/Comprehensive Annual Catch Limit Amendment (2011)
The amendment established ABC control rules and ABCs, ACLs, recreational ACTs, and accountability measures (AM) for species not undergoing overfishing (including greater amberjack). The values established by this amendment for greater amberjack were as follows: ABC = 1,968,000 lbs ww; commercial ACL = 800,163 lbs ww; recreational ACL = 1,167,837 lbs ww; and recreational ACT = 992,662 lbs ww.

Regulatory Amendment 14 (2014)
The amendment modified the commercial and recreational fishing year for greater amberjack to March-February.

Regulatory Amendment 21 (2014)
The amendment modified the definition of the overfished threshold (MSST) for several species, including greater amberjack.

Amendment 34/Generic AM Amendment (2015)
The amendment modified AMs for greater amberjack.

Regulatory Amendment 27 (2019)
The amendment established split seasons for the commercial sector for greater amberjack, allocated the commercial ACL 60/40 between the two seasons, and established trip limits for each commercial season (Season 1: 1,200 pounds; Season 2: 1,000 pounds).

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Revise the greater amberjack acceptable biological catch, total annual catch limit, and annual optimum yield

2.1.1 Alternatives

Alternative 1 (No Action). The total annual catch limit and annual optimum yield for greater amberjack are equal to the **current** acceptable biological catch (1,968,001 pounds whole weight). The current acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Marine Recreational Fishery Statistics Survey.

Preferred Alternative 2. Revise the acceptable biological catch, ~~and set it equal to the most recent recommendation from the Scientific and Statistical Committee. Revise the~~ total annual catch limit and annual optimum yield for greater amberjack and set them equal to the SSC **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey. The 2026/2027 total annual catch limit and annual optimum yield would remain in place until modified.

Fishing Year	ABC (lbs ww)	Annual OY (lbs ww)	Total ACL (lbs ww)
2022/2023	4,380,000	4,380,000	4,380,000
2023/2024	3,233,000	3,233,000	3,233,000
2024/2025	2,818,000	2,818,000	2,818,000
2025/2026	2,699,000	2,699,000	2,699,000
2026/2027+	2,669,000	2,669,000	2,669,000

Alternative 3. Revise the acceptable biological catch, ~~and set it equal to the most recent recommendation from the Scientific and Statistical Committee. Revise the~~ total annual catch limit and annual optimum yield for greater amberjack and set them equal to 90% of the SSC **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey. The 2026/2027 total annual catch limit and annual optimum yield would remain in place until modified.

Fishing Year	ABC (lbs ww)	Annual OY (lbs ww)	Total ACL (lbs ww)
2022/2023	4,380,000	4,380,000	3,942,000
2023/2024	3,233,000	3,233,000	2,909,700
2024/2025	2,818,000	2,818,000	2,536,200
2025/2026	2,699,000	2,699,000	2,429,100
2026/2027+	2,669,000	2,669,000	2,402,100

Alternative 4. Revise the acceptable biological catch, ~~and set it equal to the most recent recommendation from the Scientific and Statistical Committee. Revise the~~ total annual catch limit and annual optimum yield for greater amberjack and set them equal to 80% of the SSC **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey. The 2026/2027 total annual catch limit and annual optimum yield would remain in place until modified.

Fishing Year	ABC (lbs ww)	Annual OY (lbs ww)	Total ACL (lbs ww)
2022/2023	4,380,000	4,380,000	3,504,000
2023/2024	3,233,000	3,233,000	2,586,400
2024/2025	2,818,000	2,818,000	2,254,400
2025/2026	2,699,000	2,699,000	2,159,200
2026/2027+	2,669,000	2,669,000	2,135,200

Discussion

The SSC acceptable biological catch (ABC) recommendations are based on the results of the SEDAR 59 (2020) greater amberjack stock assessment (Chapter 1).

Per the guidance provided at 50 CFR § 600.310(f)(4)(iv), the South Atlantic Fishery Management Council (Council) has chosen to specify optimum yield (OY) for greater amberjack on an annual basis and set it equal to the annual catch limit (ACL).

Alternative 1 (No Action) would retain the current ABC, total ACL, and annual OY implemented through Amendment 25 (Comprehensive ACL Amendment) to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2011). **Preferred Alternative 2** is based on the Council's Scientific and Statistical Committee's (SSC) ABC recommendation and would implement ABC=ACL. **Alternatives 3** and **4** would add a 10% and 20% buffer, respectively, between the total ACL and the ABC. For **Preferred Alternative 2** through **Alternative 4**, the ACL in the final year of projections recommended by the SSC (2026-2027) would remain in place until modified by a future amendment.

For **Preferred Alternative 2** through **Alternative 4**, proposed ACLs are based on recreational data from the Marine Recreational Information Program (MRIP) calibrated to the Fishing Effort Survey (FES). Future recreational catches under these limits would be monitored by MRIP using the FES.

Average annual total landings of greater amberjack from 2015-2019 calculated using MRIP FES estimates for the recreational fishery were 2.73 million lbs ww.

2.1.2 Comparison of Alternatives

Alternative 1 (No Action) is not a viable alternative because it would retain the current total ACL for greater amberjack (equal to the current ABC), which is no longer based on the best scientific information available (BSIA). Therefore, **Alternative 1 (No Action)** is not included in further comparisons.

Alternatives 3 and **4** would have greater long-term positive biological effects than **Preferred Alternative 2** because they would create a buffer between the ACL/annual OY and ABC, with **Alternative 4** setting the most conservative buffer at 80% of the ABC. When totaling the annual ACL from 2022 through 2027, **Alternative 4** has the lowest cumulative ACL which is expected to have the greatest long-term biological benefits to the stock, followed by **Alternative 3**, and **Preferred Alternative 2**.

A larger buffer between the ACL and observed landings would allow for higher potential landings and reduce the likelihood of restrictive AMs being triggered that would lead to short-term negative economic effects. Thus, under this notion, from a short-term economic perspective under initial implementation, **Alternative 2** would have the highest potential net economic benefits, followed by **Alternative 3** and **Alternative 4**.

In general, a higher ACL would lower the chance of triggering a recreational AM and result in the lowest level of negative effects on the recreational sector. Additionally, higher ACLs may provide opportunity for commercial and recreational fishermen to expand their harvest providing social benefits associated with increased income to fishing businesses within the community and higher trip satisfaction. Among the action alternatives, **Preferred Alternative 2** would be the most beneficial for fishermen, followed by **Alternative 3** and **Alternative 4**.

Alternatives 2 (Preferred), **3**, and **4** would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs.

2.2 Action 2. Revise the greater amberjack sector allocations and sector annual catch limits

2.2.1 Alternatives

Note: The revised sector annual catch limits in Alternatives 1 (No Action) through 3 reflect the revised total annual catch limit in Preferred Alternative 2 of Action 1. The revised total annual catch limit includes recreational landings from the Marine Recreational Information Program using the Fishing Effort Survey method where appropriate, as well as updates to commercial and headboat landings used in SEDAR 59 (2022).

Preferred Alternative 1 (No Action). Retain the current recreational sector and commercial sector allocations as 59.34% and 40.66%, respectively, of the revised total annual catch limit for greater amberjack.

Alternative 2. Allocate 70.16% of the revised total annual catch limit for greater amberjack to the recreational sector and 29.84% of the revised total annual catch limit for greater amberjack to the commercial sector.

Alternative 3. Allocate 65.00% of the revised total annual catch limit for greater amberjack to the recreational sector and 35.00% of the revised total annual catch limit for greater amberjack to the commercial sector.

Table 2.2.1.1. Sector allocations for greater amberjack based on the revised total ACL from **Preferred Alternative 2** in Action 1 for the 2022/2023 fishing year.

Alternative	Recreational Allocation of the Total ACL	Recreational ACL (lbs ww)	Commercial Allocation of the Total ACL	Commercial ACL* (lbs gw)	Commercial Season 1 Quota (lbs gw)	Commercial Season 2 Quota** (lbs gw)
1 (No action)	59.34%	2,599,092	40.66%	1,712,412	1,027,447	684,965
2	70.16%	3,073,008	29.84%	1,256,723	754,034	502,689
3	60.00%	2,847,000	35.00%	1,474,038	884,423	589,615

*The total annual catch limit (ACL) is allocated in pounds whole weight (lbs ww) to the commercial and recreational sectors. The commercial allocation is then converted to pounds gutted weight (lbs gw) for regulatory use in the commercial ACL and seasonal quotas.

**Any remaining quota from commercial Season 1 (March-August) transfers to Season 2 (September-February). Remaining quota from Season 2 is not carried forward.

Discussion

The allocation percentages in **Preferred Alternative 1 (No Action)** were originally derived by applying the formula of sector annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5) to the landings dataset used in the Comprehensive Annual Catch Limit Amendment (Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region), which included recreational estimates from the Marine Recreational Fisheries Statistics Survey. Future recreational catches under **Preferred Alternative 1 (No Action)**, as well as the rest of the Action 2 alternatives, would be monitored via the MRIP FES.

Table 2.2.1.2. Current and proposed South Atlantic greater amberjack allocations for Alternatives 1 (No Action)-3.

Action 2 (Allocations)	Commercial Allocation	Recreational Allocation	Basis
Alternative 1 (No Action)	40.66%	59.34%	See Council rationale in **Section 5.2**
Alternative 2[1]	29.84%	70.16%	This allocation is based on applying the formula of sector annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5) to a revised dataset that is inclusive of MRIP FES
Alternative 3	35.0%	65.0%	This allocation is based on these percentages being approximate midpoints between Alternative 1 and Alternative 2. These percentages are also approximate (rounded to the nearest whole percentage) averages of annual percentages of total landings for each sector from 2010-2019.

[1]The percentages for Alternative 3 reflect Preferred Alternative 2 in Action 1 in Amendment 49 to the Snapper Grouper FMP. The revised total ACL incorporate recreational data as per MRIP using the FES method, as well as updates to commercial and for-hire landings.

Table 2.2.1.3. Sector annual catch limits (ACL) for greater amberjack based on the revised total ACL from **Preferred Alternative 2** in Action 1 and allocation percentages from **Preferred Alternative 1 (No Action)** in Action 2 (59.34% recreational and 40.66% commercial).

Year	Recreational ACL (lbs ww)	Commercial ACL* (lbs gw)	Commercial Season 1 Quota (lbs gw)	Commercial Season 2 Quota** (lbs gw)
2022/2023	2,599,092	1,712,412	1,027,447	684,965
2023/2024	1,918,462	1,263,979	758,387	505,591
2024/2025	1,672,201	1,101,730	661,038	440,692
2025/2026	1,601,587	1,055,205	633,123	422,082
2026/2027+	1,583,785	1,043,476	626,086	417,391

*The total annual catch limit (ACL) is allocated in pounds whole weight (lbs ww) to the commercial and recreational sectors. The commercial allocation is then converted to pounds gutted weight (lbs gw) for regulatory use in the commercial ACL and seasonal quotas.

**Any remaining quota from commercial Season 1 (March-August) transfers to Season 2 (September-February). Remaining quota from Season 2 is not carried forward.

The allocation percentages in **Alternative 2** are based on applying the formula of sector annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5) to a revised dataset that includes Marine Recreational Information Program Fishery Effort Survey estimates.

Table 2.2.1.4. Sector annual catch limits (ACL) for greater amberjack based on the revised total ACL from **Preferred Alternative 2** in Action 1 and allocation percentages from **Alternative 2** in Action 2 (70.16% recreational and 29.84% commercial).

Year	Recreational ACL (lbs ww)	Commercial ACL* (lbs gw)	Commercial Season 1 Quota (lbs gw)	Commercial Season 2 Quota** (lbs gw)
2022/2023	3,073,008	1,256,723	754,034	502,689
2023/2024	2,268,273	927,622	556,573	371,049
2024/2025	1,977,109	808,549	485,130	323,420
2025/2026	1,893,618	774,405	464,643	309,762
2026/2027+	1,872,570	765,798	459,479	306,319

*The total annual catch limit (ACL) is allocated in pounds whole weight (lbs ww) to the commercial and recreational sectors. The commercial allocation is then converted to pounds gutted weight (lbs gw) for regulatory use in the commercial ACL and seasonal quotas.
**Any remaining quota from commercial Season 1 (March-August) transfers to Season 2 (September-February). Remaining quota from Season 2 is not carried forward.

The allocation percentages in **Alternative 3** are approximate midpoints between **Preferred Alternative 1** and **Alternative 2** in Action 2. These percentages are also approximate (rounded to the nearest whole percentage) averages of annual percentages of total landings for each sector from 2010-2019.

Table 2.2.1.5. Sector annual catch limits (ACL) for greater amberjack based on the revised total ACL from **Preferred Alternative 2** in Action 1 and allocation percentages from **Alternative 3** in Action 2 (65.00% recreational and 35.00% commercial).

Year	Recreational ACL (lbs ww)	Commercial ACL* (lbs gw)	Commercial Season 1 Quota (lbs gw)	Commercial Season 2 Quota** (lbs gw)
2022/2023	2,847,000	1,474,038	884,423	589,615
2023/2024	2,101,450	1,088,029	652,817	435,212
2024/2025	1,831,700	948,365	569,019	379,346
2025/2026	1,754,350	908,317	544,990	363,327
2026/2027+	1,734,850	898,221	538,933	359,288

*The total annual catch limit (ACL) is allocated in pounds whole weight (lbs ww) to the commercial and recreational sectors. The commercial allocation is then converted to pounds gutted weight (lbs gw) for regulatory use in the commercial ACL and seasonal quotas.
**Any remaining quota from commercial Season 1 (March-August) transfers to Season 2 (September-February). Remaining quota from Season 2 is not carried forward.

2.2.2 Comparison of Alternatives

Biological effects are not expected to be substantially different among **Preferred Alternative 1 (No Action)** and **Alternatives 2** and **3**, since the allocation percentages would be similar and do not change the total ACL specified in Action 1. **Preferred Alternative 1 (No Action)** would allocate the highest percentage to the commercial sector (and lowest percentage to the recreational sector), followed by **Alternative 3** and **Alternative 2**. However, both the commercial and recreational sectors have effective in-season and post-season AMs in place to prevent their respective ACL from being exceeded and prevent the total ACL from being exceeded, thus preventing overfishing and adverse biological effects. Additionally, since a commercial in-season closure is not expected under almost all of the alternatives proposed under Action 2 and predicted in-season closures for each of the alternatives vary through the season for the recreational sector from 2022/2023 through 2026/2027, the biological effects to the stock would be neutral among each of the alternatives in Action 2**.**

A larger buffer between the sector ACL and observed landings would allow for higher potential landings and reduce the likelihood of restrictive AMs being triggered that would lead to short-term negative economic effects. Thus, under this notion, the alternatives in Action 2 can be ranked for the commercial sector from a short-term economic perspective with **Preferred Alternative 1 (No Action)** having the highest potential economic benefit, followed by **Alternative 3** and **Alternative 2**. For the recreational sector the ranking would be the opposite from a short-term economic perspective with **Alternative 2** having the highest potential economic benefit, followed by **Alternative 3** and **Preferred Alternative 1 (No Action)**.

Sector allocations exist for the recreational and commercial sectors already, **Preferred Alternative 1 (No Action)** would maintain the current allocation percentages and may have few social effects as both sectors would see an increase in available poundage. With **Alternative 2** and **Alternative 3**, there would be a decrease in the commercial percentage compared to **Preferred Alternative 1 (No Action)**, which could have some negative social effects if commercial fishermen have a negative perception of this change due to the decrease in fishing opportunity and concerns about long-term social effects, especially if future actions further decreased harvest opportunities. However, the increase in poundage may mitigate some of these concerns and result in positive social benefits associated with increased harvest in the short-term.

Projections using Action 1 **– Preferred Alternative 2** for the total ACL indicate that the commercial ACL for greater amberjack would likely not be exceeded under the any of the alternatives proposed in Action 2. However, the recreational ACL could be reached in future years (between 2023/24 and by 2026/2027) under **Preferred Alternative 1 (No Action)**, **Alternative 2**, and **Alternative 3**. Based on projected date of closure and earlier closures having greater negative social impacts, **Alternative 2** is expected to have the least negative social impact on the recreational fishery, followed by **Alternative 3** and **Preferred Alternative 1 (No Action)**.

None of the action alternatives under consideration for greater amberjack allocations would result in substantially different administrative burdens, outside of required public notification of any changes.

2.3 Action 3. Increase the recreational minimum size limit for greater amberjack

2.3.1 Alternatives

Alternative 1 (No Action). The recreational minimum size limit is 28 inches fork length.

Preferred Alternative 2. Increase the recreational minimum size limit to 30 inches fork length.

Alternative 3. Increase the recreational minimum size limit to 32 inches fork length.

Alternative 4. Increase the recreational minimum size limit to 36 inches fork length.

2.3.2 Comparison of Alternatives

Greater amberjack are expected to biologically impacted by an increased recreational minimum size limit through reduced recreational landings resulting from more fish being released as undersized. Therefore, the biological effects to the stock from **Alternatives 2 (Preferred), 3** and **Alternative 4** could be beneficial relative to **Alternative 1 (No Action)**. Since greater amberjack has a low estimated release mortality, a high percentage of released fish likely survive; therefore, any dead discards are expected to be minimal, potentially resulting in minimal long-term population effects from an increase in the recreational minimum size limit. However, a low discard mortality can still result in a lot of mortality if the discard rate is high.

In general, the higher the size limit, the more that overall harvest will decrease in the short-term, thereby decreasing net economic benefits incurred from such harvest. Under this notion, the highest economic benefits would occur under **Alternative 1 (No Action)**, followed by **Alternatives 2 (Preferred), 3** and **Alternative 4**.

There is a trade-off with increasing the minimum size limit in that while a decrease in the number of fish that can be kept may decrease recreational trip satisfaction, it also may decrease the harvest rate and reduce the probability of landings reaching the ACL early in the fishing year, triggering AMs.

None of the action alternatives under consideration for greater amberjack recreational minimum size limits would result in substantially different administrative burdens, outside of required public notification of any changes.

2.4 Action 4. Reduce the commercial minimum size limit for greater amberjack

2.4.1 Alternatives

Alternative 1 (No Action). The commercial minimum size limit is 36 inches fork length.

Alternative 2. Reduce the commercial minimum size limit to 32 inches fork length.

Preferred Alternative 3. Reduce the commercial minimum size limit to 30 inches fork length.

Alternative 4. Reduce the commercial minimum size limit to 28 inches fork length.

2.4.2 Comparison of Alternatives

Reducing the current 36-inch FL commercial minimum size limit for greater amberjack under **Alternatives 2, 3 (Preferred)**, and **4** could be expected to increase commercial landings but reduce commercial discards and the probability of landings reaching the ACL, resulting in a closure earlier in the season. Overall, when compared to **Alternative 1 (No Action)**, and **Alternatives 2, 3 (Preferred),** and **4** could be expected to result in negative biological effects to the greater amberjack stock as harvest rates could be expected to increase.

In general, the lower the size limit, the more that overall harvest will increase, thereby increasing economic benefits incurred from such harvest. Under this notion, the highest economic benefits would occur under **Alternative 4**, followed by **Alternative 3 (Preferred), Alternative 2**, and **Alternative 1 (No Action)**.

There is a trade-off with reducing the minimum size limit (**Alternatives 2, 3 (Preferred)** and **Alternative 4**) in that while an increase in the number of fish that can be kept may improve commercial trip profitability, it also may increase the harvest rate and trigger AMs if landings reach the ACL sooner in the fishing year.

None of the action alternatives under consideration for greater amberjack commercial minimum size limits would result in substantially different administrative burdens, outside of required public notification of any changes.

2.5 Action 5. Increase the seasonal commercial trip limits for greater amberjack

2.5.1 Alternatives

Alternative 1 (No Action). The March 1 through August 31 (Season 1) commercial trip limit is 1,200 pounds gutted or whole weight for greater amberjack, and the September 1 through the end of February (Season 2) commercial trip limit is 1,000 pounds gutted or whole weight.

Alternative 2. Modify the March 1 through August 31 (Season 1) commercial trip limit for greater amberjack to be:

Sub-Alternative 2a. 1,500 pounds gutted or whole weight.

Sub-Alternative 2b. 2,000 pounds gutted or whole weight.

Sub-Alternative 2c. 2,500 pounds gutted or whole weight.

Alternative 3. Modify the September 1 through the end of February (Season 2) commercial trip limit for greater amberjack to be:

Sub-Alternative 3a. 1,200 pounds gutted or whole weight.

Sub-Alternative 3b. 1,500 pounds gutted or whole weight.

Sub-Alternative 3c. 2,000 pounds gutted or whole weight.

Sub-Alternative 3d. 2,500 pounds gutted or whole weight.

Discussion

The commercial fishing year for greater amberjack is split into two seasons: Season 1 is March through August with a sale and purchase prohibition during the month of April, and Season 2 is September through the end of February. The commercial trip limits currently in place for greater amberjack in the South Atlantic is 1,200 lbs ww for Season 1, and 1,000 lbs ww for Season 2. The greater amberjack trip limit may currently be harvested and possessed in either lbs ww or gw. The conversion factor between the two measurements is 1.04. Hence, the discrepancy in specifying the proposed trip limit in whole weight is statistically insignificant and does not change the outcome of analyses presented in this amendment. The current commercial ACL for greater amberjack is allocated into two quotas: 60% for Season 1 and 40% Season 2. Any remaining quota from Season 1 transfers to Season 2. Any remaining quota from Season 2 does not carry forward.

2.5.2 Comparison of Alternatives

The biological effects of **Alternatives 2** and **3** and their sub-alternatives would not differ from **Alternative 1 (No Action)** in terms of the risk of overfishing as overall harvest would be limited to the commercial ACL or split-season quotas, and AMs would be triggered if the ACL were reached. As harvest rates could be expected to increase under an increased trip limit under **Alternatives 2** and **3** and their sub-alternatives**,** the commercial fishing season may be shortened under current AMs if the quota is met in-season. However, because commercial harvest is still constrained by the ACL, and AMs are in place to prevent the ACL from being exceeded, any increase in harvest should not result in adverse biological consequences to the stock. Therefore, the biological effects to the stock from **Alternatives 2** and **3** and their sub-alternatives could be neutral relative to **Alternative 1 (No Action)**.

Generally, commercial trip limits are not considered to be economically efficient because they require an increase in the number of trips and associated trip costs to land the same amount of fish. However, the negative economic effects of this inefficiency can be offset by price support resulting from the supply limitations and the lengthening of seasons. Higher trip limits could also likely result in the commercial AMs being triggered sooner, thus creating an earlier commercial harvest closure for the species. Conversely, lower trip limits, such as **Alternative 1 (No Action)**, would allow for some level of commercial greater amberjack harvest over a longer period but contribute less to net operating revenue on trips where greater amberjack are landed. In terms of potential net economic benefits **Sub-alternative 3d**, followed by **Sub-alternative 2c**, **Sub-alternative 3c**, **Sub-alternative 2b Sub-alternative 3b**, **Sub-alternative 2a**, **Sub-alternative 3a**, and **Alternative 1 (No Action)**.

In general, the potential social effects of a higher trip limit would depend on how fishermen are affected by either a higher trip limit and shorter season, or a lower trip limit and longer seasons. Given most of the projected commercial ACLs are not expected to be met, positive social effects of increased commercial harvest rates under **Alternatives 2** and **3** and their sub-alternatives could outweigh potential negative social effects of the commercial ACL being reached and closures occurring earlier in the season.

Increased administrative effects would be expected to be minimal and not would not be unusually burdensome under **Alternatives 2** and **3** and their sub-alternatives compared to **Alternative 1 (No Action)**.

2.6 Action 6. Revise the April spawning closure for greater amberjack

2.6.1 Alternatives

Alternative 1 (No Action). During April each year, no person may sell or purchase a greater amberjack harvested from the South Atlantic exclusive economic zone and the harvest and possession limit is one per person per day or one per person per trip, whichever is more restrictive.

Alternative 2. Specify during April each year, no person may sell or purchase, harvest or possess a greater amberjack from the South Atlantic exclusive economic zone and the harvest and possession limit is zero.

Alternative 3. Remove the April spawning closure for greater amberjack. Allow purchase, harvest, and possession of greater amberjack from the South Atlantic exclusive economic zone according to regulations specified for the rest of the year.

Discussion

The peak spawning month for greater amberjack is during April and spawning aggregations are very vulnerable to fishing effort during this time of the year. Due to these concerns of high catch rates of spawning aggregations, Amendment 4 to the Snapper Grouper FMP (SAMFC 1991) implemented a spawning season closure for commercial harvest of greater amberjack in which there was a 3 fish bag limit during April. That possession limit and sale/purchase restrictions were further modified in Amendment 9 to the Snapper Grouper FMP (SAFMC 1998) to the current April harvest and possession limit of one fish per person per day or one per person per trip, and subject to the prohibition on sale or purchase.

2.6.2 Comparison of Alternatives

Alternative 1 (No Action) offers some protection to spawning fish by currently allowing for a bag limit of only one fish per person per day or per trip which may have positive biological effects on the stock. **Alternative 2** would also result in additional, and positive, indirect biological effects if greater harvest restrictions are applied during the peak spawning month of April. **Alternative 3** would have direct negative effects on the stock by removing the spawning closure during a peak spawning month for this species. Therefore, while both **Alternative 1 (No Action)** and **Alternative 2** would offer some protection to the stock, overall, **Alternative 2** would indirectly provide the greatest biological benefits compared to **Alternative 1 (No Action)** in that it encompasses stricter management measures for both sectors during spawning season. Whereas removing the spawning closure, as proposed under **Alternative 3**, could have negative biological effects relative to **Alternative 1 (No Action)** and **Alternative 2** since harvest would be allowed during the peak spawning month.

Removing the April spawning season closure to allow for commercial quantities of greater amberjack to be harvest and sold under **Alternative 3** would be expected to increase commercial landings and net operating revenue, as measured in PS. From a short-term economic benefits perspective, **Alternative 3** would provide the highest economic benefits followed by **Alternative 1 (No Action)** and **Alternative 2**.

Assuming that closing harvest during spawning ensures sustainable harvest of greater amberjack, as envisioned, long-term benefits to fishing communities in the form of consistent access to the resource would be highest under **Alternative 2**, followed by **Alternative 1 (No Action)**, and **Alternative 3**. Alternatively, short-term negative effects on fishing communities due to restrictions in fishing opportunities would be lowest under **Alternative 3** followed by **Alternative 1 (No Action)**, **and Alternative 2**.

Beneficial administrative effects would be expected from **Alternative 3**, when compared with **Alternative 1** (**No Action**) and **Alternative 2**. Alternatives that specify consistent regulations in federal waters throughout the Council's jurisdiction would contribute to a more favorable administrative environment by helping the public avoid confusion with regulations and aid law enforcement.

2.7 Action 7. Remove recreational annual catch targets from the Snapper Grouper Fishery Management Plan

2.7.1 Alternatives

Alternative 1 (No Action). Retain recreational annual catch targets for species managed under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

Preferred Alternative 2. Remove recreational annual catch targets for species managed under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

2.7.2 Comparison of Alternatives

The ACTs covered by this action only apply to the recreational sector and are not currently tied to any AMs or other management functions; therefore, there are no expected biological, economic, or social effects associated with their removal (**Alternative 2**).

Under **Alternative 1**, recreational ACTs must be specified whenever recreational ACLs change. However, because the recreational ACT alternatives as they are presented here do not trigger any corrective or preventative action, no additional in-season monitoring is required regardless of where the recreational ACT level is set. Therefore, administrative burden is expected to be reduced by a small amount under **Preferred Alternative 2**, compared to **Alternative 1 (No Action)**.

Chapter 3. Affected Environment

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

- **Habitat Environment** (Section 3.1)
- **Biological and Ecological Environment** (Section 3.2)
- **Economic Environment** (Sections 3.3)
- **Social Environment** (Section 3.4)
- **Environmental Justice** (Section 3.5)
- **Administrative Environment** (Section 3.6)

3.1 Habitat Environment

Information on the habitat utilized by species in the snapper grouper fishery management unit (Snapper Grouper FMU) and managed through the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region is included in Volume II of the Fishery Ecosystem Plan[1] (FEP; SAFMC 2009) and the FEP II Dashboard 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 and spatial representations of EFH and other habitat related layers are in the Council's online map services provided by the SAFMC Digital Dashboard Habitat and Ecosystem Web Services.[2]

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,

[1] The FEP can be found at: http://safmc.net/ecosystem-management/fishery-ecosystem-plan/.
[2] https://ocean.floridamarine.org/safmc_dashboard/map-services.html.

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.

For specific life stages of estuarine dependent and nearshore snapper grouper species, EFH includes areas inshore of the 100-foot contour, such as attached macroalgae; submerged rooted vascular plants (seagrasses); estuarine emergent vegetated wetlands (saltmarshes, brackish marsh); tidal creeks; estuarine scrub/shrub (mangrove fringe); oyster reefs and shell banks; unconsolidated bottom (soft sediments); artificial reefs; and coral reefs and live/hard bottom.

3.1.2 Habitat Areas of Particular Concern

EFH-HAPC for species in the Snapper Grouper FMU in the Atlantic include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; near shore 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 HAPC; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; Council-designated artificial reef special management zones; and deep-water marine protected areas. Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, post-larval, juvenile, and adult stages).

The 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-BA1; SAFMC 2010), the Council has 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. 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 has 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.

The potential impacts the actions in this amendment may have on EFH and EFH-HAPCs are discussed in Chapter 4 of this document.

3.2 Biological and Ecological Environment

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 55 species of fish, many of them neither "snappers" nor "groupers." These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (e.g., black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (e.g., black grouper, mutton snapper). These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document.

3.2.1 Greater amberjack, *Seriola dumerili*

3.2.1.1 Life History

Greater amberjack, *Seriola dumerili*, is a pelagic species in the Jacks family (Carangidae) (Manooch and Potts 1997a). This species occurs in the Indo-West Pacific, and in the Western and Eastern Atlantic Oceans. In the Western Atlantic, it occurs as far north as Nova Scotia, Canada, southward to Brazil, including the Gulf of Mexico (Carpenter 2002, Manooch and Potts 1997a, Manooch and Potts 1997b).

Spawning in the South Atlantic region occurs from January through June, with a peak in April and May. Harris et al. (2007) caught fish in spawning condition from North Carolina through the Florida Keys; however, spawning appears to occur primarily off south Florida and the Florida Keys (Harris et al. 2007). Greater amberjack in spawning condition were found in different depths, although the bulk of samples were from the shelf break. Tagging data indicated that greater amberjack are capable of extensive movement that might be related to spawning activity. Greater amberjack tagged off South Carolina have been recaptured off Georgia, east Florida, Florida Keys, west Florida, Cancun Mexico, Cuba, and the Bahamas (MARMAP, unpublished data). This species is the largest jack with a maximum reported size of 190 cm (75 in) and 80.6 kg (177.7 pounds) (Paxton et al. 1989). Female greater amberjack are generally larger at age than males (Harris et al. 2007). Maximum reported age is 17 years (Manooch and

Potts 1997a). According to Harris et al. (2007), the size at which 50% of males are mature is 644 mm FL (25 in), whereas all males are mature at 751-800 mm FL (29.5-31 in) and age six. The size at 50% maturity among female greater amberjack is 733 mm FL (29 in). Age at 50% maturity for females was 1.3 years and all females were mature by 851-900 mm FL (33.5-35 in) and age six.

Primary food items include fishes, such as bigeye scad, and invertebrates (Paxton et al. 1989).

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.

The South Atlantic greater amberjack stock has been assessed in 1999 (Legault and Turner), 2008 (SEDAR 15), and most recently in 2020 (SEDAR 59). Due to limited data, the 1999 assessment (Legault and Turner) evaluated stock status relative to several scenarios of varying maturity schedules, natural mortalities, and biological reference points (or proxies). Most of these scenarios indicated the stock was likely not overfished nor experiencing overfishing. However, this assessment was conducted prior to the approval of reference points for management use, so no formal determination of stock status for greater amberjack could be concluded. A subsequent assessment was conducted through the SEDAR process in 2008 (SEDAR 15 2008). The SEDAR 15 (2008) assessment concluded the stock was not overfished nor experiencing overfishing. The current total ACL and annual OY for greater amberjack are equal to the ABC, which was estimated using the ABC Control Rule, and were implemented in 2012 through the Comprehensive ACL Amendment (Amendment 25 to the Snapper Grouper FMP) (SAFMC 2011). The current combined commercial and recreational annual catch limit is 1,968,001 pounds whole weight, based on the SSC's ABC recommendation, which included

recreational landings for greater amberjack tracked using Marine Recreational Fishery Statistics Survey (MRFSS) estimation methods.

See Section 1.4 for the most recent stock assessment for South Atlantic greater amberjack completed in 2020 (SEDAR 59 2020).

3.2.1.3 Landings

Commercial and recreational landings information is presented in **Chapter 4.**

3.2.2 Protected Species

NMFS manages marine protected species in the Southeast region under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). 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 (LOF)[3] classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals.

Five of the marine mammal species (sperm, sei, fin, blue, and NARW) protected by the MMPA, are also listed as endangered under the ESA. In addition to those five marine mammals, six species or DPSs of sea turtles [green (the North Atlantic DPS and the South Atlantic DPS), hawksbill, Kemp's ridley, leatherback, and the Northwest Atlantic DPS of loggerhead]; nine species or DPSs of fish (the smalltooth sawfish; five DPSs of Atlantic sturgeon; Nassau grouper; oceanic whitetip shark, and giant manta ray); and seven species of coral (elkhorn coral, staghorn coral, rough cactus coral, pillar coral, lobed star coral, mountainous star coral, and boulder coral) are also protected under the ESA and occur within the action area of the snapper grouper fishery. Portions of designated critical habitat for NARW, the Northwest Atlantic DPS of loggerhead sea turtles, and *Acropora* corals occur within the Council's jurisdiction.

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.

[3] https://www.fisheries.noaa.gov/national/marine-mammal-protection/marine-mammal-protection-act-list-fisheries/

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 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 Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2019a).

3.3 Economic Environment

3.3.1 Commercial Sector

Economic information pertaining to the commercial snapper grouper fishery is provided in Amendment 29 (SAFMC 2020), Buck (2018), and Overstreet et al. (2018) and is incorporated herein by reference. Select updates to this information specific to greater amberjack are provided below. The major sources of data summarized in this section are the NMFS Southeast Regional Office (SERO) Permits Information Management System (PIMS) and the SEFSC's Socioeconomic Panel[4] data set. Inflation adjusted values are reported in 2020 dollars.

Permits

Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. As of October 15, 2021, there were 518 valid or renewable[5] South Atlantic Snapper Grouper unlimited permits and 97 valid or renewable 225-lb trip-limited permits. Commercial harvest of snapper grouper species in the EEZ may only be sold to dealers with a federal dealer permit. As of October 15, 2021, there were 323 entities with a federal Gulf and South Atlantic Dealers (GSAD) permit.

Landings, Value, and Effort

The number of federally permitted commercial vessels that landed South Atlantic greater amberjack experienced a downward trend from 2015 through 2019, decreasing by approximately 22% overall (Table 3.3.1). Landings of greater amberjack also decreased by almost half during this time period. On average (2015 through 2019), vessels that landed greater amberjack did so on approximately 20% of their South Atlantic trips and greater amberjack accounted for approximately 7% of their annual all species revenue, including revenue from Gulf of Mexico trips (Table 3.3.1 and Table 3.3.2). Average all species vessel-level revenue for these vessels fluctuated from 2015 through 2019 (Table 3.3.2). During this time period, the average annual

[4] This data set is compiled by the SEFSC Social Science Research Group from Federal Logbook System data, supplemented by average prices calculated from the Accumulated Landings System. Because these landings are self-reported, they may diverge slightly from dealer-reported landings presented elsewhere.
[5] 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.

price per pound of greater amberjack ranged from $1.73 to $1.92 (2020 dollars), with an annual average of $1.80.

Table 3.3.1.1. Number of vessels, number of trips, and landings in pounds (lbs) gutted weight (gw) by year for South Atlantic greater amberjack.

Year	# of vessels that caught greater amberjack (> 0 lbs gw)	# of trips that caught greater amberjack	greater amberjack landings (lbs gw)	Other species' landings jointly caught w/ greater amberjack (lbs gw)	# of South Atlantic trips that only caught other species	Other species' landings on South Atlantic trips w/o greater amberjack (lbs gw)	All species landings on Gulf trips (lbs gw)
2015	273	2,343	807,617	1,239,111	7,175	3,639,829	379,448
2016	262	1,974	758,309	941,066	7,745	3,775,400	341,113
2017	229	1,764	766,832	842,833	7,609	3,596,325	217,402
2018	234	1,688	590,660	944,627	7,235	2,902,192	262,845
2019	213	1,533	416,031	960,652	6,397	3,277,920	228,537
Average	242	1,860	667,890	985,658	7,232	3,438,333	285,869

Source: SEFSC-SSRG Socioeconomic Panel (January 2021 version).
Note 1: South Atlantic trips refer to trips taken in Council jurisdictional waters and Gulf trips refer to trips taken in Gulf of Mexico Fishery Management Council jurisdictional waters.
Note 2: Calendar estimates are provided here for all statistics; however, because the greater amberjack fishing year does not align with the calendar year (it runs from March through February), these will differ from greater amberjack fishing year landings estimates. Additionally, landings from state waters by vessels without federal permits are not included.

Table 3.3.1.2. Number of vessels and ex-vessel revenue by year (2020 dollars) for South Atlantic greater amberjack.

Year	# of vessels that caught greater amberjack (> 0 lbs gw)	Dockside revenue from greater amberjack	Dockside revenue from 'other species' jointly caught w/ greater amberjack	Dockside revenue from 'other species' caught on South Atlantic trips w/o greater amberjack	Dockside revenue from 'all species' caught on Gulf trips	Total dockside revenue	Average total dockside revenue per vessel
2015	273	$1,395,935	$4,804,182	$11,374,797	$923,565	$18,498,479	$67,760
2016	262	$1,374,139	$3,680,417	$11,486,206	$912,313	$17,453,076	$66,615
2017	229	$1,323,258	$3,273,507	$11,979,494	$499,067	$17,075,327	$74,565
2018	234	$1,072,863	$3,790,639	$9,354,327	$779,695	$14,997,523	$64,092
2019	213	$799,212	$3,724,235	$9,593,804	$625,171	$14,742,422	$69,213
Average	242	$1,193,081	$3,854,596	$10,757,726	$747,962	$16,553,365	$68,449

Source: SEFSC-SSRG Socioeconomic Panel (January 2021 version).
Note 1: South Atlantic trips refer to trips taken in Council jurisdictional waters and Gulf trips refer to trips taken in Gulf of Mexico Fishery Management Council jurisdictional waters.
Note 2: Calendar estimates are provided here for all statistics; however, because the greater amberjack fishing year does not align with the calendar year (it runs from March through February), these will differ from greater amberjack fishing year landings estimates. Additionally, landings from state waters by vessels without federal permits are not included.

Estimates of net revenue specific to the vessels affected by this amendment are not readily available; however, it is assumed there is an overlap between these vessels and vessels that participate in the commercial South Atlantic snapper grouper fishery in general. According to Overstreet and Liese (2018), annual net revenue from operations for commercial vessels in the snapper grouper fishery was approximately 23.9% of their average annual gross revenue from 2014 through 2016. Applying this percentage to the results provided in Table 3.3.2 would result in an estimated per vessel average annual net revenue from operations of $16,359 (2020 dollars).

Imports

Imports of seafood products compete in the domestic seafood market and have in fact dominated many segments of the seafood market. Imports affect the price for domestic seafood products and tend to set the price in the market segments in which they dominate. Seafood imports have downstream effects on the local fish market. At the harvest level for snapper and grouper species (inclusive of other species that are part of the Snapper Grouper FMP such as greater amberjack), imports affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to the domestic production of snapper and grouper species, 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 the domestic harvest of snapper and grouper species. Imports data for greater amberjack, in particular, are not available.

Imports[6] of fresh snapper increased from 26.1 million lbs product weight (pw) in 2015 to 32.8 million lbs pw in 2019. During this time, total revenue from fresh snapper imports ranged from approximately $85.7 million (2020 dollars[7]) to $110.8 million. Imports of fresh snappers primarily originated in Mexico or Central America and entered the U.S. through the port of Miami, Florida. Imports of fresh snapper were highest on average (2015 through 2019) during the months of March through July. Imports of frozen snapper increased from 12.3 million lbs pw in 2015 to 14.4 million lbs pw in 2016, then decreased steadily to 11.4 million lbs pw in 2019. The annual value of these imports ranged from approximately $35.2 million (2020 dollars) to $40.8 million, with a peak in 2016. Imports of frozen snapper primarily originated in South America (especially Brazil), Indonesia, Mexico, and Central America. The majority of frozen snapper imports entered the U.S. through the ports of Miami, Florida, New York, New York, and San Juan, Puerto Rico. Imports of frozen snappers tended to be lowest during March through May when fresh snapper imports were high.

Imports of fresh grouper ranged from 10.7 million lbs pw to 12.5 million lbs pw from 2015 through 2019. During this time, total revenue from fresh grouper imports ranged from approximately $48.2 million (2020 dollars) to $55.2 million. Imports of fresh grouper primarily originated in Mexico, Central America, or South America and entered the U.S. through the ports of Miami, Florida and Tampa, Florida. On average (2015 through 2019), monthly imports of fresh grouper were mostly stable with a peak in July. Imports of frozen grouper ranged from 0.8 million lbs pw to 4.6 million lbs pw during 2015 through 2019. The annual value of these imports ranged from approximately $1.6 million (2020 dollars) to $5.9 million, with a peak in 2018. Imports of frozen grouper primarily originated in Mexico and India. The majority of frozen grouper imports entered the U.S. through the ports of Miami, Florida, Tampa, Florida, and New York, New York. On average (2015 through 2019), monthly imports of frozen groupers were greatest during the months of January through March and July.

Business Activity

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 seafood 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, such as other finfish or seafood products, and

[6] NOAA Fisheries Service purchases fisheries trade data from the Foreign Trade Division of the U.S. Census Bureau. Data are available for download at https://www.fisheries.noaa.gov/national/sustainable-fisheries/foreign-fishery-trade-data

[7] Converted to 2020 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

services, such as visits to different food service establishments. As a result, the analysis presented below represents a distributional analysis only; that is, it only shows how economic effects 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.

Estimates of the U.S. average annual business activity associated with the commercial harvest of greater amberjack in the South Atlantic were derived using the model developed for and applied in NMFS (2021) and are provided in Table 3.3.3.[8] This business activity is characterized as jobs (full- and part-time), income impacts (wages, salaries, and self-employed income), output impacts (gross business sales), and value-added impacts, which represent the contribution made to the U.S. Gross Domestic Product (GDP). These impacts should not be added together because this would result in double counting. These results are based on average relationships developed through the analysis of many fishing operations that harvest many different species. Separate models to address individual species are not available. For example, the results provided here apply to a general "all other finfish" category, rather than just greater amberjack, and a harvester job is "generated" for approximately every $35,700 (2020 dollars) in ex-vessel revenue. These results contrast with the number of harvesters (vessels) with recorded landings of greater amberjack presented in Table 3.3.1.

Table 3.3.1.3. Average annual business activity (2015 through 2019) associated with the commercial harvest of greater amberjack in the South Atlantic. All monetary estimates are in 2020 dollars.*

Species	Average Ex-vessel Value ($ thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts ($ thousands)	Income Impacts ($ thousands)	Value Added ($ thousands)
Greater Amberjack	$1,193	147	33	$11,867	$4,300	$6,107

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2021).
*Converted to 2020 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

3.3.2 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 vessels and headboats. Charter vessels generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person. The type of service, from a vessel- or passenger-size perspective, affects the flexibility to search different fishing locations during the course of a trip and target different species because larger concentrations of fish are required to satisfy larger groups of anglers.

[8] A detailed description of the input/output model is provided in NMFS (2011).

Permits

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. As of October 15, 2021, there were 1,533 valid for-hire snapper grouper permits. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

Although the for-hire permit application collects information on the primary method of operation, the permit itself does not identify the permitted vessel as either a headboat or a charter vessel and vessels may operate in both capacities. However, only federally permitted headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS).[9] Participation in the SRHS is based on a determination by the SEFSC that the vessel primarily operates as a headboat. As of March 9, 2021, 64 Gulf headboats were registered in the SRHS (K. Fitzpatrick, NMFS SEFSC, pers. comm. 2021). The majority of these headboats were located in Florida/Georgia (39), followed by North Carolina (14) and South Carolina (11).

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

Angler Effort

Recreational effort derived from the Marine Recreational Information Program (MRIP) database can be characterized in terms of the number of trips as follows:

- Target effort - The number of individual angler trips, regardless of duration, where the intercepted angler indicated that 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.

[9] All federal charter/headboat permit holders, including charter vessel owners or operators, are required to comply with the new Southeast For-Hire Electronic Reporting Program as of January 2021. Under this program, all such permit holders must submit logbooks weekly, by 11:59 pm, local time, the Tuesday following a reporting week (Monday-Sunday). Those vessels selected to report to the SRHS (i.e., federally permitted headboats) will continue to submit their reports under the new requirements directly to the SRHS program. For more information, see: https://www.fisheries.noaa.gov/southeast/recreational-fishing-data/southeast-hire-electronic-reporting-program?utm_medium=email&utm_source=govdelivery

- Total recreational trips - The total estimated number of recreational trips in the South Atlantic, regardless of target intent or catch success.

Estimates of greater amberjack target and catch effort are provided in Table 3.3.4 and Table 3.3.5, respectively. It is important to note that in 2018, MRIP transitioned greater amberjack recreational catch estimation from the old MRFSS to the new, mail-based FES. The estimates presented in Table 3.3.4 and Table 3.3.5 are calibrated to the MRIP FES and may be greater than estimates that are non-calibrated.[10] The majority of greater amberjack target and catch trips in the South Atlantic, as estimated by MRIP, were recorded in Florida and the private/rental mode was the predominant mode of fishing on these trips (Table 3.3.4 and Table 3.3.5). The overall number of target trips for greater amberjack steadily increased in the South Atlantic from 2015 through 2017 but then decreased through 2019 (Table 3.3.4). South Atlantic greater amberjack catch trips fluctuated during this time period with a peak in 2016 (Table 3.3.5).

[10] As of August 2018, all directed trip estimate information provided by MRIP (public use survey data and directed trip query results) for the entire time series were updated to account for both the Access Point Angler Intercept Survey (APAIS) design change in 2013, as well as the transition from the CHTS to the FES in 2018. Back-calibrated estimates of directed effort are not available. For more information, see: https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-estimate-updates

Table 3.3.2.1. South Atlantic greater amberjack recreational target trips, by mode and state, 2015-2019.*

	FL	GA	NC	SC	Total
	Shore Mode				
2015	0	0	0	0	0
2016	0	0	0	0	0
2017	0	0	0	0	0
2018	0	0	0	0	0
2019	0	0	0	0	0
Average	0	0	0	0	0
	Charter Mode				
2015	4,813	0	21	0	4,834
2016	2,127	0	464	0	2,591
2017	0	0	331	1,465	1,795
2018	2,969	0	51	0	3,020
2019	3,380	0	424	422	4,226
Average	2,658	0	258	377	3,293
	Private/Rental Mode				
2015	3,342	0	2,694	0	6,036
2016	18,722	1,155	4,932	0	24,808
2017	28,232	0	3,058	4,166	35,457
2018	15,762	0	768	1,387	17,918
2019	12,479	0	0	0	12,479
Average	15,707	231	2,290	1,111	19,340
	All Modes				
2015	8,155	0	2,715	0	10,870
2016	20,848	1,155	5,396	0	27,399
2017	28,232	0	3,389	5,631	37,252
2018	18,731	0	819	1,387	20,938
2019	15,859	0	424	422	16,705
Average	18,365	231	2,549	1,488	22,633

Source: MRIP database, SERO, NMFS (October, 2021).
* Headboat data are unavailable.
Note 1: These estimates are based on the MRIP FES. Directed effort estimates that are calibrated to the MRIP mail-based FES may be greater than non-calibrated estimates presented elsewhere.
Note 2: Calendar estimates are provided here for all statistics; however, because the greater amberjack fishing year does not align with the calendar year (it runs from March through February), these will differ from greater amberjack fishing year effort estimates.
Note 3: Includes post-stratified effort estimates from Monroe County, FL to align with SEDAR estimates.

Table 3.3.2.2. South Atlantic greater amberjack recreational catch trips, by mode and state, 2015-2019.

	FL	GA	NC	SC	Total
	Shore Mode				
2015	0	0	0	0	0
2016	6,269	0	0	0	6,269
2017	43,606	0	0	0	43,606
2018	0	0	0	0	0
2019	0	0	0	0	0
Average	9,975	0	0	0	9,975
	Charter Mode				
2015	35,790	1,435	10,802	3,130	51,158
2016	33,096	930	7,842	650	42,517
2017	22,819	104	4,895	12,143	39,962
2018	18,193	698	4,774	677	24,342
2019	40,270	204	3,461	530	44,465
Average	30,034	674	6,355	3,426	40,489
	Private/Rental Mode				
2015	109,208	0	20,997	4,574	134,779
2016	213,728	2,199	27,745	12,637	256,309
2017	76,639	9,476	9,800	46,070	141,986
2018	51,609	2,290	13,329	796	68,024
2019	117,441	7,553	7,184	4,555	136,735
Average	113,725	4,304	15,811	13,726	147,567
	All Modes				
2015	144,998	1,435	31,798	7,704	185,936
2016	253,092	3,129	35,587	13,287	305,095
2017	143,064	9,580	14,695	58,213	225,553
2018	69,802	2,987	18,103	1,473	92,365
2019	157,712	7,757	10,645	5,086	181,200
Average	153,734	4,978	22,166	17,153	198,030

Source: MRIP database, SERO, NMFS (October, 2021).
* Headboat data are unavailable.
Note 1: These estimates are based on the MRIP FES. Directed effort estimates that are calibrated to the new MRIP mail-based FES may be greater than non-calibrated estimates presented elsewhere.
Note 2: Calendar estimates are provided here for all statistics; however, because the greater amberjack fishing year does not align with the calendar year (it runs from March through February), these will differ from greater amberjack fishing year effort estimates.
Note 3: Includes post-stratified effort estimates from Monroe County, FL to align with SEDAR estimates.

Similar analysis of recreational angler trips is not possible for the headboat mode 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 total number of standardized full-day angler trips.[11] From 2015 through 2019, headboat effort in the South Atlantic, in terms of angler days, decreased substantially in Florida through Georgia (39% decline) and in North Carolina (32% decline). In South Carolina, there were modest fluctuations in headboat effort during this time period (Table 3.3.6). Headboat effort was the highest, on average, during the summer months of June through August (Table 3.3.7).

Table 3.3.2.3. South Atlantic headboat angler days and percent distribution by state (2015 through 2019).

	Angler Days			Percent Distribution		
	FL/GA*	**NC**	**SC**	**FL/GA**	**NC**	**SC**
2015	194,979	22,716	39,702	75.8%	8.8%	15.4%
2016	196,660	21,565	42,207	75.5%	8.3%	16.2%
2017	126,126	20,170	36,914	68.8%	11.0%	20.1%
2018	120,560	16,813	37,611	68.9%	9.6%	21.5%
2019	119,712	15,546	41,470	67.7%	8.8%	23.5%
Average	151,607	19,362	39,581	71.3%	9.3%	19.3%

*East Florida and Georgia are combined for confidentiality purposes.
Source: NMFS SRHS (March, 2021).

[11] Headboat trip categories include half-, three-quarter-, full-, and 2-day trips. A full-day trip equals one angler day, a half-day trip equals .5 angler days, etc. Angler days are not standardized to an hourly measure of effort and actual trip durations may vary within each category.

Table 3.3.2.4. South Atlantic headboat angler days and percent distribution by month (2015 through 2019).

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	Headboat Angler Days											
2015	12,661	11,148	21,842	25,128	25,172	36,907	42,558	30,772	15,649	13,375	9,623	12,562
2016	9,818	12,243	23,872	22,217	27,374	37,454	45,744	29,223	17,061	9,202	12,820	13,404
2017	7,693	10,066	13,382	17,448	19,377	27,050	33,356	21,037	6,684	8,928	8,929	9,260
2018	4,428	9,862	14,080	15,167	13,264	29,038	30,235	26,233	9,715	8,072	7,673	7,217
2019	7,746	8,476	15,186	15,566	19,368	26,587	32,914	20,177	6,716	9,011	8,587	6,394
Avg	8,469	10,359	17,672	19,105	20,911	31,407	36,961	25,488	11,165	9,718	9,526	9,767
	Percent Distribution											
2015	5%	4%	8%	10%	10%	14%	17%	12%	6%	5%	4%	5%
2016	4%	5%	9%	9%	11%	14%	18%	11%	7%	4%	5%	5%
2017	4%	5%	7%	10%	11%	15%	18%	11%	4%	5%	5%	5%
2018	3%	6%	8%	9%	8%	17%	17%	15%	6%	5%	4%	4%
2019	4%	5%	9%	9%	11%	15%	19%	11%	4%	5%	5%	4%
Avg	4%	5%	8%	9%	10%	15%	18%	12%	5%	5%	5%	5%

Source: NMFS SRHS (March, 2021).

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 monetary 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.

Direct estimates of the CS for greater amberjack are not currently available. There are, however, estimates for snapper and grouper species in general. Haab et al. (2012) estimated the CS (willingness to pay [WTP] for one additional fish caught and kept) for snappers and groupers in the Southeastern U.S. using four separate econometric modeling techniques. The finite mixture model, which takes into account variation in the preferences of fishermen, had the best prediction rates of the four models and, therefore, was selected for presentation here. The WTP for an additional snapper (excluding red snapper) estimated by this model was $13.11 (2020 dollars).[12] Although this estimate is not specific to greater amberjack, the study did include the amberjack genus as part of the snapper group. This value may seem low and may be strongly influenced by the pooling effect inherent to the model in which it was estimated. The WTP for an additional red snapper, in comparison, was estimated to be $148.57 (2020 dollars). The WTP for an additional grouper was estimated to be $142.74 (2020 dollars).

The foregoing estimates of economic value should not be confused with economic impacts associated with recreational fishing expenditures. Although expenditures for a specific good or service may represent a proxy or lower bound of value (a person would not logically pay more for something than it was worth to them), they do not represent the net value (benefits minus cost), nor the change in value associated with a change in the fishing experience.

With regard to for-hire businesses, economic value can be measured by producer surplus (PS) per passenger trip (the amount of money that a vessel owner earns in excess of the cost of providing the trip). Estimates of the PS per for-hire passenger trip are not available. Instead, trip net revenue (TNR), which is the return used to pay all labor wages, returns to capital, and owner profits, is used as a proxy for PS. When TNR is divided by the number of anglers on a trip, it represents cash flow per angler (CFpA). The estimated CFpA value for an average South Atlantic charter angler trip is $203 (2020 dollars) and the estimated CFpA value for an average South Atlantic headboat angler trip is $71 (Souza and Liese 2019). Estimates of CFpA for a greater amberjack target trip, in particular, are not available.

According to Holland et al. (2012), the average charter vessel operating in the South Atlantic is estimated to receive approximately $127,000 (2020 dollars) in gross revenue annually. The average headboat is estimated to receive approximately $224,000 (2020 dollars) in gross revenue

[12] Converted to 2020 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis (BEA).

annually. Comparable estimates of annual net income for South Atlantic charter vessels and headboats are not available.

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 income 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 greater amberjack were calculated using average trip-level impact coefficients derived from the 2017 Fisheries Economics of the U.S. report (NMFS 2021b) and underlying data provided by the National Oceanic and Atmospheric Administration (NOAA) Office of Science and Technology. Economic impact estimates in 2017 dollars were adjusted to 2020 dollars using the annual, not seasonally adjusted 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 (2015-2019) resulting from South Atlantic recreational greater amberjack target trips are provided in Table 3.3.8. The average impact coefficients, or multipliers, used in the model are invariant to the "type" of effort (e.g., target or catch) and can therefore be directly used to measure the impact of other effort measures such as greater amberjack catch trips. To calculate the multipliers from Table 3.3.8, simply divide the desired impact measure (sales impact, value-added impact, income impact or employment) associated with a given state and mode by the number of target trips for that state and mode.

The estimates provided in Table 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 impacts estimates are based on trip expenditures only and do not account for durable expenditures. Durable expenditures cannot be reasonably apportioned to individual species or species groups. As such, the estimates provided in Table 3.3.8 may be considered a lower bound on the economic activity associated with those trips that targeted greater amberjack.

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

Table 3.3.2.5. Estimated annual average economic impacts (2015-2019) from South Atlantic recreational greater amberjack target trips, by state and mode, using state-level multipliers. All monetary estimates are in 2020 dollars (in thousands).

	NC	SC	GA	FL
	Charter Mode			
Target Trips	258	377	0	2,658
Value Added Impacts	$110	$93	$0	$631
Sales Impacts	$191	$162	$0	$1,058
Income Impacts	$65	$54	$0	$373
Employment (Jobs)	2	2	0	10
	Private/Rental Mode			
Target Trips	2,290	1,111	231	15,707
Value Added Impacts	$72	$26	$6	$438
Sales Impacts	$119	$40	$9	$653
Income Impacts	$42	$12	$3	$216
Employment (Jobs)	1	1	0	6
	Shore			
Target Trips	0	0	0	0
Value Added Impacts	$0	$0	$0	$0
Sales Impacts	$0	$0	$0	$0
Income Impacts	$0	$0	$0	$0
Employment (Jobs)	0	0	0	0
	All Modes			
Target Trips	2,549	1,488	231	18,365
Value Added Impacts	$182	$119	$6	$1,069
Sales Impacts	$311	$202	$9	$1,712
Income Impacts	$106	$66	$3	$589
Employment (Jobs)	3	2	0	16

Source: Effort data from MRIP; economic impact results calculated by NMFS SERO using NMFS (2021) and underlying data provided by the NOAA Office of Science and Technology.

3.4 Social Environment

This section provides the background for the proposed action, which is evaluated in Chapter 4. Commercial and recreational landings and permits by state are included to provide information on the geographic distribution of fishing involvement. Descriptions of the top-ranking communities by the number of commercial snapper grouper permits are included, top communities based on commercial landings of greater amberjack, top-ranking communities by the number of for-hire snapper grouper permits, and top recreational fishing communities based on recreational engagement and reliance. Community level data are presented in order to meet

the requirements of National Standard 8 of the Magnuson-Stevens Act, which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns. Additional detailed information about communities in the following analysis can be found on the SERO's Community Snapshots website.[13]

3.4.1 Commercial Sector

Landings by State

The greatest proportion of commercial greater amberjack landings came from waters adjacent to Florida and Georgia (average of 80.9% from 2015-2019, SEFSC Commercial ACL File), followed by North Carolina (10.4%), and South Carolina (8.8%). The landings for Florida and Georgia are combined to protect confidentiality.

Permits

The majority of snapper grouper unlimited permits are issued to individuals in Florida (68.1%), followed by North Carolina (19.3%), South Carolina (7.9%), and Georgia (1.5%, SERO Permits Office, October 21, 2021). Residents of other states (Illinois, Minnesota, New Jersey, New York, Texas, and West Virginia) also hold snapper grouper unlimited permits, but these states represent a small percentage of the issued permits.

South Atlantic snapper grouper unlimited permits are held by individuals with mailing addresses in 131 communities (SERO Permits Office, October 21, 2021). Communities with the most snapper grouper unlimited permits are located in Florida, South Carolina, North Carolina, and Texas (Table 3.4.1). The communities with the most snapper grouper unlimited permits are Key West (9.8% of snapper grouper unlimited permits), Jacksonville (7.4%), and Miami, Florida (3.7%).

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

Table 3.4.1.1. Top communities by number of South Atlantic snapper grouper unlimited permits and 225-lb trip-limited permits.

State	Community	Permits	State	Community	Permits
FL	Key West	45	FL	Key West	7
FL	Jacksonville	34	FL	Marathon	7
FL	Miami	17	FL	Jupiter	6
FL	Marathon	12	FL	Miami	5
SC	Little River	12	FL	Big Pine Key	3
FL	Port Orange	11	FL	Key Largo	3
FL	Rockledge	10	NC	Wilmington	3
FL	Tavernier	10			
NC	Southport	10			
NC	Hampstead	9			
NC	Wilmington	9			
FL	Fort Lauderdale	8			
FL	Hialeah	8			
SC	Murrells Inlet	8			
FL	Islamorada	7			
FL	Key Largo	7			
FL	Summerland Key	7			
FL	Winter Springs	7			
TX	Corpus Christi	7			

Source: SERO Permits Office, October 21, 2021.

The majority of snapper grouper 225-lb trip-limited permits are issued to individuals in Florida (84%), followed by North Carolina (9.9%, SERO Permits Office, October 21, 2021). Residents of other states (New Jersey, South Carolina, Texas, and Virginia) also hold snapper grouper 225-lb trip-limited permits, but these states represent a small percentage of the issued permits.

South Atlantic commercial snapper grouper 225-lb trip-limited permits are held by individuals with mailing addresses in 46 communities (SERO Permits Office, October 21, 2021). Communities with the most commercial snapper grouper 225-lb trip-limited permits are located in Florida and North Carolina (Table 3.4.1). The communities with the most snapper grouper 225-lb trip-limited permits are Key West (8.6% of snapper grouper 225-lb trip-limited permits), Marathon (8.6%), and Jupiter, Florida (7.4%).

Regional Quotient

The descriptions of communities include information about the top communities based on a "regional quotient" (RQ) of commercial landings for greater amberjack. The RQ is the proportion of landings out of the total landings of that species for that region and that year, and is a relative measure. Figure 3.4.1 includes the top greater amberjack communities by RQ landings

and value during 2019. The top greater amberjack communities are located in Florida, South Carolina, and North Carolina. About 17% of greater amberjack is landed in the top community of Port Orange, Florida, representing about 22% of the South Atlantic-wide ex-vessel value for the species.

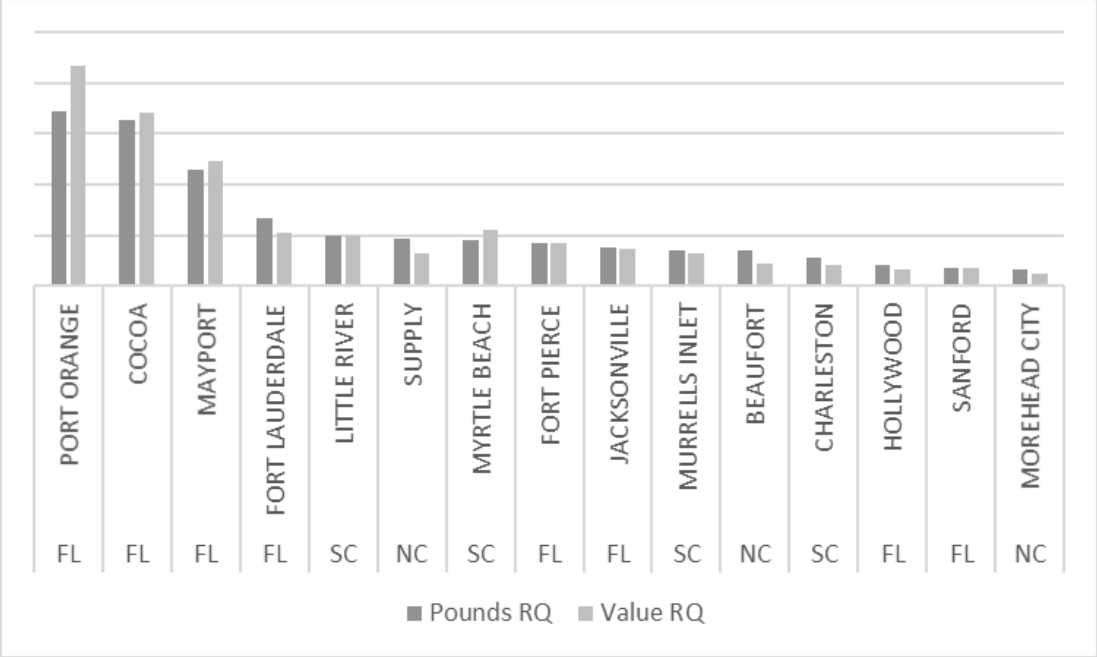

Figure 3.4.1.1. Top South Atlantic communities ranked by pounds and value RQ of greater amberjack. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2019.

3.4.2 Recreational Sector

Landings by State

The greatest proportion of recreational greater amberjack landings came from waters adjacent to Florida and Georgia (average of 79.6% from 2015-2019, SEFSC MRIP FES Recreational ACL Dataset), followed by North Carolina (13.3%), and South Carolina (7.1%). The landings for Florida and Georgia are combined because of the manner in which headboat landings are reported for confidentiality.

Permits

The majority of for-hire snapper grouper permits are issued to individuals in Florida (61.3%), followed by North Carolina (18.4%), South Carolina (9.5%), and Georgia (2.4%, SERO Permits Office, October 21, 2021). Residents of other Gulf states (Alabama, Mississippi, Louisiana, and Texas) also hold a sizable amount of for-hire snapper grouper permits (2.7%). Residents of other states and territories (Arkansas, California, Colorado, Delaware, Iowa, Illinois, Indiana,

Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Pennsylvania, Tennessee, and Virginia) also hold for-hire snapper grouper permits.

South Atlantic for-hire snapper grouper permits are held by those with mailing addresses in 439 communities (SERO Permits Office, October 21, 2021). Communities with the most for-hire snapper grouper permits are located in communities in Florida, North Carolina, and South Carolina (Table 3.4.2). Several communities with the most for-hire snapper grouper permits are located in the Florida Keys (Key West, Marathon, Islamorada, and Tavernier). The communities with most South Atlantic for-hire snapper grouper permits are Key West (8% of for-hire snapper grouper permits), Marathon (3.3%), and Islamorada, Florida (2.4%).

Table 3.4.2.1. Top communities by number of South Atlantic for-hire snapper grouper permits.

State	Community	Permits
FL	Key West	132
FL	Marathon	54
FL	Islamorada	40
FL	Tavernier	37
FL	Jacksonville	35
FL	St. Augustine	35
FL	Port Orange	26
FL	Fort Lauderdale	24
NC	Hatteras	24
NC	Manteo	22
FL	Merritt Island	21
NC	Wilmington	20
SC	Hilton Head	20
SC	Charleston	19
FL	Miami	18
SC	Mt. Pleasant	18

Source: SERO Permits Office, October 21, 2021.

Engagement and Reliance

Landings for the recreational sector are not available by species at the community level, making it difficult to identify communities as dependent on recreational fishing for greater amberjack. Because limited data are available concerning how recreational fishing communities are engaged and reliant on specific species, indices were created using secondary data from permit and infrastructure information for the southeast recreational fishing sector at the community level (Jacob et al. 2013; Jepson and Colburn 2013). Recreational fishing engagement is represented by the number of recreational permits and vessels designated as "recreational" by homeport and owner address. Fishing reliance includes the same variables as fishing engagement, divided by population. Factor scores of both engagement and reliance were plotted by community.

Figure 3.4.2 identifies the top communities that are engaged and reliant upon recreational fishing in general. All included communities demonstrate high levels of recreational engagement. Four communities (Islamorada, Florida; Hatteras, North Carolina; Tavernier, Florida; and Manteo, North Carolina) demonstrate high levels of recreational reliance.

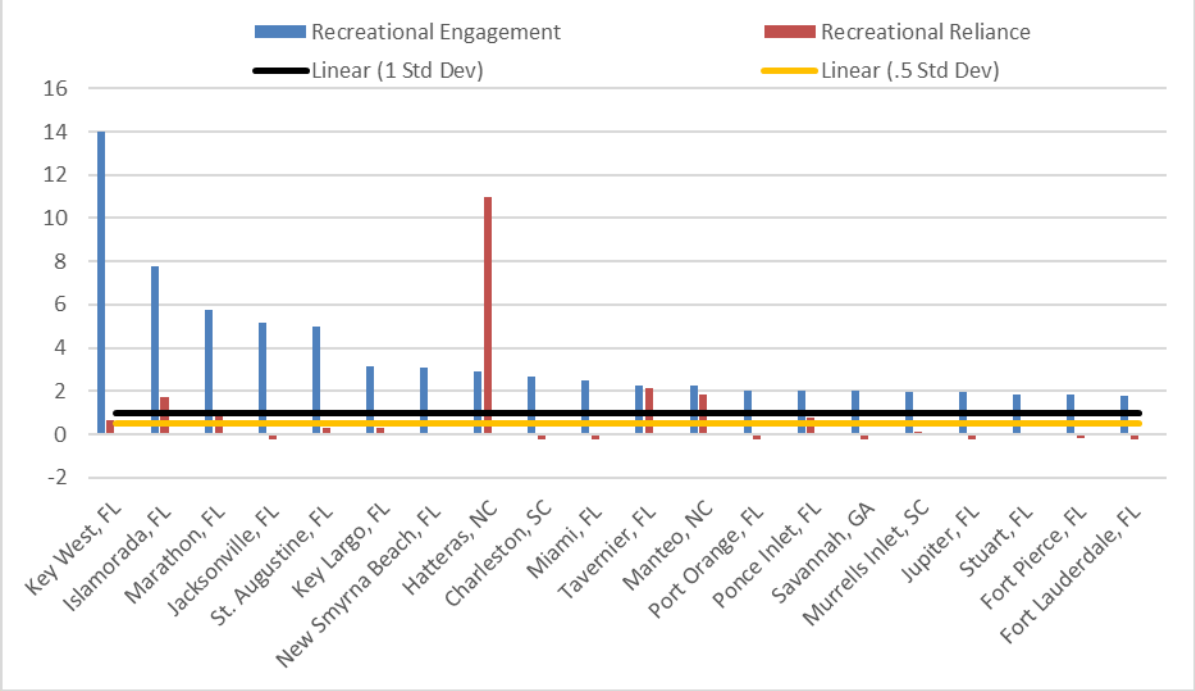

Figure 3.4.2.1. Top 20 recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2019.

3.5 Environmental Justice

Executive Order (E.O.) 12898 (1994) requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin, which is referred to as "environmental justice" (EJ). In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. The main focus of E.O. 12898 is to consider "the disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories…"

Information is available concerning communities overall status with regard to minorities and poverty (e.g., census data). To help assess whether any EJ concerns may be present within regional communities, a suite of indices were created to examine the social vulnerability of coastal communities. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the

literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figures 3.5.1 and 3.5.2 provide the social vulnerability of the top commercial and recreational snapper grouper and greater amberjack communities. One community exceeds the threshold of one standard deviation above the mean for all three indices, Fort Pierce, Florida. Two other communities exceed the threshold of one standard deviation above the mean for any of the indices (Hialeah, Florida and Miami, Florida). These communities would be the most likely to exhibit vulnerabilities to social or economic disruption due to regulatory change.

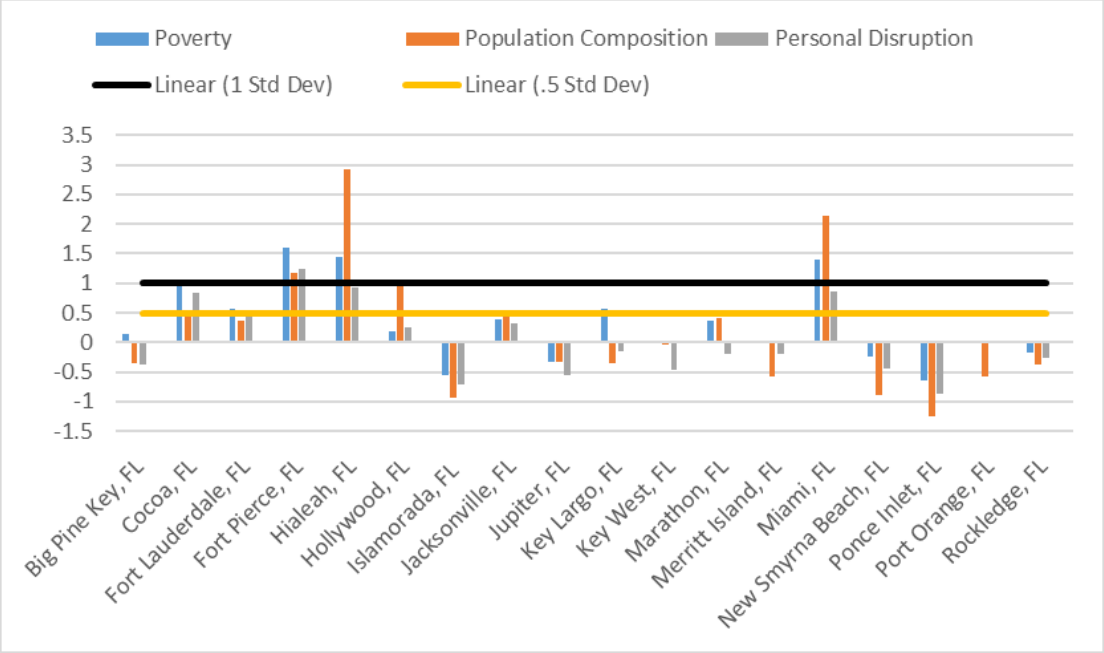

Figure 3.4.2.1. Social vulnerability indices for top snapper grouper and greater amberjack communities.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

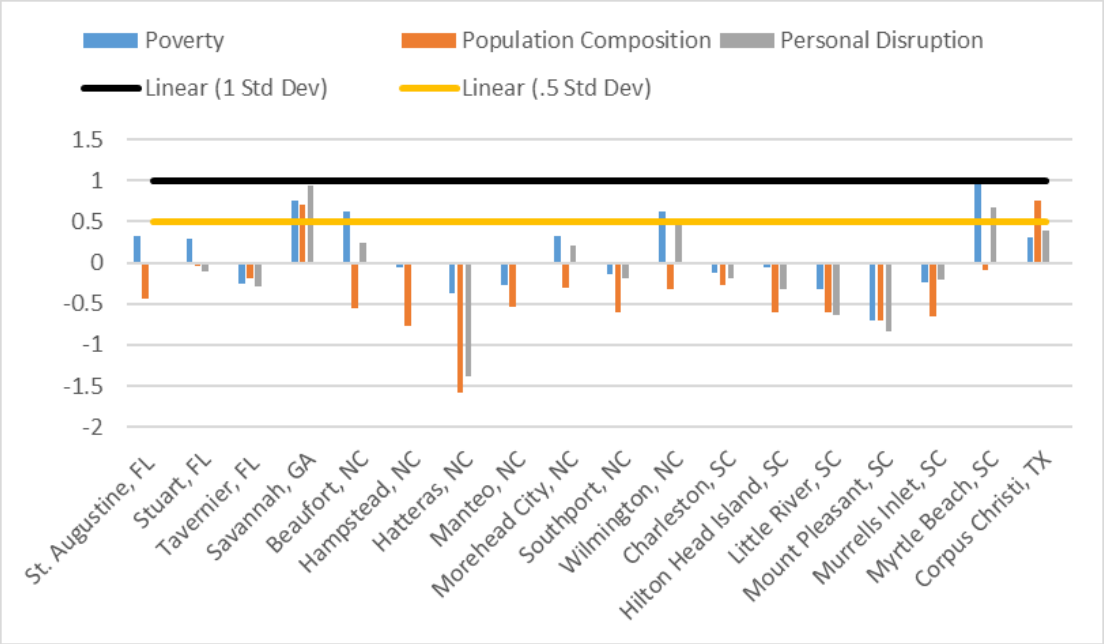

Figure 3.4.2.2. Social vulnerability indices for top snapper grouper and greater amberjack communities continued.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

People in these communities may be affected by fishing regulations in two ways: participation and employment. Although these communities may have the greatest potential for EJ concerns, complete data are not available on the race and income status for those involved in the local fishing industry (employment), or for their dependence on greater amberjack specifically (participation). Although no EJ issues have been identified in this amendment, the absence of potential EJ concerns cannot be assumed.

3.6 Administrative Environment

3.6.1 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 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 mi offshore from the seaward boundary of North Carolina, South Carolina, Georgia, and east Florida to Key West. The 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 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 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 Council also established two voting seats for the Mid-Atlantic Council on the South Atlantic Mackerel Committee. 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.

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 Council uses its Scientific and Statistical Committee (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.

3.6.2 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.

3.6.3 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 Consequences

4.1 Action 1. Revise the greater amberjack total annual catch limit and annual optimum yield

4.1.1 Biological Effects

Alternatives

1. (No Action). The total annual catch limit for greater amberjack is equal to the current acceptable biological catch level.

2. The total annual catch limit for greater amberjack is equal to the SSC recommended acceptable biological catch level.

3. The total annual catch limit for greater amberjack is equal to 90% of the SSC recommended acceptable biological catch level.

4. The total annual catch limit for greater amberjack is equal to 80% of the SSC recommended acceptable biological catch level.

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

Expected effects to greater amberjack

The current combined commercial and recreational annual catch limit (ACL) is 1,968,001 pounds whole weight. The ACL is based on the South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee's (SSC) previous acceptable biological catch (ABC) recommendation. The current ABC incorporates recreational landings for greater amberjack that were tracked using Marine Recreational Fishery Statistics Survey (MRFSS) estimation methods. Therefore, **Alternative 1 (No Action)** is not a viable alternative because it would retain the current total ACL for greater amberjack (equal to the current ABC), which is not based on the best scientific information available (BSIA).

The ACLs in **Preferred Alternative 2**, and **Alternatives 3** through **4,** are based on the SSC's new ABC recommendation and are viable alternatives for further analysis (Section 1.4 and Table 4.1.1.1). Historical landings by sector, and revised sector ACLs, for greater amberjack are discussed in Action 2. Revising greater amberjack catch levels as proposed in **Preferred Alternative 2**, and **Alternatives 3** and **4,** would not be expected to result in negative biological impacts since overall catch would be constrained to the ACL and accountability measures (AM) would prevent the ACL and OFL from being exceeded, correct for overages if they occur (if the stock is in an overfished condition), and prevent overfishing. In addition, the proposed increase in the total ACL for greater amberjack is based on the SSC's recommended ABC for greater amberjack in the South Atlantic region, and is considered BSIA. SEDAR 59 (2020) indicates that the greater amberjack ACL can be increased without having negative effects on the sustainability of the stock.

Table 4.1.1.1. South Atlantic greater amberjack OFL and ABC recommendations in lbs ww, based on projections from SEDAR 59 (2020), and ACL options for **Preferred Alternative 2 and Alternatives 3-4**. The assessment and these projections use recreational data calibrated to the Marine Recreational Information Program (MRIP) Fishing Effort Survey (FES). Fishing years are from March through the end of February.

Fishing Year	OFL (lbs ww)	Preferred Alternative 2 ABC = Total ACL (lbs ww)	Alternative 3 Total ACL = 90%ABC (lbs ww)	Alternative 4 Total ACL = 80%ABC (lbs ww)
2022-2023	4,615,000	**4,380,000**	3,942,000	3,504,000
2023-2024	3,283,000	**3,233,000**	2,909,700	2,586,400
2024-2025	2,839,000	**2,818,000**	2,536,200	2,254,400
2025-2026	2,719,000	**2,699,000**	2,429,100	2,159,200
2026-2027+	2,691,000	**2,669,000**	2,402,100	2,135,200

NOTE: Proposed ACLs are based on recreational data calibrated to the FES. Future recreational catches under these limits would be monitored by the MRIP using the FES.

Greater amberjack commercial landings have remained fairly steady from 1986 through 2019, with a downward trend in recent years (Figure 4.1.1.1). Recreational landings as estimated with both MRFSS and MRIP FES methodologies were very high when record-keeping began and have been sporadic since 1986.

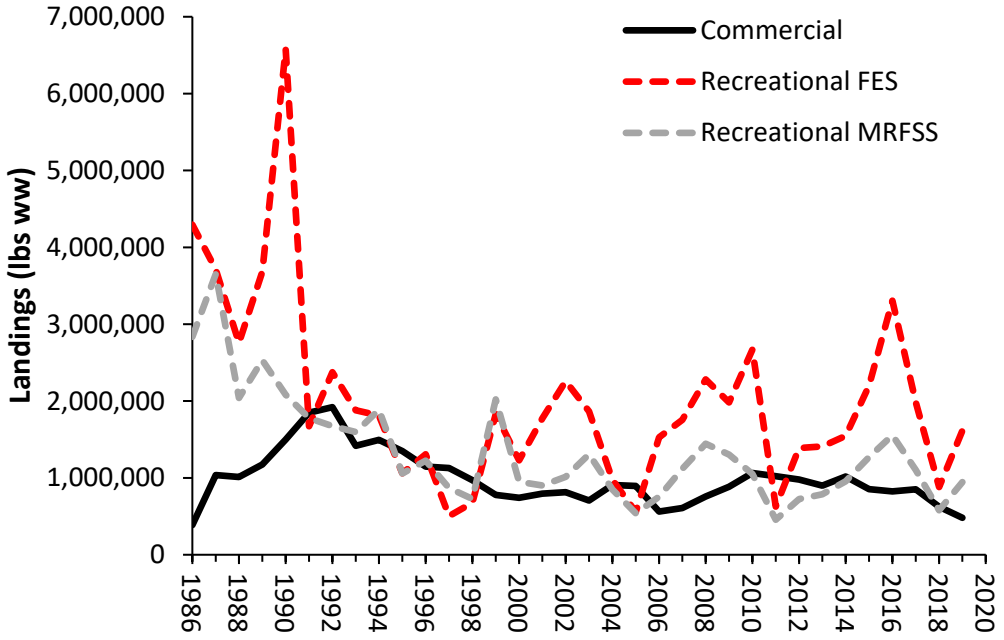

Figure 4.1.1.1. Greater amberjack commercial and recreational landings (lbs ww) by year from 1986 through 2019. Commercial landings using data or methods from SEDAR 59 are in black.

Recreational landings estimates based on the MRFSS are in gray and revised recreational landings estimates based on the FES are in red.
Sources: SEDAR 59 Assessment Report (2020), Southeast Fisheries Science Center (SEFSC) MRFSS Recreational ACL datasets (5/19/20; 9/15/20), SEFSC MRIP FES Recreational ACL dataset (9/16/20)

Alternatives 3 and **4** would have greater long-term positive biological effects than **Preferred Alternative 2** because they would create a buffer between the ACL/annual OY and ABC, with **Alternative 4** setting the most conservative buffer at 80% of the ABC. Specifying a buffer between the ACL/annual OY and ABC, as proposed under **Alternatives 3** and **4**, would provide greater assurance that overfishing is prevented, and the long-term average biomass is near or above SSB_{MSY}. **Preferred Alternative 2** would set the ACL and annual OY equal to the ABC leaving no buffer between the two harvest parameters, which may increase risk that harvest could exceed the ABC. However, the Council's ABC Control Rule accounts for scientific uncertainty. The Magnuson-Stevens Fishery Conservation and Management Act's National Standard 1 (NS 1) guidelines indicate an ACL may typically be set very close to the ABC. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether management measures are constraining fishing mortality to target levels. Since **Alternative 1 (No Action)** ignores the recent stock assessment (SEDAR 59 2020), and no longer represents BSIA, it is not a viable alternative. When totaling the annual ACL from 2022 through 2027, **Alternative 4** has the lowest cumulative ACL which is expected to have the greatest biological benefits to the stock, followed by **Alternative 3**, and **Preferred Alternative 2**.

Expected Effects to Bycatch and Discards

When compared to **Alternative 1 (No Action)**, increasing the total ACLs under each of **Preferred Alternative 2** and **Alternatives 3** through **4** would allow for more fish to be harvested and reduce the likelihood of in-season closures. Therefore, it is expected that there would be a decrease in bycatch because more fish can be kept rather than discarded, which is indirectly beneficial to the greater amberjack stock. However, since it is estimated that South Atlantic greater amberjack have a low release mortality rate of 20% (sensitivity range: 10-30%) (SEDAR 15 2008 and SEDAR 59 2020), any dead discards are expected to be minimal. See **Appendix G** (BPA) for information on bycatch and discards.

Expected Effects to Protected Species and Essential Fish Habitat

In the December 1, 2016, biological opinion on the snapper grouper fishery, National Marine Fisheries Service (NMFS) concluded that the authorization of the fishery is not likely to jeopardize the continued existence of the North Atlantic right whale, loggerhead sea turtle Northwest Atlantic distinct population segment (DPS), leatherback sea turtle, Kemp's ridley sea turtle, green sea turtle North Atlantic DPS, green sea turtle South Atlantic DPS, hawksbill sea turtle, smalltooth sawfish U.S. DPS, or Nassau grouper. NMFS also concluded that the authorization of the snapper grouper fishery is not likely to adversely affect any other Endangered Species Act (ESA)-listed species or designated critical habitat in the South Atlantic region, including newly listed giant manta rays and oceanic whitetip sharks.

The alternatives under this action would not significantly modify the way in which the snapper grouper fishery is prosecuted in terms of gear types used. Therefore, there are no additional impacts on ESA-listed species or designated critical habitats anticipated as a result of this action (see Section 3.2.2 for a detailed description of ESA-listed species and critical habitat in the action area). Furthermore, no adverse impacts on essential fish habitat (EFH) or EFH-Habitat Areas of Particular Concern are expected to result from any of the alternatives considered for this action (see Section 3.1.2 and Appendix D for access to detailed descriptions of EFH in the South Atlantic region).

These predicted effects on EFH and ESA-listed species and designated critical habitats are applicable to all actions in this amendment.

4.1.2 Economic Effects

In general, ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable long-term effects on the health of a stock. The ACL does not directly impact the fishery for a species unless harvest changes, fishing behavior changes, or the ACL is exceeded, thereby potentially triggering AMs such as harvest closures or other restrictive measures. As such, ACLs that are set above the observed landings in the fishery for a species and do not change harvest or fishing behavior may not have realized economic effects each year. Nevertheless, ACLs set above observed harvest levels do create a gap between the ACL 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. As such, there are potential economic benefits from ACLs that allow for such a gap. The opposite is true for ACLs that constrain harvest or fishing effort within a fishery or reduce the previously described gap between average landings and the ACL.

As noted in Section 4.1.1, **Alternative 1 (No Action)** is not a viable alternative. Although not viable since it does not implement BSIA, **Alternative 1 (No Action)** would not be expected to be constraining on harvest when compared to recent 5-year average landings. The ACL is set equal to the ABC in **Alternative 1 (No Action)** and **Preferred Alternative 2**, with the differences between the two in part occurring due to the current versus updated ABC and how the non-headboat recreational component of the total ACL would be accounted for moving forward. Specifically, the current ABC is inclusive of MRFSS units to account for private recreational and charter landings while the updated ABC would be inclusive of FES units for these landings. Projections that allow for conversion between both units are not available, as there is no forward-looking conversion between the two units. As such, a direct comparison of **Alternative 1 (No Action)** to **Preferred Alternative 2** is not possible. This applies to comparisons of **Alternative 1 (No Action)** to **Alternatives 3** and **4** as well since these two alternatives also incorporate the updated ABC and thus FES units. As a proxy for the status quo (**Alternative 1 (No Action)**), the five-year (2015/16 - 2019/20) average landings of greater amberjack are compared to **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** to estimate the economic effects of each alternative.

For analysis purposes, the action considered is not likely to go into place in time to notably affect the 2022-2023 fishing year. As such, analyses of the economic effects of this action begin with the 2023-2024 fishing year, which is the full year that regulation changes occurring from this action would be implemented. The potential revised total ACLs for greater amberjack when initially implemented in **Preferred Alternative 2** and **Alternative 3** are higher than the 5-year average observed landings in recent years (Table 4.1.2.1; Table 4.1.2.2), thus there would be room for an expansion in landings and associated economic benefits. **Alternative 4** would be constraining on harvest and there would be an associated estimated decrease in economic benefits from this alternative when initially implemented.

Table 4.1.2.1. South Atlantic greater amberjack landings for fishing years 2015-2016 to 2019-2020.

Fishing Year	Commercial landings (lbs ww)	Recreational landings[a] (lbs ww)	Total landings (lbs ww)
2019-2020	427,509	1,528,402	1,955,911
2018-2019	686,915	1,115,270	1,802,185
2017-2018	834,181	1,938,506	2,772,687
2016-2017	793,308	2,773,177	3,566,485
2015-2016	822,644	2,773,589	3,596,233
5-year average	712,911	2,025,789	2,738,700

[a]Recreational landings are inclusive of FES estimates.

Table 4.1.2.2. Percent difference between the total ACLs in **Action 2** compared to 5-year average landings from fishing years 2015-2016 to 2019-2020[a].

Fishing Year	Percent difference between the ACL and 5-year average annual landings for Preferred Alternative 2	Percent difference between the ACL and 5-year average annual landings for Alternative 3	Percent difference between the ACL and 5-year average annual landings for Alternative 4
2023-2024	18%	6%	-6%
2024-2025	3%	-7%	-18%
2025-2026	-1%	-11%	-21%
2026-2027+	-3%	-12%	-22%

[a]**Alternative 1 (No Action)** is tracked in part using MRFSS estimates for charter and private recreational landings while **Alternatives 2 (Preferred)** through **4** would be tracked in part using FES estimates for charter and private recreational landings. Charter and private recreational landings make up a notable portion of greater amberjack landings. As such, the economic effects of **Alternative 1 (No Action)** cannot be compared in a quantitative manner to the other alternatives since the accounting methods used to track the MRFSS and FES are vastly different and are not comparable. Thus, **Alternative 1 (No Action)** cannot be considered in this analysis.

In later years, the total ACL would be constraining on harvest as the ACL decreases and this would result in direct negative economic effects from decreased harvest and an associated decrease in economic benefits, assuming harvest is capped at the total ACL. **Alternative 4** would provide the lowest total ACL and thus would be expected to constrain harvest sooner and more severely limit harvest in subsequent years, thus there would be elevated negative economic effects anticipated from this restricted harvest. **Alternative 3** offers a higher ACL and would not

be expected to be constraining on harvest until the 2024-2025 fishing year. **Preferred Alternative 2** would provide the highest ACL of the viable alternatives being considered and would not be constraining on harvest until the 2025-2026 fishing year. From an economic benefits perspective, **Alternative 1 (No Action)** would provide the highest short-term economic benefits since it is not constraining on harvest but this alternative is not viable. **Preferred Alternative 2** would provide the highest potential economic benefits of the viable alternatives being considered followed by **Alternative 3** and **Alternative 4** (Table 4.1.2.2).

The estimated change in economic benefits of **Preferred Alternative 2** through **Alternative 4** are provided in Table 4.1.2.3 and Table 4.1.2.4 by sector and in Table 4.1.2.5 in aggregate for both sectors combined. In the 2023-2024 fishing year, **Preferred Alternative 2** is estimated to result in an increase in potential net economic benefits of $195,308 for the commercial sector, a decrease in potential net economic benefits of $71,606 for the recreational sector, and an increase in potential net economic benefits of $123,702 for both sectors combined (2020 $). By the 2026-2027 fishing year and beyond, **Preferred Alternative 2** is estimated to result in an increase in potential net economic benefits of $120,862 for the commercial sector, a decrease in potential net economic benefits of $294,894 for the recreational sector, and a decrease in potential net economic benefits of $174,032 for both sectors combined (2020 $).

Table 4.1.2.3. Estimated change in potential net economic benefits to the commercial sector from **Action 1** (2020 $).

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023-2024	$195,308	$167,997	$123,615
2024-2025	$140,530	$116,724	$78,040
2025-2026	$124,822	$102,022	$64,971
2026-2027+	$120,862	$98,315	$61,676

Table 4.1.2.4. Estimated change in potential net economic benefits to the recreational sector from **Action 1** (2020 $).

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023-2024	-$71,606	-$199,601	-$327,596
2024-2025	-$235,905	-$347,470	-$459,035
2025-2026	-$283,017	-$389,871	-$496,725
2026-2027+	-$294,894	-$400,561	-$506,227

Table 4.1.2.5. Estimated change in potential net economic benefits (recreation and commercial combined) from **Action 1** (2020 $)[a].

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023-2024	$123,702	-$31,604	-$203,981
2024-2025	-$95,375	-$230,746	-$380,996
2025-2026	-$158,195	-$287,849	-$431,754
2026-2027+	-$174,032	-$302,245	-$444,550

[a]**Alternative 1 (No Action)** is tracked in part using MRFSS estimates for charter and private recreational landings while **Alternatives 2 (Preferred)** through **4** would be tracked in part using FES estimates for charter and private recreational landings. Charter and private recreational landings make up a notable

portion of greater amberjack landings. As such, the economic effects of **Alternative 1 (No Action)** cannot be compared in a quantitative manner to the other alternatives since the accounting methods used to track the MRFSS and FES are vastly different and are not comparable. Thus, **Alternative 1 (No Action)** cannot be considered in this analysis.

Assumptions used in calculating these estimates include application of the status quo allocation of the total ACL (40.66% commercial, 59.34% recreational) to the new ACL for each alternative to estimate economic benefits. This allocation was then compared to 5-year average landings (2015/2016-2019/2020) to determine the buffer between average annual landings and the ACL by sector under the assumption that both sectors would fully harvest their respective ACLs. To estimate benefits for the recreational sector, a consumer surplus (CS) estimate of $13.11 for a "generic snapper" kept on a recreational trip (2020 $; Section 3.3). This marginal value estimate is used as a proxy value since one is not currently available specifically for greater amberjack. A weight of 19.65 lbs ww per greater amberjack was used to convert the recreational portion of the buffer from lbs ww to numbers of fish (Personal Communication, NOAA Southeast Fisheries Science Center SAFE Dataset, March 17, 2021). It is assumed that changes in the recreational portion of the total ACL would only affect catch per trip and not the overall number of trips taken. This includes no direct change to for-hire fishing activity and thus no change in direct economic effects for the for-hire component of the recreational sector. As such, there are no estimated changes in producer surplus (PS) provided for the recreational sector.

To estimate economic benefits from the commercial portion of the buffer between landings and the potential ACL, a ratio of 1.04 was used to convert pounds whole weight to pounds gutted weight. This provided proper application of the appropriate price ($1.79/lbs gw; Tables 3.3.1 and 3.3.2) and the average annual net cash flow estimate (18.9% according to Overstreet, Perruso, and Liese (2018)) to estimate PS for the commercial sector. Although there are no currently available estimates of the demand elasticity for greater amberjack, it is assumed that there would be no expected change to consumer surplus from the commercial perspective since there is likely a high degree of substitutability of greater amberjack for other species.

4.1.3 Social Effects

The ACL for any stock does not directly affect resource users unless the ACL is met or exceeded, in which case AMs that restrict, or close harvest could negatively impact the commercial, for-hire, and private recreational sectors. AMs can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects, such as increased pressure on another species, or fishermen having to stop fishing all together due to regulatory closures. However, restrictions on harvest contribute to sustainable management goals, and are expected to be beneficial to fishermen and communities in the long term. Generally, the higher the ACL the greater the short-term social benefits that would be expected to accrue if harvest is sustainable.

Under **Preferred Alternative 2** through **Alternative 4**, the ACL for greater amberjack would be based on the most recent stock assessment and updated Marine Recreational Information Program (MRIP) estimates derived using the FES. Adjustments in an ACL based on updated

information are necessary to ensure continuous social benefits over time. **Alternative 1 (No Action)** would not update the greater amberjack ACL based on current information and would not provide the social benefits associated with accurate accounting of non-headboat recreational harvest.

Commercial and recreational landings are estimated to vary year by year (Figure 4.1.1), and projections show that depending on the sector allocations chosen in Action 2 there could be some years in which recreational landings would be projected to reach their respective ACL and AMs would be triggered (Table 4.2.4). There would likely be some negative effects on recreational fishermen and for-hire businesses that target greater amberjack. In general, a higher ACL would lower the chance of triggering a recreational AM and result in the lowest level of negative effects on the recreational sector. Additionally, higher ACLs may provide opportunity for commercial and recreational fishermen to expand their harvest providing social benefits associated with increased income to fishing businesses within the community and higher trip satisfaction. Among the action alternatives, **Preferred Alternative 2** would be the most beneficial for fishermen, followed by **Alternative 3**, and **Alternative 4**, . **Alternative 1 (No Action)** is likely to have similar effects as **Preferred Alternative 2** as the buffer between ACL and ABC remains the same with the accounting of non-headboat recreational harvest updated under **Preferred Alternative 2**. As stated in **Section 4.1.1**, **Alternative 1 (No Action)** is not a viable alternative because it is not based on BSIA.

4.1.4 Administrative Effects

Compared to **Alternative 1 (No Action)**, none of the Action 1 alternatives under consideration to modify the ABC and total ACLs would result in significant impacts on the administrative environment. Since a total ACL is already in place for greater amberjack, administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action)**, **Preferred Alternative 2,** and **Alternatives 3** and **4** would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the ACL and continued monitoring of the ACL.

4.2 Action 2. Revise the greater amberjack sector allocations and sector annual catch limits

Note: The revised total ACL in Alternatives 1 (No Action) through 3 reflects Preferred Alternative 2 for Action 1: ABC=ACL=OY with implementation in 2022.

4.2.1 Biological Effects

Expected effects to greater amberjack

Biological effects are not expected to vary among alternatives in **Action 2**, since they do not change the total ACL specified in **Action 1**. Therefore, no biological effects are expected to the greater amberjack stock. Furthermore, effective AMs are in place to prevent the commercial and recreational ACLs from being exceeded. **Alternative 1 (No Action)** through **Alternative 3** include sector allocation percentages which would be applied to the revised total ACL from Preferred Alternative 2 in Action 1; Table 4.2.1.1).

Alternatives

1 (No Action). Retain the current commercial sector and recreational sector allocations as 40.66% and 59.34%, respectively, of the revised total annual catch limit for greater amberjack.

2. Apply the current allocation formula to the total annual catch limit using the FES-calibrated recreational landings and commercial landings used in SEDAR 59 (2020). This would result in a commercial allocation of 29.84% and a recreational allocation of 70.16%.

3. Allocate 35.00% of the total annual catch limit to the commercial sector and 65.00% of the total annual catch limit to the recreational sector.

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

Table 4.2.1.1. Sector allocation percentages for South Atlantic greater amberjack that will be applied to the revised total ACL from Preferred Alternative 2 in Action 1.

Alternative	Percent Recreational allocation	Percent Commercial allocation
Preferred Alternative 1 (No action)	**59.34%**	**40.66%**
Alternative 2	70.16%	29.84%
Alternative 3	65.00%	35.00%

Of the alternatives considered in Action 2, **Preferred Alternative 1 (No Action)** would allocate the *highest* percentage of the total ACL to the commercial sector (40.66%), followed by **Alternative 3** (35.00%), and **Alternative 2. Alternative 2** would have the lowest commercial allocation (29.84%). Conversely, **Preferred Alternative 1 (No Action)** would allocate the *lowest* percentage of the total ACL to the recreational sector (59.34%), followed by **Alternative 3** (65.00%) and **Alternative 2** with the highest recreational allocation (70.16%).

Section 2.2.1 shows the sector ACLs resulting from applying the sector allocation percentages from **Alternative 1 (No Action)** through **Alternative 3** to the total ACL from **Preferred 2** in Action 1. Based on the recommended ABC and revised total ACL, the sector ACLs for each

alternative proposed under Action 2 are greatest in the 2022-2023 fishing years, and decrease each year until the 2026-2027 fishing year (Table 4.2.1.2).

Table 4.2.1.2. Sector ACLs (lbs ww) for greater amberjack for **Action 2 Preferred Alternative 1 (No Action)** based on the revised total ACL from Preferred Alternative 2 in Action 1.

Year	Total ACL (lbs ww)	Commercial ACL* (lbs gw)	Commercial Season 1 Quota (lbs gw)	Commercial Season 2 Quota** (lbs gw)	Recreational ACL (lbs ww)
2022/2023	4,380,000	1,712,412	1,027,447	684,965	2,599,092
2023/2024	3,233,000	1,263,979	758,387	505,591	1,918,462
2024/2025	2,818,000	1,101,730	661,038	440,692	1,672,201
2025/2026	2,699,000	1,055,205	633,123	422,082	1,601,587
2026/2027+	2,669,000	1,043,476	626,086	417,391	1,583,785

*The total annual catch limit (ACL) is allocated in pounds whole weight (lbs ww) to the commercial and recreational sectors. The commercial allocation is then converted to pounds gutted weight (lbs gw) for regulatory use in the commercial ACL and seasonal quotas.
**Any remaining quota from commercial Season 1 (March-August) transfers to Season 2 (September-February). Remaining quota from Season 2 is not carried forward.

Commercial Sector Landings and Predicted Closures

Average commercial landings of greater amberjack in the South Atlantic from March 2015 to February 2020 were 685,492 lbs gw (Table 4.2.1.3), or 89.1% of the commercial ACL, with commercial in-season closures occurring during the 2015-16, 2016-17, and 2017-18 fishing seasons. Landings were highest during the months of March through June, with the exception of April due to the seasonal closure, with a peak in May (Figures 4.2.1.1 and 4.2.1.2).

Table 4.2.1.3. Commercial landings (lbs gw) of greater amberjack from March 2015 through February 2020 and percentage of the commercial ACL landed each year. Years with in-season closures due to approaching or exceeding the commercial ACL are indicated with the closure date.

Year	Fishing Year	Total Landings (lbs gw)	Commercial ACL (lbs gw)	ACL %	Closure Date
2019-2020	Mar 1 - Feb 28/29	411,066	769,388	53.4	
2018-2019		660,495	769,388	85.8	
2017-2018		802,097	769,388	104.3	10/18/17
2016-2017		762,796	769,388	99.1	10/4/16
2015-2016		791,004	769,388	102.8	1/21/16

Source: SERO Commercial ACL data (ACL_FILES_100920: 2007-2008 through 2013-2014; ACL_FILES_030821: 2014-2015 through 2019-2020)
*Commercial closure in April for all years
**2020 landings were considered preliminary.

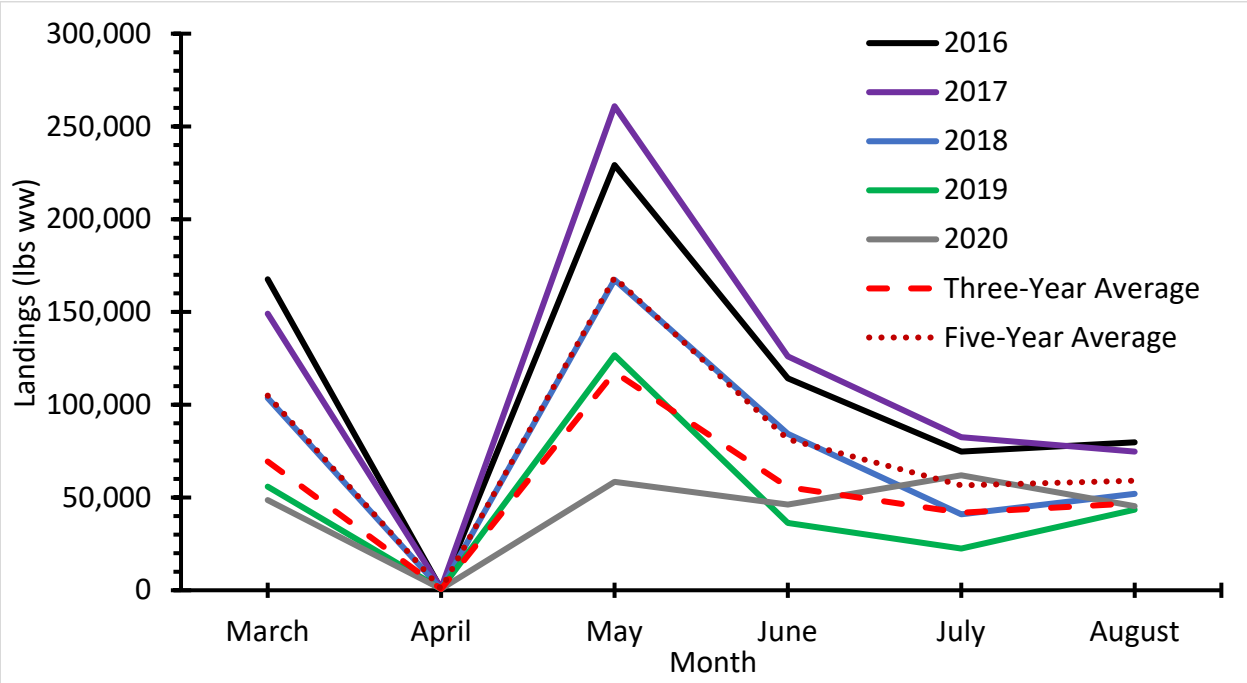

Figure 4.2.1.1. South Atlantic greater amberjack commercial landings (pounds whole weight) by month for season 1 (March through August, with a commercial closure in April) from 2016 to 2020, three-year average, and five-year average.

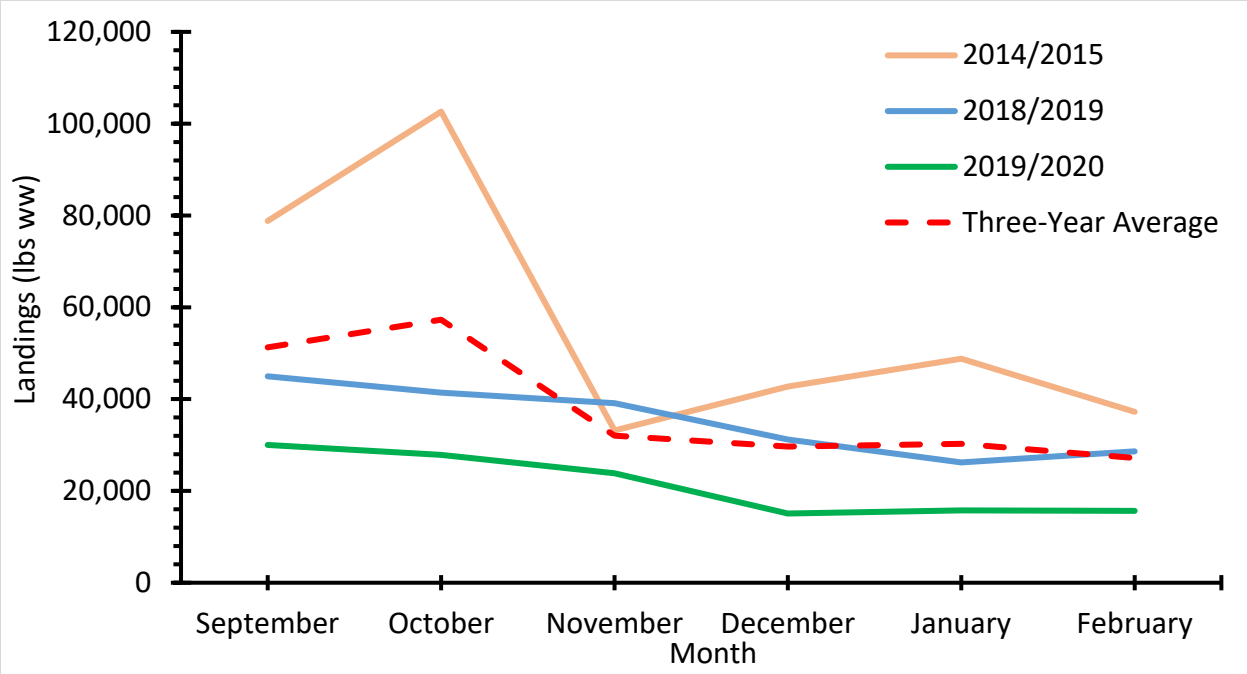

Figure 4.2.1.2. South Atlantic greater amberjack commercial landings (pounds whole weight) by month for Season 2 (September through February) for recent years that did not have a closure, and the three-year average. The three year average came from the most recent years of complete data (2014/2015, 2018/2019, and 2019/2020).

An analysis of three scenarios comparing when commercial sector landings would reach the proposed commercial sector ACLs are found in Table 4.2.1.4. The scenarios based on a three-year and five-year average, and the maximum annual landings during the last five years, reveals that the commercial ACL for greater amberjack is not projected to be reached during Season 1 under **Preferred Alternative 1 (No Action)** for Scenarios 1 and 2. Predicted closure dates for Scenario 3 span from August 3 to no closure needed (Table 4.2.1.4). No closures were predicted for Season 2 for Scenarios 1 and 2 (Table 4.2.1.5.).

Table 4.2.1.4. The projected commercial closure dates for the greater amberjack Season 1. The closure dates were generated from the three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data. These projections assume the total ACLs from Action 1-Preferred Alternative 2 and include the initial (2022-23) and terminal (2026-27) projected fishing years for Action 2.

Alternative	Year	Commercial ACL Season 1*	Scenario 1	Scenario 2	Scenario 3
			Closure Date	Closure Date	Closure Date
1	2022/2023	1,027,447	None	None	None
	2024/2025	661,038	None	None	18-Aug
	2026/2027	626,086	None	None	3-Aug

*Commercial ACLs (lbs ww) for greater amberjack are based on the revised total ACL from Preferred Alternative 2 in Action 1, and Preferred Alternative 1 (No Action) in Action 2.

Table 4.2.1.5. The projected closure dates for the greater amberjack commercial sector Season 2 for preferred Alternative 1 of Action 2. The closure dates were generated from the two different landings scenarios of 1) three-year average of the most recent years of complete data, and, 2) the maximum landings in the last five years.

	Year	Commercial ACL Season 2*	Scenario 1	Scenario 2
			Closure Date	Closure Date
Preferred Alternative 1	2022/2023	684,965	None	None
	2024/2025	440,692	None	None
	2026/2027	417,391	None	None

*Commercial ACLs (lbs ww) for greater amberjack are based on the revised total ACL from Preferred Alternative 2 in Action 1, and Preferred Alternative 1 (No Action) in Action 2.

Recreational Sector Landings and Predicted Closures

Average recreational landings (MRFSS) of greater amberjack in the South Atlantic from March 2015 to February 2020 were 1,037,831 lbs ww (Table 4.2.1.6), or 88.9% of the recreational ACL, with recreational in-season closures occurring during the 2016-17, and 2017-18 fishing seasons. Landings were highest during the months of May through August (Figure 4.2.1.3.).

Table 4.2.1.6. Recreational landings based on the Marine Recreational Fishery Statistics Survey (MRFSS; lbs ww) of greater amberjack from March 2015 through February 2021* and corresponding percentage of recreational ACL landed each year.

Year	Fishing Year	Total Landings (lbs ww)	Recreational ACL	ACL %	Closure Date
2019-2020	Mar 1 - Feb 28/29	865,098	1,167,837	74.1	
2018-2019		673,768	1,167,837	57.7	
2017 - 2018		1,216,881	1,167,837	104.2	10/31/17
2016 - 2017		1,226,054	1,167,837	105.0	11/30/16
2015 - 2016		1,207,355	1,167,837	103.4	

Source: SEFSC MRFSS (Fishing Effort Survey) Recreational ACL dataset [March 2, 2021]
* 2021 landings are preliminary.
** 2014/15 fishing year only includes landings through February 28, 2015.

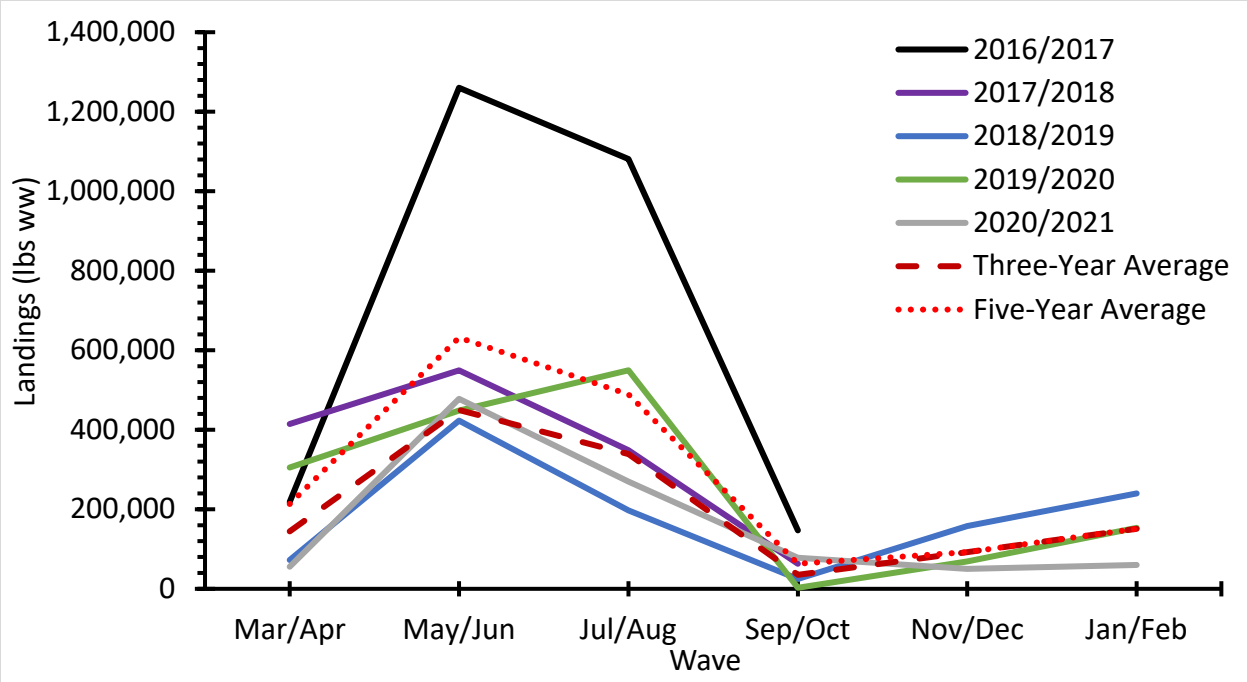

Figure 4.2.1.3. South Atlantic greater amberjack recreational landings (pounds whole weight) by two-month wave for the 2016/2017 to the 2020/2021 fishing years, and the three-year and five-year average. The fishing years of 2016/2017 and 2017/2018 are not for the full fishing year because these fishing years had recreational closures.

The predicted closure dates for the recreational sector span from July 7 to no closure needed. No closure dates were needed for landings Scenario 1 because the three-year average of the recreational landings generated landings below all of the recreational ACLs provided in Action 2.

Table 4.2.1.7. The projected closure dates for the greater amberjack recreational sector. The closure dates were generated from the three different landings scenarios of 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Year	Recreational ACL*	Scenario 1	Scenario 2	Scenario 3
		Closure Date	Closure Date	Closure Date
2022/2023	2,599,092	None	None	17-Sep
2024/2025	1,672,201	None	None	12-Jul
2026/2027	1,583,785	None	6-Feb	7-Jul

*Commercial ACLs (lbs ww) for greater amberjack are based on the revised total ACL from Preferred Alternative 2 in Action 1, and Preferred Alternative 1 (No Action) in Action 2.

Expected Effects to Bycatch and Discards

In general, reducing sector allocations results in less landings available to a sector for harvest and increases the likelihood of an in-season closure. Therefore, in-season closures could have adverse effects to the stock if fish are returned to the water during the closure of which some fish

will not survive. However, since it is estimated that South Atlantic greater amberjack have a low release mortality rate of 20% (sensitivity range: 10-30%) (SEDAR 15 2008 and SEDAR 59 2020), should an in-season closure occur, any dead discards are expected to be minimal. See **Appendix G (BPA)** for information on bycatch and discards.

4.2.2 Economic Effects

In general, sector ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable long-term effects on the health of a stock. The sector ACL does not directly impact the fishery for a species unless harvest changes, fishing behavior changes, or the sector ACL is exceeded, thereby potentially triggering AMs such as harvest closures or other restrictive measures. As such, sector ACLs that are 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, sector ACLs set above observed average harvest levels do create a gap between the sector ACL and typical landings that may be utilized in years of exceptional abundance or accessibility of a species, thus providing the opportunity for increased landings and a reduced likelihood of triggering restrictive AMs. As such there are potential economic benefits from sector ACLs that allow for such a gap.

Commercial Sector

Preferred Alternative 1 (No Action) would maintain the current commercial allocation of 40.66% of the total ACL. **Alternatives 2** and **3** would result in comparatively lower commercial sector allocations and sector ACLs (29.84% and 35.00% of the total ACL respectively). Although none of the commercial ACLs in **Action 2** are estimated to be constraining based on the average annual landings over the last five years of available data (Table 4.2.2.1), it is assumed that the commercial sector could fully harvest its ACL, if conditions allowed, and there would be fewer potential landings of greater amberjack under **Alternative 2** and **Alternative 3** relative to **Preferred Alternative 1 (No Action)**. These relatively reduced landings would be expected to comparatively decrease total PS for the commercial sector. When compared to **Preferred Alternative 1 (No Action)**, **Alternative 2** would result in the largest estimated reduction in PS of $113,560in fishing year 2023/24 and a reduction in PS of $93,749 by fishing year 2026/27, followed by **Alternative 3** with an estimated reduction in PS of $59,404 in fishing year 2023/24 and a reduction in PS of $49,041 by fishing year 2026/27 (2020 $) (Table 4.2.2.2).

Table 4.2.2.1. Percent difference between the commercial sector ACLs in Action 2 compared to 5-year average landings of greater amberjack from 2015/16-2019/20.[a]

	Preferred Alternative 1 (No Action)		Alternative 2		Alternative 3	
Fishing Year	Commercial sector ACL (lbs gw)	Percent difference between the sector ACL and 5-year average landings	Commercial sector ACL (lbs gw)	Percent difference between the sector ACL and 5-year average landings	Commercial sector ACL (lbs gw)	Percent difference between the sector ACL and 5-year average landings
2023/24	1,263,979	84%	927,622	35%	1,088,029	59%

2024/25	1,101,730	61%	808,549	18%	948,365	38%
2025/26	1,055,205	54%	774,405	13%	908,317	33%
2026/27+	1,043,476	52%	765,798	12%	898,221	31%

[a]Assumes the total ACL in Preferred Alternative 2 of Action 1 to determine the sector ACL.

Table 4.2.2.2. Comparison of the estimated change in producer surplus (PS) for commercial sector ACLs of greater amberjack in Action 2 (2020 $).

	Pref. Alternative 1 (No Action)	Alternative 2		Alternative 3	
Fishing Year	Estimated Change in PS	Estimated Change in PS	Comparison to Alternative 1 (No Action)	Estimated Change in PS	Comparison to Alternative 1 (No Action)
2023/24	$195,308	$81,748	-$113,560	$135,904	-$59,404
2024/25	$140,530	$41,546	-$98,983	$88,751	-$51,779
2025/26	$124,822	$30,019	-$94,803	$75,230	-$49,592
2026/27+	$120,862	$27,113	-$93,749	$71,821	-$49,041

Assumptions used in calculating these estimates include a comparison of the sector ACLs to 5-year average landings (2015/2016-2019/2020) to determine the buffer between average annual landings and the sector ACL. To estimate economic benefits from the commercial portion of the buffer between landings and the potential ACL, a ratio of 1.04 was used to convert pounds whole weight to pounds gutted weight. This provided proper application of the appropriate price ($1.79/lbs gw; Tables 3.3.1 and 3.3.2) and average annual net cash flow estimates (18.9% according to Overstreet, Perruso, and Liese (2018)) to estimate producer surplus (PS) for the commercial sector. Although there are no currently available estimates of the demand elasticity for greater amberjack, it is assumed that there would be no expected change to consumer surplus from the commercial perspective since there is likely a high degree of substitutability of greater amberjack for other species. In comparing alternatives, **Preferred Alternative 1 (No Action**) was used as a baseline which applied the current allocation of 40.66% of the total ACL to the commercial sector. The total ACL in this case was based on Preferred Alternative 2 in Action 1 and applied to the alternatives in **Action 2**. All other alternatives considered in **Action 2** (**Alternatives 2** and **3**) would decrease the commercial allocation on a percent and thus pound basis, thereby comparatively decreasing economic benefits to the commercial sector.

Recreational Sector

Preferred Alternative 1 (No Action) would maintain the current recreational allocation of 59.34% of the total ACL. **Alternatives 2** and **3** would result in comparatively higher recreational sector allocations and sector ACLs (70.16% and 65.00% of the total ACL respectively). Most of the recreational ACLs in **Action 2** are estimated to be constraining based on the average annual landings over the last five years of available data (Table 4.2.2.3), and it is assumed that the recreational sector could fully harvest its ACL if conditions allowed. There would be higher potential landings of greater amberjack under **Alternative 2** and **Alternative 3** relative to **Preferred Alternative 1 (No Action)**. These relatively increased landings would be expected to comparatively decrease total CS for the recreational sector. When compared to **Preferred Alternative 1 (No Action)**, **Alternative 2** would result in the largest estimated

increase in CS of $233,385 in fishing year 2023/24 and an increase in CS of $192,670 by fishing year 2026/27, followed by **Alternative 3** with an estimated increase in CS of $122,085 in fishing year 2023/24 and an increase in CS of $100,787 by fishing year 2026/27 (2020 $) (Table 4.2.2.4).

Table 4.2.2.3. Percent difference between the recreational sector ACLs in Action 2 compared to 5-year average landings of greater amberjack from 2015/16-2019/20.[a]

	Preferred Alternative 1 (No Action)		Alternative 2		Alternative 3	
Fishing Year	Recreational sector ACL (lbs ww)	Percent difference between the sector ACL and 5-year average landings	Recreational sector ACL (lbs ww)	Percent difference between the sector ACL and 5-year average landings	Recreational sector ACL (lbs ww)	Percent difference between the sector ACL and 5-year average landings
2023/24	1,918,462	-5%	2,268,273	12%	2,101,450	4%
2024/25	1,672,201	-17%	1,977,109	-2%	1,831,700	-10%
2025/26	1,601,587	-21%	1,893,618	-7%	1,754,350	-13%
2026/27+	1,583,785	-22%	1,872,570	-8%	1,734,850	-14%

[a]Assumes the total ACL in Preferred Alternative 2 of Action 1 to determine the sector ACL.

Table 4.2.2.4. Comparison of the estimated change in consumer surplus (CS) for recreational sector ACLs of greater amberjack in Action 2 (2020 $).

	Pref. Alternative 1 (No Action)	Alternative 2		Alternative 3	
Fishing Year	Estimated Change in CS	Estimated Change in CS	Comparison to Alternative 1 (No Action)	Estimated Change in CS	Comparison to Alternative 1 (No Action)
2023/24	-$71,606	$161,780	$233,385	$50,479	$122,085
2024/25	-$235,905	-$32,478	$203,427	-$129,491	$106,414
2025/26	-$283,017	-$88,181	$194,836	-$181,097	$101,920
2026/27+	-$294,894	-$102,224	$192,670	-$194,107	$100,787

Assumptions used in calculating these estimates include a comparison of the sector ACLs to 5-year average landings (2015/2016-2019/2020) to determine the buffer between average annual landings and the sector ACL. To estimate economic benefits from the recreational sector, a consumer surplus (CS) estimate of $13.11 for a "generic snapper" kept on a recreational trip was used (2020 $; Section 3.3). This marginal value estimate is used as a proxy value since one is not currently available specifically for greater amberjack. A weight of 19.65 lbs ww per greater amberjack was used to convert the recreational portion of the buffer from lbs ww to numbers of fish (Personal Communication, NOAA Southeast Fisheries Science Center SAFE Dataset, March 17, 2021). It is assumed that changes in the recreational portion of the total ACL would only affect catch per trip and not the overall number of trips taken. This includes no direct change to for-hire fishing activity and thus no change in direct economic effects for the for-hire component of the recreational sector. As such, there are no estimated changes in producer surplus (PS)

provided for the recreational sector. In comparing alternatives, **Alternative 1 (No Action**) was used as a baseline which applied the current allocation of 59.34% of the total ACL to the recreational sector. The total ACL in this case was based on Preferred Alternative 2 in Action 1 and applied to the alternatives in **Action 2**. All other alternatives considered in **Action 2** (**Alternatives 2** and **3**) would increase the recreational allocation on a percent and thus pound basis, thereby comparatively increasing economic benefits to the recreational sector.

Total

In general, higher ACLs offer a larger buffer between the sector ACL and observed landings which allows for increased harvest when fishery conditions allow, thereby increase net economic benefits. Thus under this notion, the alternatives in **Action 2** can be ranked for the commercial sector from a short-term economic perspective with **Preferred Alternative 1 (No Action)** having the highest potential net economic benefits, followed by **Alternative 3**, and **Alternative 2**. For the recreational sector, the ranking would be the opposite with **Alternative 2** offering the highest positive net economic benefits followed by **Alternative 3**, and **Preferred Alternative 1 (No Action)**. In terms of total estimated net economic benefits for the action, the same ranking would apply as stated for the recreational sector, with **Alternative 2** estimated to increase net economic benefits by $119,825 and **Alternative 3** estimated to increase net economic benefits by $62,681 in comparison to **Preferred Alternative 1 (No Action)** in the 2023/2024 fishing year (Table 4.2.2.5) (2020 $).

Table 4.2.2.5. Estimated change in net economic benefits from the alternatives in Action 2 in comparison to Preferred Alternative 1 (No Action) (2020 $).

	Alternative 2			Alternative 3		
Fishing Year	Estimated change in net economic benefits for the recreational sector	Estimated change in net economic benefits for the commercial sector	Estimated total change in net economic benefits	Estimated change in net economic benefits for the recreational sector	Estimated change in net economic benefits for the commercial sector	Estimated total change in net economic benefits
2023/24	$233,385	-$113,560	$119,825	$122,085	-$59,404	$62,681
2024/25	$203,427	-$98,983	$104,444	$106,414	-$51,779	$54,635
2025/26	$194,836	-$94,803	$100,033	$101,920	-$49,592	$52,328
2026/27+	$192,670	-$93,749	$98,921	$100,787	-$49,041	$51,746

4.2.3 Social Effects

Sector allocations exist for the recreational and commercial sectors already, **Preferred Alternative 1 (No Action)** would maintain the current allocation percentages and may have few social effects as both sectors would see an increase in available poundage. With **Alternative 2** and **Alternative 3**, there would be a decrease in the commercial percentage compared to **Preferred Alternative 1 (No Action)**, which could have some negative social effects if commercial fishermen have a negative perception of this change due to the decrease in fishing opportunity and concerns about long-term social effects, especially if future actions further

decreased harvest opportunities. However, the increase in poundage may mitigate some of these concerns and result in positive social benefits associated with increased harvest in the short-term.

As mentioned, there can be many different social effects that result as further allocations are discussed, and perceptions are formed. In the past there has been some resistance to further decreasing a given sector's percentage allocation. It is difficult to predict the social effects with any allocation scheme as it would depend upon other actions in conjunction with this one. A reduction in allocation for one sector may be compounded by a restrictive choice of ABC or ACL (Action 1). Therefore, the choice of an allocation would need to be assessed with other actions within this amendment to determine the overall social effects and whether short-term losses are offset by any long-term biological gains. Projections for Action 1 – **Preferred Alternative 2** indicate that the commercial ACL for greater amberjack would not be reached under the any of the alternatives proposed in Action 2, apart from a possible closure (95% confidence interval) of September 24th and December 13th during the 2026/2027 fishing season under **Alternative 2** and **Alternative 3**, respectively (Table 4.2.2). However, the recreational ACL could be reached in fishing year 2026-27 under **Preferred Alternative 1 (No Action)**, **Alternative 2**, and **Alternative 3** (Table 4.2.4). As a result, the recreational sector may experience negative social effects associated with AMs which, when triggered, can restrict harvest in the current season or subsequent seasons (**Section 4.1.3**).

4.2.4 Administrative Effects

Compared to **Alternative 1 (No Action)**, none of the Action 2 alternatives under consideration to modify greater amberjack allocations and sector ACLs would result in significant impacts on the administrative environment. Similar to **Preferred Alternative 1 (No Action)**, **Alternatives 2** and **3** are not likely to result in increased staff time, require increased agency funding, or alter the manner in which law enforcement efforts are presently carried out. Other administrative burdens that may result from **Alternatives 2** and **3** would take the form of development and dissemination of outreach and education materials for fishery participants and law enforcement. Overall, because sector allocations and ACLs are currently in place for greater amberjack, the impacts on the administrative environment are expected to be neutral. Additionally, the burden on law enforcement would not change under any of the considered alternatives because quota closures implemented in-season are currently enforced.

4.3 Action 3. Increase the recreational minimum size limit for greater amberjack

For detailed methodology of the analysis to evaluate the effects of increasing the current recreational minimum size limit of greater amberjack, refer to **Appendix F.**

4.3.1 Biological Effects

Expected effects to greater amberjack

Increasing the current 28-inch fork length (FL) recreational minimum size limit for greater amberjack under **Preferred Alternative 2**, and **Alternatives 3** and **4** is expected to result in decreased recreational landings (Appendix F) as more greater amberjack would be released under larger size limits. Additionally, recreational AMs are in place to prevent the recreational ACL from being exceeded,which will effectively constrain overall harvest and prevent adverse biological impacts to the stock Therefore, the biological effects to the stock from Preferred **Alternative 2**, and **Alternatives 3** and **4** could be neutral relative to **Alternative 1 (No Action)**.

Alternatives

1. (No Action). The current recreational minimum size limit is 28 inches fork length.

2. Increase the recreational minimum size limit to 30 inches fork length

3. Increase the recreational minimum size limit to 32 inches fork length

4. Increase the recreational minimum size limit to 36 inches fork length

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

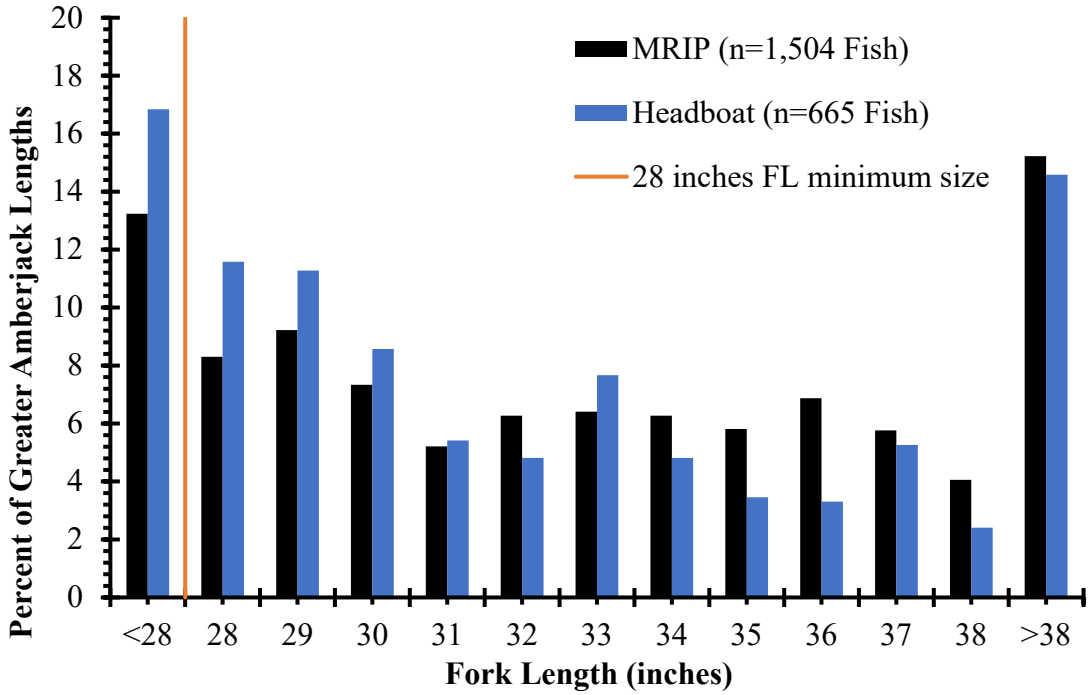

Figure 4.3.1.1. Length distribution of greater amberjack landed recreationally from 2015 through 2020 in the private-charter component (black bars) and the headboat component (blue bars). The orange line represents the current recreational minimum size limit of 28 inches FL. Source: MRIP and Southeast Region Headboat Survey.

Available lengths of South Atlantic greater amberjack harvested in the recreational sector in recent years (2015 through 2020) were obtained from MRIP and the Southeast Region Headboat Survey, with harvested fish lengths shown in Figure 4.3.1.1. The size of greater amberjack that are caught recreationally varies greatly, with a large percent under 28 inches fork length and over 38 inches fork length (Figure 4.3.1.1). Predictions of future landings and potential in-season closure dates are shown in Table 4.3.1.1 for minimum size limits proposed under **Preferred Alternative 2** and **Alternatives 3** and **4**. Predicted in-season closure dates span from as early as July 20 to no in-season closure needed. The recreational quota could be reached as early as July 20 under **Preferred Alternative 2**, July 28 under **Alternative 3**, and August 31 under **Alternative 4**.

Table 4.3.1.1. The projected closure dates for greater amberjack for a range of recreational ACLs from Preferred Alternative 2 in Action 1 with three different landings scenarios combined with increased minimum size length of 30 (Preferred), 32, and 36 inches fork length from Action 3. The three different recreational landings scenarios are 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Year	Recreational ACL	Scenario 1 Closure Date	Scenario 2 Closure Date	Scenario 3 Closure Date
Alternative 2 - Increased Minimum Size Limit to 30 inches Fork Length				
2022/2023	2,599,092	None	None	17-Feb

2024/2025	1,672,201	None	None	26-Jul
2026/2027	1,583,785	None	None	20-Jul
Alternative 3 - Increased Minimum Size Limit to 32 inches Fork Length				
2022/2023	2,599,092	None	None	None
2024/2025	1,672,201	None	None	3-Aug
2026/2027	1,583,785	None	None	28-Jul
Alternative 4 - Increased Minimum Size Limit to 36 inches Fork Length				
2022/2023	2,599,092	None	None	None
2024/2025	1,672,201	None	None	22-Oct
2026/2027	1,583,785	None	None	31-Aug

Note: Closure dates for the Action 3 Alternative 1 minimum size limit of 28 inches are provided in Table 4.3.1.1 since this is the current minimum size limit, and assumes no change to the minimum size limit.

Expected Effects to Bycatch and Discards

An increase in the recreational minimum size limit can result in more discarded fish. A low release mortality rate of 20% (sensitivity range: 10-30%) was estimated for greater amberjack in the South Atlantic (SEDAR 15 2008 and SEDAR 59 2020). The regulation 'not legal size' was the most common reason selected for release of greater amberjack (Regulatory Amendment 27 to the Snapper Grouper FMP, SAMFC 2019). Since greater amberjack has a low estimated release mortality, a high percentage of released fish likely survive; therefore, any dead discards are expected to be minimal, potentially resulting in minimal long-term population effects from an increase in the recreational minimum size limit. However, a low discard mortality can still result in a lot of mortality if the discard rate is high.

4.3.2 Economic Effects

Increasing the recreational minimum size limit for greater amberjack may decrease harvest, which would create negative direct economic effects for the recreational sector. In general, the higher the size limit, the more that overall harvest will decrease in the short-term, thereby decreasing net economic benefits, as measured in CS, incurred from such harvest. Under this notion, the highest economic benefits would occur under **Alternative 1 (No Action)**, followed by **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**.

4.3.3 Social Effects

Some social effects of minimum size limits would be associated with the biological effects on greater amberjack (see **Section 4.3.1**). Additionally, there is a trade-off with increasing the minimum size limit in that a decrease in the number of fish that can be kept may decrease recreational trip satisfaction but may also decrease the harvest rate and prevent landings from reaching the ACL early in the fishing year, triggering AMs.

Increasing the minimum size limit (**Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**) may result in negative social effects for greater amberjack fishermen by decreasing the number

of fish that can be retained, which may decrease trip satisfaction. **Preferred Alternative 2** would result in the smallest reduction in landings (7.6%) followed by **Alternative 3** (14.7%) and **Alternative 4** (35.1%) (Table 4, Appendix F). However, the minimum size limit may also extend the season ensuring continued access to the resource for fishing communities. The projected closure dates under the different minimum size limits are vary between no closure anticipated to a closure by July 16th under **Alternative 1 (No Action)**. The proposed recreational minimum size limits are anticipated to extend the season with the earliest date the recreational quota is anticipated to be met being under **Preferred Alternative 2** (July 20th) followed by July 28th under **Alternative 3** and August 31st under **Alternative 4** (Table 4.3.1.1).

Currently, the minimum size limit for the recreational sector is lower than that for the commercial sector (**Action 4)**. Creating consistency in regulations between the two sectors would simplify regulations and may improve enforcement and compliance.

4.3.4 Administrative Effects

Beneficial administrative effects would be expected from **Preferred Alternative 2**, when compared with **Alternative 1** (**No Action**), and **Alternatives 3** and **4**. Alternatives that specify a consistent minimum size limit in federal waters throughout the Council's jurisdiction would contribute to a more favorable administrative environment by helping the public avoid confusion with regulations and aid law enforcement. Administrative impacts on the agency associated with the action alternatives would be incurred by rulemaking, outreach, education and enforcement.

4.4 Action 4. Reduce the commercial minimum size limit for greater amberjack

For detailed methodology of the analysis to evaluate the effects of reducing the current commercial minimum size limit of greater amberjack, refer to **Appendix F**.

4.4.1 Biological Effects

Alternatives

1 (No Action). The current commercial minimum size limit is 36 inches fork length.

2. Decrease the commercial minimum size limit to 32 inches fork length

3. Decrease the commercial minimum size limit to 30 inches fork length

4. Decrease the commercial minimum size limit to 28 inches fork length

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

Expected effects to greater amberjack

Reducing the current 36-inch FL commercial minimum size limit for greater amberjack under **Alternatives 2**, **3 (Preferred)** and **4** is expected to result in increased commercial landings compared to **Alternative 1 (No Action)**, as more small greater amberjack that would be discarded could be kept (Figure 4.4.1.1)[14] . As harvest rates could be expected to increase under a reduced minimum size limit, the commercial fishing season may be shortened under current AMs if the quota is met in-season. However, because commercial harvest is still constrained by the ACL, and AMs are in place to prevent the ACL from being exceeded, any increase in harvest should not result in adverse biological consequences to the stock. Therefore, the biological effects to the stock from **Alternatives 2, 3 (Preferred)** and **4** could be neutral relative to **Alternative 1 (No Action)**.

[14] Harvest datasets were not useful for this analysis since it is illegal to harvest greater amberjack below the minimum size limit, and this results in dockside commercial harvest surveys collecting very little length data for greater amberjack below the minimum size limit. However, observer data has length information for released fish, and observer data were provided from the SEFSC. The commercial observer program started in the South Atlantic region in 2018, and South Atlantic observer data program only sampled a small proportion of the commercial fleet and are only available for the years of 2018, 2019, and 2020. The commercial observer program produced lengths from 38 released greater amberjack in the South Atlantic region (Figure 4.4.1.1).

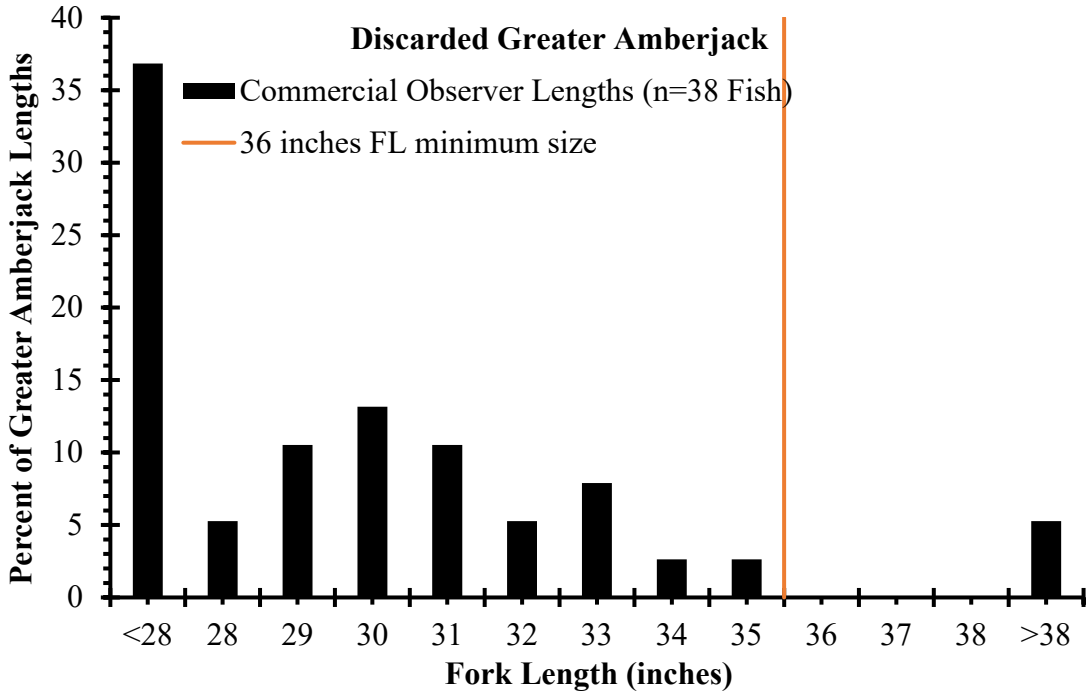

Figure 4.4.1.1. Length distribution of greater amberjack landed from released fish in the commercial sector from 2018 through 2020. The data were plotted in 1-inch length increments, and the length data is in fork length. The data came from the commercial observer program which started in the South Atlantic region in 2018. The orange line represents the current commercial minimum size limit of 36 inches FL.

Expected Effects to Bycatch and Discards

A low release mortality rate of 20% (sensitivity range: 10-30%) was estimated for greater amberjack in the South Atlantic (SEDAR 15 2008 and SEDAR 59 2020). The regulation 'not legal size' was the most common reason selected for released greater amberjack (Regulatory Amendment 27 to the Snapper Grouper FMP, SAMFC 2019). Reducing the current 36-inch FL commercial minimum size limit for greater amberjack under **Alternatives 2**, **3 (Preferred)** and **4** would likely reduce discards during the open months, which is expected to increase commercial landings as more fish that would be discarded could be kept. Since greater amberjack has a low estimated release mortality, a high percentage of released fish likely survive; therefore, any dead discards are expected to be minimal, potentially resulting in minimal adverse long-term population effects from a decrease in the minimum size limit.

4.4.2 Economic Effects

Reducing or removing the commercial minimum size limit for greater amberjack under **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4** may increase harvest since smaller fish that were previously discarded due to the current 36-inch minimum size limit (**Alternative 1 (No Action)**) could be landed. This would provide positive direct economic effects for the commercial sector provided there are no long-term negative effects for the stock from the increased harvest. In general, the lower the size limit, the more that overall harvest will increase, thereby increasing economic benefits incurred from such harvest. These economic benefits may

accrue in the form of increased net revenue for commercial vessels, thus increasing PS for the commercial fishery. Under this notion, the highest economic benefits would occur under **Alternative 4**, followed by **Preferred Alternative 3**, **Alternative 2**, and **Alternative 1 (No Action)**.

4.4.3 Social Effects

Some social effects of minimum size limits would be associated with the biological effects on greater amberjack (see **Section 4.4.1**). Additionally, there is a trade-off with reducing the minimum size limit in that an increase in the number of fish that can be kept may improve commercial trip profitability but may also increase the harvest rate and trigger AMs if landings reach the ACL sooner in the fishing year.

Available discard data shows that majority of discarded greater amberjack discard are less than 28-inches FL (Figure 4.4.1.1). As such, reducing the minimum size limit (**Alternative 2**, **Preferred Alternative 3** and **Alternative 4**) may result in positive social effects for greater amberjack fishermen by increasing the number of fish that can be retained, which may increase trip profitability. Positive effects of decreasing the minimum size limit would result from reduced discards. This would be expected to reduce waste for this portion of the snapper grouper fishery and may improve perceptions of management performance.

Currently, the minimum size limit for the recreational sector (**Action 3)** is lower than that for the commercial sector. Creating consistency in regulations between the two sectors would simplify regulations and may improve enforcement and compliance.

4.4.4 Administrative Effects

Beneficial administrative effects would be expected from **Preferred Alternative 3**, when compared with **Alternative 1** (**No Action**), and **Alternatives 2** and **4**. Alternatives that specify a consistent minimum size limit in federal waters throughout the Council's jurisdiction would contribute to a more favorable administrative environment by helping the public avoid confusion with regulations and aid law enforcement. Administrative impacts on the agency associated with the action alternatives would be incurred by rulemaking, outreach, education and enforcement.

4.5 Action 5. Modify the commercial trip limits for greater amberjack

Alternatives

1 (No Action). The current Season 1 commercial trip limit for greater amberjack is 1,200 pounds, and the Season 2 commercial trip limit is 1,000 pounds.

2. Increase the Season 1 trip limit for greater amberjack to:
Sub-Alt 2a. 1,500 pounds
Sub-Alt 2b 2,000 pounds
Sub-Alt 2c 2,500 pounds

3. Increase the Season 2 trip limit for greater amberjack to:Sub-Alt 3a. 1,200 pounds
Sub-Alt 3b: 1,500 pounds
Sub-Alt 3c 2,000 pounds
Sub-Alt 3d 2,500 pounds

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

For detailed methodology of the analysis to evaluate the effects of increasing the current commercial trip limits of greater amberjack, refer to **Appendix F.** The greater amberjack trip limits may currently be harvested and possessed in either lbs ww or gw. The conversion factor between the two measurements is 1.04. Hence, the discrepancy in specifying the proposed trip limits in whole weight is statistically insignificant and does not change the outcome of analyses presented in this amendment.

4.5.1 Biological Effects

Expected effects to greater amberjack

The biological effects of **Alternatives 2** and **3** and their sub-alternatives would not differ from **Alternative 1 (No Action)** in terms of the risk of overfishing as overall harvest would be limited to the commercial ACL or split-season quotas, and AMs would be triggered if the ACL were reached. Additionally, under all of the action alternatives considered, retention of the commercial sale and purchase prohibition during April each year would maintain protection during the peak spawning period (Table 3.2.1), thus, imparting biological benefit to the greater amberjack stock[15].

[15] Action 6 of Amendment 49 to the Snapper Grouper CMP considers modifying the April spawning closure for greater amberjack. Alternative 1 (No Action) would maintain the current regulations that duringApril each year, no person may sell or purchase a greater amberjack harvested from the South Atlantic exclusive economic zone and the harvest and possession limit is one per person per day or one per person per trip, whichever is more restrictive. See Section 4.6 and Appendix F for more information on the data analysis for Action 6 that considers the Action 5 trip limit alternatives.

Season 1 landings and predicted closures

During the first commercial season (Season 1 is from March through August), the majority of commercial trips harvest less than the current trip limit of 1,200 pounds, with very few trips landing more than 1,400 pounds (Figure 4.5.1.1). **Alternative 2** and its sub-alternatives consider increasing the commercial trip limit for Season 1. As harvest rates could be expected to increase under an increased trip limit, the commercial fishing season may be shortened under current AMs if the quota is met in-season. Predicted future landings and potential in-season closure dates for Alternative 2 and its sub-alternatives are shown in Table 4.5.1.1. The predicted in-season closure dates span from as early as July 3 to no in-season closure needed. The Season 1 quota could be reached as early as July 3 under **Sub-Alternative 2c**, July 14 under **Sub-Alternative 2b**, and July 26 under **Sub-Alternative 2a**. The most conservative projected landings are under **Alternative 1 (No Action)** in which Season 1 would retain the lowest trip limit at 1,200 pounds, resulting in a possible in-season closure by August 3. However, because commercial harvest is still constrained by the ACL, and AMs are in place to prevent the ACL from being exceeded, any increase in harvest should not result in adverse biological consequences to the stock. Therefore, the biological effects to the stock from **Alternatives 2** and its **sub-alternatives** could be neutral relative to **Alternative 1 (No Action)**.

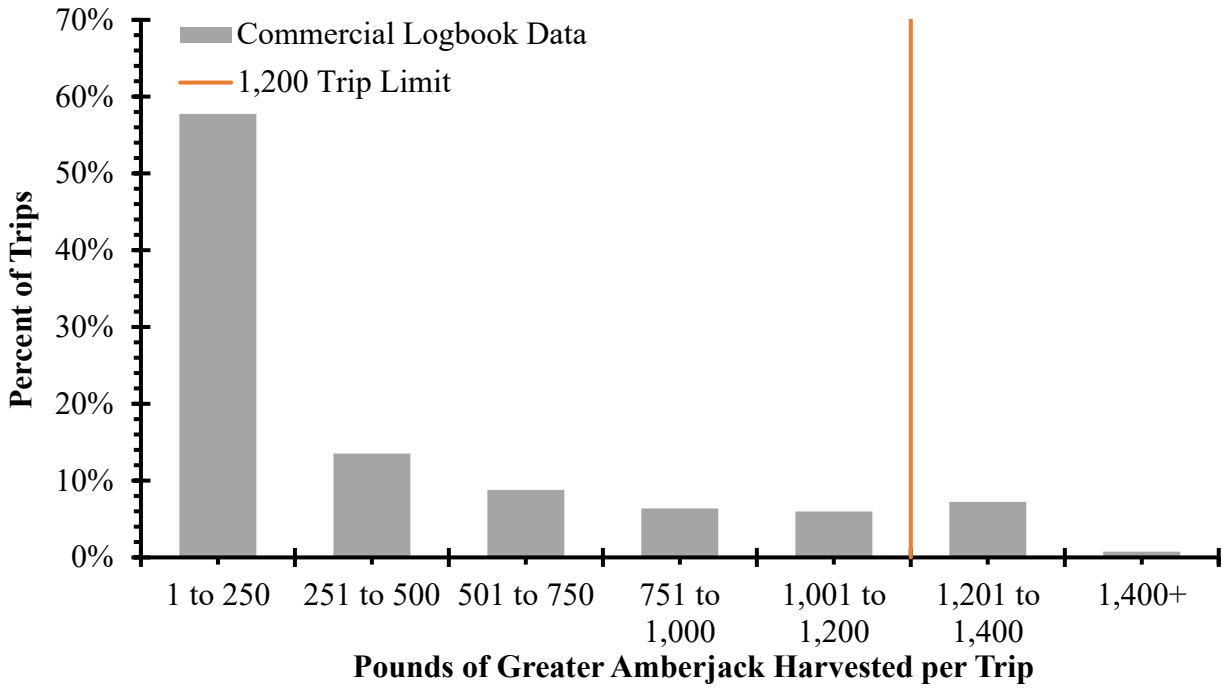

Figure 4.5.1.1. Distribution of the South Atlantic greater amberjack commercially harvested per trip (lbs ww) for season 1. Season 1 is from March 1 through August 31. Data comes from the commercial logbook dataset from 2015 to 2020 (n = 7,720 trips), and the weight unit is in pounds whole weight. The orange line represents the current commercial trip limit of 1,200 pounds whole weight.

Table 4.5.1.1. The projected closure dates for the greater amberjack commercial sector Season 1 from increasing the trip limit. The closure dates were generated from the three different landings

scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Year	Commercial ACL Season 1*	Scenario 1	Scenario 2	Scenario 3
		Closure Date	Closure Date	Closure Date
No Trip Limit Change (1,200 lbs Limit) (Alternative 1)				
2022/2023	1,027,447	None	None	None
2024/2025	661,038	None	None	18-Aug
2026/2027	626,086	None	None	3-Aug
1,500 lbs Trip Limit (Sub-alternative 2a)				
2022/2023	1,027,447	None	None	None
2024/2025	661,038	None	None	8-Aug
2026/2027	626,086	None	None	26-Jul
2,000 lbs Trip Limit (Sub-alternative 2b)				
2022/2023	1,027,447	None	None	None
2024/2025	661,038	None	None	26-Jul
2026/2027	626,086	None	None	14-Jul
2,500 lbs Trip Limit (Sub-alternative 2c)				
2022/2023	1,027,447	None	None	None
2024/2025	661,038	None	None	15-Jul
2026/2027	626,086	None	None	3-Jul

*Commercial ACLs (lbs ww) for greater amberjack are based on the revised total ACL from Preferred Alternative 2 in Action 1, and Preferred Alternative 1 (No Action) in Action 2.

Season 2 landings and predicted closures

During Season 2 (September through the end of February), the majority of commercial trips harvest less than the current trip limit of 1,000 pounds, with less than 10% trips landing more than 1,000 to 1,200 pounds (Figure 4.5.1.2). **Alternative 3** and its sub-alternatives consider increasing the commercial trip limit for Season 2. As harvest rates could be expected to increase under an increased trip limit, the commercial fishing season may be shortened under current AMs if the quota is met in-season. A prediction of future landings and potential in-season closure dates are shown in Table 4.5.1.2. For all Alternative 3 sub-alternatives, the predicted in-season closure dates span from as early as February 8 to no in-season closure needed. The Season 2 quota could be reached as early as February 8 under **Sub-Alternative 3d**, February 28 under **Sub-Alternative 3c**, and no in-season closures expected under **Sub-Alternatives 3a** or **3b**. The most conservative projected landings are under **Alternative 1 (No Action)** in which Season 2 would retain the lowest trip limit at 1,000 pounds, resulting in no expected closures. However, because commercial harvest is still constrained by the ACL, and AMs are in place to prevent the ACL from being exceeded, any increase in harvest should not result in adverse biological consequences to the stock. Therefore, the biological effects to the stock from **Alternatives 3** and its **sub-alternatives** could be neutral relative to **Alternative 1 (No Action)**.

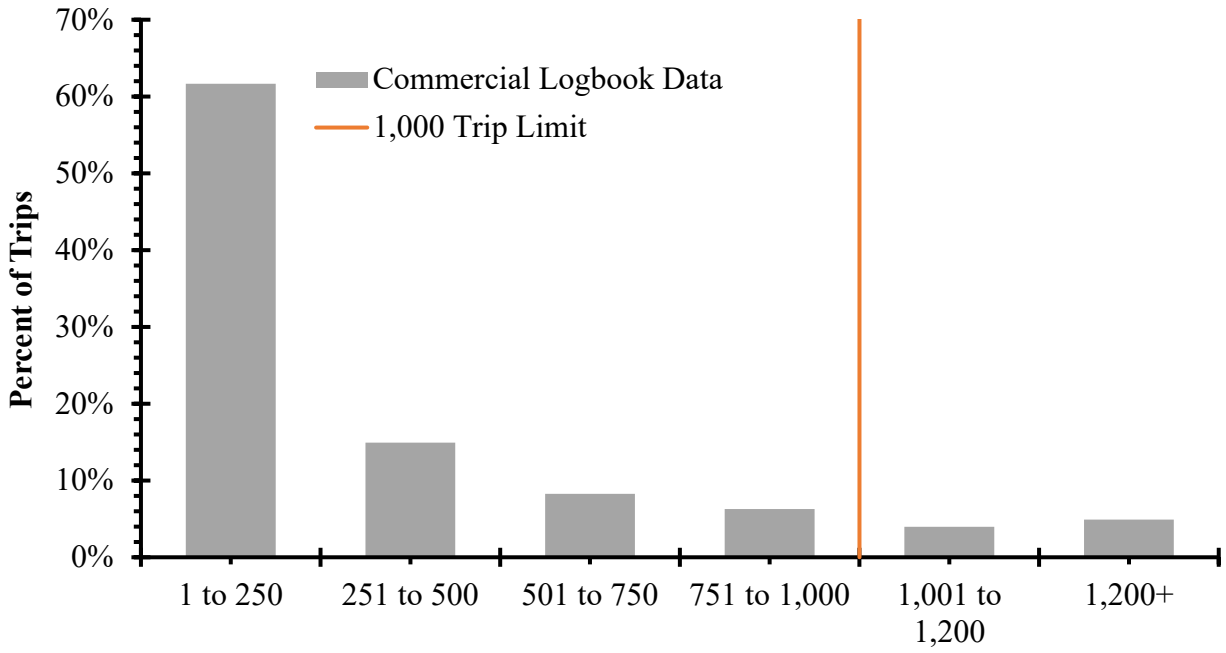

Figure 4.5.1.2. Distribution of the South Atlantic greater amberjack commercially harvested per trip (lbs ww) for Season 2. Season 2 is from September 1 through February 28. Data comes from the commercial logbook dataset from 2015 to 2020 (n = 3,075 trips), and the weight unit is pounds whole weight. The orange line represents the current commercial trip limit of 1,000 pounds whole weight.

Table 4.5.1.2. The projected closure dates for the greater amberjack commercial sector Season 2 from increasing the trip limit. The closure dates were generated from the two different landings scenarios of 1) three-year average of the most recent years of complete data, and 2) the maximum landings in the last three years of complete data.

Year	Commercial ACL Season 2*	Scenario 1	Scenario 2
		Closure Date	Closure Date
No Trip Limit Change (1,000 lbs Limit)			
2022/2023	684,965	None	None
2024/2025	440,692	None	None
2026/2027	417,391	None	None
1,200 lbs Trip Limit			
2022/2023	684,965	None	None
2024/2025	440,692	None	None
2026/2027	417,391	None	None
1,500 lbs Trip Limit			
2022/2023	684,965	None	None
2024/2025	440,692	None	None
2026/2027	417,391	None	None
2,000 lbs Trip Limit			
2022/2023	684,965	None	None
2024/2025	440,692	None	None
2026/2027	417,391	None	28-Feb

2,500 lbs Trip Limit			
2022/2023	684,965	None	None
2024/2025	440,692	None	22-Feb
2026/2027	417,391	None	8-Feb

*Commercial ACLs (lbs ww) for greater amberjack are based on the revised total ACL from Preferred Alternative 2 in Action 1, and Preferred Alternative 1 (No Action) in Action 2.

Expected Effects to Bycatch and Discards

Commercial discards of greater amberjack from 2014 through 2016 were low relative to landings (**Appendix F**) and compared to discards of other snapper grouper species, indicating that fishers are likely better able to selectively harvest greater amberjack. In addition to the low release mortality rate of 20% estimated for greater amberjack in the South Atlantic (SEDAR 15 2008 and SEDAR 59 2020), increasing the Season 1 and/or Season 2 commercial trip limit under **Alternatives 2** and **3** and their sub-alternatives could result in fewer discards of greater amberjack compared to **Alternative 1 (No Action)** because more fish can be kept, which is beneficial to the greater amberjack stock.

4.5.2 Economic Effects

Generally, commercial trip limits are not considered to be economically efficient because they require an increase in the number of trips and associated trip costs to land the same amount of fish. However, the negative economic effects of this inefficiency can be offset by price support resulting from the supply limitations and the lengthening of seasons. Given the ACL for greater amberjack that restricts maximum harvest to sustainable levels, the alternative with the fewest number of trips that have to stop retaining greater amberjack because the trip limit has been reached would result in the least amount of direct negative economic effects.

Increasing trip limits would allow for increased revenue on trips that land greater amberjack, thereby resulting in an increase in economic benefits to commercial vessels participating in the fishery through increased revenue. Higher trip limits would allow for higher levels of revenue in fewer trips, thus potentially increasing net economic benefits through increased net revenue. The quantitative effects of this Action are largely captured in the economic effects described in Action 1 and Action 2 for the commercial sector, since increased trip limits would allow for the commercial sector to better utilize the increase in the sector ACL. For comparison purposes, the increase in the trip limit by sub-alternative compared to **Alterative 1 (No Action)** is provided in Table 4.5.2.1.

Table 4.5.2.1. Marginal Increase in commercial trip limits for the sub-alternatives in Action 5 compared to Alternative 1 (No Action).

Alternative 2a	300
Alternative 2b	800
Alternative 2c	1300
Alternative 3a	200
Alternative 3b	500
Alternative 3c	1000

Alternative 3d	1500

Higher trip limits could also likely result in the commercial AMs being triggered sooner, thus creating an earlier commercial harvest closure for the species. Conversely, lower trip limits, such as **Alternative 1 (No Action)**, would allow for some level of commercial greater amberjack harvest over a longer period but contribute less to net operating revenue on trips where greater amberjack are landed. In terms of potential net economic benefits **Sub-alternative 3d**, followed by **Sub-alternative 2c**, **Sub-alternative 3c**, **Sub-alternative 2b Sub-alternative 3b**, **Sub-alternative 2a**, **Sub-alternative 3a**, and **Alternative 1 (No Action)**.

4.5.3 Social Effects

Alternative 2 proposes higher commercial trip limits during season one and season two for greater amberjack and would be expected to directly benefit fishermen operating in the EEZ by allowing for larger landings and thereby increasing trip efficiency.

Projections indicate that the commercial ACLs for greater amberjack (Action 2) would not be reached under the any of the alternatives proposed in Action 2, and the status quo trip limit in **Alternative 1 (No Action)**, apart from a possible closure during the 2026/2027 season (Table 4.2.2). If the higher commercial trip limit for greater amberjack increases overall landings, it is possible the commercial ACL could be reached, triggering AMs and resulting in an early closure and associated negative social effects resulting from decreased fishing opportunities. However, using the last five-years of data, none of the trip limits proposed in **Sub-alternative 2a**, **Sub-alternative 2b**, **Sub-alternative 2c**, or **Sub-alternative 2d** are anticipated to result in a closure (Table 4.5.1.1). Alternatively, for season two, **Sub-alternative 3c** and **Sub-alternative 3d** are anticipated to closure in an early closure of the commercial fishery on February 28th and February 8th, respectively (Table 4.5.1.2)

In general, the potential social effects of a higher trip limit would depend on how fishermen are affected by either a higher trip limit and shorter season, or a lower trip limit and longer seasons. The increased trip limit proposed is anticipated to result in direct social benefits to commercial fishing business in the form of increased trip efficiency and indirect social benefits to fishing communities in the form of increased job opportunities and fish available to the market.

4.5.4 Administrative Effects

Alternative 1 (No Action) would not change the administrative environment from its current condition. Currently, there is a commercial quota monitoring system in place for greater amberjack that is utilized to monitor landings. If the quota for each season is reached prior to the end of the fishing year, NMFS prepares and issues closure notices and enforcement personnel monitors the closures. Since the 2015-2016 fishing year, commercial harvest has experienced an in-season closure three consecutive years due to the quota being reached. Under increased trip limits with **Alternatives 2** and **3** and their sub-alternatives, the quota may be met faster than under **Alternative 1 (No Action)** and an in-season closure notice would be required. The likelihood that a quota closure would occur is higher with higher commercial trip limits. However, with an in-season quota closure, there is also potential that the landings would not

reach 100% of the ACL. In that circumstance, guidance from the South Atlantic Council to NMFS has recommended that harvest for a snapper grouper species should reopen if landings are less than 95% of the ACL, and the projected number of days to meet the ACL is two or more days[16]. Therefore, NMFS would have to monitor the landings and prepare a reopen notice.

Since the yearly quota is currently allocated into two fishing seasons under **Alternative 1 (No Action**), there is potential that fishery managers may have to prepare four in-season notices (i.e., closure notice and reopening notice if it is subsequently determined that a portion of the ACL was not harvested for each of two seasons). Additionally, enforcement personnel would be burdened with potential harvest closures, which they would have to monitor. Outreach materials for each in-season action would take the form of fishery bulletins and updates to NMFS Southeast Regional Office's web site. Similarly, **Alternatives 2** and **3** and their sub-alternatives could potentially require four in-season notices. Therefore, although the administrative burden would be negative under each alternative considered, an increase in administrative effects would be expected to be minimal under **Alternatives 2** and **3** and their sub-alternatives compared to **Alternative 1 (No Action)**.

[16]See the Council's March 6-10, 2017, Summary of Approved Council Motions.

4.6 Action 6. Revise the April spawning closure for greater amberjack

For detailed methodology of the analysis to evaluate the effects of revising the April spawning closure greater amberjack, refer to **Appendix F.**

4.6.1 Biological Effects

Expected effects to greater amberjack

Alternative 1 (No Action) offers some protection to spawning fish by currently limiting possession to only one fish per person per day or per trip, which may have positive biological effects on the stock. **Alternative 2** would also result in additional, and positive, indirect biological effects if greater harvest restrictions are applied during the peak spawning month of April. Although regulatory discarding may slightly increase since a bag limit is not allowed and fish would need to be discarded rather than kept, greater amberjack have a low release mortality rate of 20% and the effects to the stock should be minimal. **Alternative 3** would have direct negative effects on the stock by removing the spawning closure during a peak spawning month for this species. Therefore, while both **Alternative 1 (No Action)** and **Alternative 2** would offer some protection to the stock, overall, **Alternative 2** would indirectly provide the greatest biological benefits compared to **Alternative 1 (No Action)** in that it encompasses stricter management measures for both sectors during spawning season. Whereas removing the spawning closure, as proposed under **Alternative 3**, could have negative biological effects relative to **Alternative 1 (No Action)** and **Alternative 2** since harvest would be allowed during the peak spawning month.

Alternatives

1 (No Action). During April each year, no person may sell or purchase a greater amberjack harvested from the South Atlantic exclusive economic zone and the harvest and possession limit is one per person per day or one per person per trip, whichever is more restrictive.

2. Specify during April each year, no person may sell or purchase, harvest or possess a greater amberjack from the South Atlantic exclusive economic zone and the harvest and possession limit is zero.

3. Remove the April spawning closure for greater amberjack. Allow purchase, harvest, and possession of greater amberjack from the South Atlantic exclusive economic zone according to regulations specified for the rest of the year.

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

Alternatives 2 and **3** consider revising the April spawning closure which takes place during the first commercial season (Season 1). Since the commercial sector has been closed in the month of April for more than twenty years (SAFMC 1991) predicted April landings were obtained by taking the average of the landings from the two closest months to April (March and May) (Figure 4.6.1.1 and Appendix F). A prediction of future landings and potential in-season closure dates are shown in Table 4.6.1.1. Under **Alternative 3**, if the April spawning closure were removed altogether and regular commercial harvest were allowed under the current Season 1 trip limit of 1,200 pounds (Section 4.5), the predicted in-season closure dates span from as early as June 3 to no in-season closure needed.

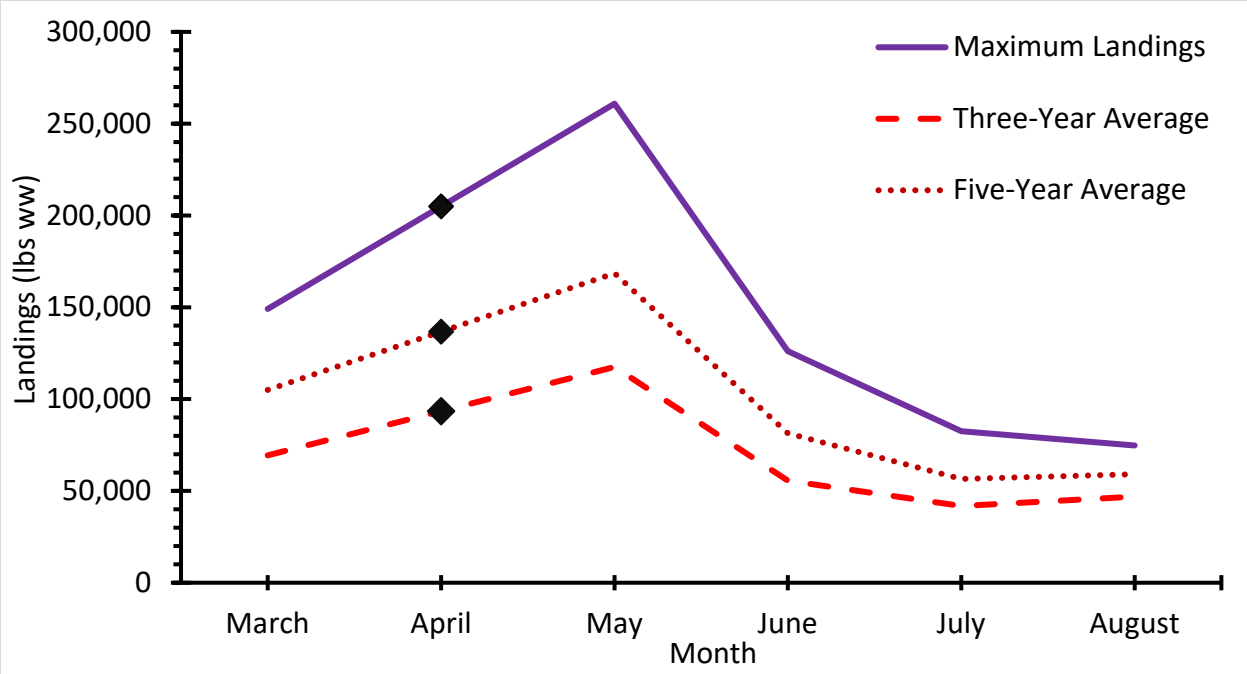

Figure 4.6.1.1. South Atlantic greater amberjack commercial landings in pounds whole weight by month for Season 1 from 2016 to 2020, three-year average, and five-year average with predicted April landings. Predicted April landings are represented with a black diamond.

Table 4.6.1.1. The projected closure dates for the greater amberjack commercial sector season 1 if the commercial sector was open to commercial harvest in April. The closure dates were generated from three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Year	Commercial ACL Season 1	Scenario 1	Scenario 2	Scenario 3
		Closure Date	Closure Date	Closure Date
2022/2023	1,027,447	None	None	None
2024/2025	661,038	None	None	11-Jun
2026/2027	626,086	None	None	3-Jun

Expected Effects to Bycatch and Discards

Commercial discards of greater amberjack from 2014 through 2016 were low relative to landings (**Appendix F)** and compared to discards of other snapper grouper species, indicating that fishers are likely better able to selectively harvest greater amberjack. Greater amberjack have a low release mortality rate of 20% estimated in the South Atlantic (SEDAR 15 2008 and SEDAR 59 2020). In addition, removing the April spawning season closure under **Alternative 3** compared to **Alternative 1 (No Action)** and **Alternative 2,** some of the fish that would result in dead discards could be kept, which could result in beneficial impacts to the greater amberjack stock.

4.6.2 Economic Effects

In general, providing increased protection for spawning greater amberjack would be expected to result in improvements in stock abundance and biomass and create indirect, long-term, positive economic effects presumably through the availability of increased numbers of fish in the future. However, there can be some direct, short-term negative economic effects as fewer fish could be available to harvest until the biomass of harvestable fish increases due to the decrease in the amount of time the species if open to harvest.

Implementing a spawning season closure and harvest prohibition for the recreational sector would be expected to reduce landings of greater amberjack in the short-term and, consequently, CS as well under **Alternative 2** in comparison to **Alternative 1 (No Action)**. Removing the April spawning season closure to allow for commercial quantities of greater amberjack to be harvest and sold under **Alternative 3** would be expected to increase commercial landings and net operating revenue, as measured in PS. From a short-term economic benefits perspective, **Alternative 3** would provide the highest economic benefits followed by **Alternative 1 (No Action)** and **Alternative 2**.

4.6.3 Social Effects

The potential effects on coastal communities of modifying the greater amberjack spawning season closure sale and harvest limits would be a trade-off between the biological benefits of reduced harvest during the spawning season and resulting long term social benefits from a heathier stock and the social benefits of year-round access to fishing opportunities for greater amberjack improving trip profitability and fish available on the market. In general, more restrictive management during spawning seasons may be biologically beneficial to the stock and contribute to sustainable fishing opportunities in the future.

Allowing harvest during commercial spawning season may also increase the harvest rate and trigger AMs if landings reach the ACL sooner in the fishing year. Under **Alternative 3**, the only alternative that would allow commercial harvest of amberjack during the month of April, season one, may not experience any closure or may close as early as June 3rd.

Assuming that closing harvest during spawning ensures sustainable harvest of greater amberjack, as envisioned, long-term benefits to fishing communities in the form of consistent access to the resource would be highest under **Alternative 2**, followed by **Alternative 1 (No Action)**, and **Alternative 3**. Alternatively, short-term negative effects on fishing communities due to restrictions in fishing opportunities would be lowest under **Alternative 3** followed by **Alternative 1 (No Action)**, **and Alternative 2**.

4.6.4 Administrative Effects

Administrative effects would not vary greatly between **Alternative 1 (No Action)** and **Alternative 2**. Currently, both the commercial and recreational sectors for greater amberjack may only harvest and possess the recreational bag limit during April each year, which is already being monitored for enforcement and compliance. Beneficial administrative effects would be

expected from **Alternative 3**, when compared with **Alternative 1** (**No Action**) and **Alternative 2**. Alternatives that specify consistent regulations in federal waters throughout the Council's jurisdiction would contribute to a more favorable administrative environment by helping the public avoid confusion with regulations and aid law enforcement. Administrative impacts on the agency associated with the action alternatives would be incurred by rulemaking, outreach, education and enforcement.

4.7 Action 7. Remove recreational annual catch targets from the Snapper Grouper Fishery Management Plan

4.7.1 Biological Effects

Alternatives

1 (No Action). Retain current recreational annual catch targets for species managed under the Snapper Grouper FMP.

2. Remove current recreational annual catch targets for species managed under the Snapper Grouper FMP.

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

Expected Effects to Snapper Grouper Species

Management controls, such as AMs, are put in place to prevent ACLs from being exceeded, and to correct or mitigate overages of the ACL if they occur. As explained in **Sections 1.4** and **2.7**, recreational ACTs can also be used to prevent ACLs from being exceeded if management measures are tied to those target levels. In managing the snapper grouper fishery, however, the Council is considering removing the recreational ACTs from the Snapper Grouper FMP in this amendment because these targets are not used in regulations. Since the recreational ACT is meant to be set lower than the ACL (and would therefore be reached sooner), using a recreational ACT rather than the ACL as a trigger for AMs in the recreational sector may reduce the incidence of ACL overages and the need to compensate for them. This more conservative approach would likely help to ensure that recreational data uncertainties do not cause or contribute to excessive ACL overages for vulnerable species. Therefore, retaining recreational ACTs under **Alternative 1 (No Action)** could have beneficial effects to snapper grouper species but only if accountability measures were triggered by landings reaching these targets. Because the Council has not employed recreational ACTs in its management strategy for the snapper grouper fishery, the biological effects of **Preferred Alternative 2** would be neutral compared to **Alternative 1 (No Action)**.

Expected Effects to Bycatch and Discards

This action would not be expected to affect discards and/or bycatch, since the only consequence of reaching the ACT would be to continue to monitor the landings, which the Marine Recreational Information Program does continually. For more information on bycatch and discards, see **Appendix G** (BPA).

4.7.2 Economic Effects

The purpose of ACTs is to help prevent a sector from exceeding its ACL due to management uncertainty. Exceeding an ACL would have direct negative economic effects on all sectors potentially due to a reduced stock size. If a species were closed too early for a sector based on the ACT, there would be direct negative economic effects as well because the sector was prohibited from harvesting fish. The ACTs covered by this action only apply to the recreational sector and are not currently tied to any AMs; therefore, there are no expected economic effects

associated with their removal. From a comparison of economic benefits perspective, **Preferred Alternative 2** would be neutral compared to **Alternative 1 (No Action)**.

4.7.3 Social Effects

If tied to management action such as AMs, ACTs would result in negative social impacts in the short term because these would be linked to reduced economic benefits and reduced fishing opportunities. Reductions in harvest thresholds may have potential negative social effects, which can range from changes in fishing behavior to other social disruptions that go beyond impacts to the fishery and may extend to the community or region. However, there would be long-term social benefits for fishermen, communities, and the public by preventing overfishing through an ACT for a stock that has potential to exceed the ACL. Those benefits would include more fishing opportunities and increased income, which should benefit the coastal economy and contribute to community resilience for those involved in these fisheries.

However, as stated in **Section 4.7.1**, recreational ACTs are currently not an active part of the management strategy for snapper grouper species and AMs are in place to ensure that ACLs are not exceeded. Therefore, the social effects of **Preferred Alternative 2** would be neutral compared to **Alternative 1 (No Action)**.

4.7.4 Administrative Effects

Under this action, it is important to note that recreational data collection can be more administratively burdensome due to time delays and lengthy reviews. Specifying a recreational ACT alone would not increase the administrative burden over the status quo, other than adding an additional layer of precautionary monitoring to the system of AMs. In-season monitoring needed for tracking how much of the recreational ACT has been harvested throughout a particular fishing season can potentially result in a need for additional cost and personnel resources if a monitoring mechanism is not already in place. However, because the recreational ACT alternatives as they are presented here do not trigger any corrective or preventative action, no additional in-season monitoring is required regardless of where the recreational ACT level is set. Therefore, administrative burden is expected to be reduced in a small amount under **Preferred Alternative 2**, compared to **Alternative 1 (No Action)**.

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Chapter 5. DRAFT Council's Choice for the Preferred Alternative

5.1 Action 1. Revise the greater amberjack total annual catch limit and annual optimum yield

5.1.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.1.2 Law Enforcement Advisory Panel Comments and Recommendations

5.1.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.1.4 South Atlantic Council Rationale

Alternatives

1 (No Action). The total annual catch limit for greater amberjack is equal to the current acceptable biological catch level.

2. The total annual catch limit for greater amberjack is equal to the updated acceptable biological catch level.

3. The total annual catch limit for greater amberjack is equal to 90% of the updated acceptable biological catch level.

4. The total annual catch limit for greater amberjack is equal to 80% of the updated acceptable biological catch level.

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

5.2 5.2 Action 2. Revise the greater amberjack sector allocations and sector annual catch limits

5.2.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.2.2 Law Enforcement Advisory Panel Comments and Recommendations

5.2.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.2.4 South Atlantic Council Rationale

Alternatives

1 (No Action). Retain the current commercial sector and recreational sector allocations as 40.66% and 59.34%, respectively, of the revised total annual catch limit for greater amberjack.

2. Apply the current allocation formula to the total annual catch limit using the FES-calibrated recreational landings and commercial landings used in SEDAR 59 (2020). This would result in a commercial allocation of 29.85% and a recreational allocation of 70.15%.

3. Allocate 35.00% of the total annual catch limit to the commercial sector and 65.00% of the total annual catch limit to the recreational sector.

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

5.3 5.3 Action 3. Increase the recreational minimum size limit for greater amberjack

5.3.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.3.2 Law Enforcement Advisory Panel Comments and Recommendations

5.3.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.3.4 South Atlantic Council Rationale

Alternatives

1 (No Action). The current recreational minimum size limit is 28 inches fork length.

2. Increase the recreational minimum size limit to 32 inches fork length

3. Increase the recreational minimum size limit to 36 inches fork length

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

5.4 Action 4. Reduce the commercial minimum size limit for greater amberjack

5.4.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.4.2 Law Enforcement Advisory Panel Comments and Recommendations

5.4.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.4.4 South Atlantic Council Rationale

Alternatives

1 (No Action). The current commercial minimum size limit is 36 inches fork length.

2. Decrease the commercial minimum size limit to 32 inches fork length

3. Decrease the commercial minimum size limit to 36 inches fork length

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

5.5 Action 5. Increase the Season 2 commercial trip limit for greater amberjack

5.5.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.5.2 Law Enforcement Advisory Panel Comments and Recommendations

5.5.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.5.4 South Atlantic Council Rationale

Alternatives

1 (No Action). The current Season 2 commercial trip limit is 1000 pounds

2. Increase the Season 2 trip limit to 1,200 pounds.

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

5.6 Action 6. Revise the April spawning closure for greater amberjack

5.6.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.6.2 Law Enforcement Advisory Panel Comments and Recommendations

5.6.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.6.4 South Atlantic Council Rationale

Alternatives

1 (No Action). During April each year, no person may sell or purchase a greater amberjack harvested from the South Atlantic exclusive economic zone and the harvest and possession limit is one per person per day or one per person per trip, whichever is more restrictive.

2. Specify during April each year, no person may sell or purchase, harvest or possess a greater amberjack from the South Atlantic exclusive economic zone and the harvest and possession limit is zero.

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

5.7 Action 7. Remove recreational annual catch targets from the Snapper Grouper Fishery Management Plan

5.7.1 Snapper Grouper Advisory Panel Comments and Recommendations

5.7.2 Law Enforcement Advisory Panel Comments and Recommendations

5.7.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

5.7.4 South Atlantic Council Rationale

Alternatives

1 (No Action). Retain current recreational annual catch targets for species managed under the Snapper Grouper FMP.

2. Remove current recreational annual catch targets for species managed under the Snapper Grouper FMP.

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

Chapter 6. Cumulative Effects

To be completed.

Chapter 7. List of Preparers

Name	Agency/Division	Title
Mike Schmidtke	SAFMC	Fishery Scientist/IPT Lead
Myra Brouwer	SAFMC	Deputy Director for Management
Chip Collier	SAFMC	Deputy Director for Science and Statistics
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Christina Wiegand	SAFMC	Social Scientist
John Hadley	SAFMC	Economist
Cameron Rhodes	SAFMC	Outreach Program Manager
Mary Vara	SERO/SF	Fishery Biologist/IPT Lead
Rick DeVictor	SERO/SF	South Atlantic Branch Chief
Scott Sandorf	SERO/SF	Technical Writer and Editor
Jeff Pulver	SERO/SF	Data Analyst
Mike Larkin	SERO/SF	Data Analyst
Christina Package-Ward	SERO/SF	Social Scientist
David Records	SERO/SF	Economist
Pat O'Pay	SERO/PR	Biologist
David Dale	SERO/Habitat	Regional EFH Coordinator
Shepherd Grimes	NOAA GC	General Counsel
Manny Antonaras	SERO/OLE	Deputy Special Agent in Charge
Matt Walia	SERO/OLE	Enforcement Technician
Kevin Craig	SEFSC	Biologist
David Carter	SEFSC	Economist

HC = Habitat Conservation Division, GC = General Counsel, NMFS = National Marine Fisheries Service, PR = Protected Resources Division, SAFMC = South Atlantic Fishery Management Council, SEFSC = Southeast Fisheries Science Center, SERO = Southeast Regional Office, SF = Sustainable Fisheries Division, OLE = Office of Law Enforcement

Chapter 8. Agencies and Persons Consulted

Responsible Agencies

South Atlantic Fishery Management Council (Administrative Lead)
4055 Faber Place Drive, Suite 201
N. Charleston, South Carolina 29405
843-571-4366/ 866-SAFMC-10 (TEL)
843-769-4520 (FAX)
www.safmc.net

NMFS, Southeast Region
263 13th Avenue South
St. Petersburg, Florida 33701
727- 824-5301 (TEL)
727-824-5320 (FAX)

List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
North Carolina Coastal Zone Management Program
South Carolina Coastal Zone Management Program
Georgia Coastal Zone Management Program
Florida Coastal Zone Management Program
Florida Fish and Wildlife Conservation Commission
Georgia Department of Natural Resources
South Carolina Department of Natural Resources
North Carolina Division of Marine Fisheries
North Carolina Sea Grant
South Carolina Sea Grant
Georgia Sea Grant
Florida Sea Grant
Atlantic States Marine Fisheries Commission
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

Chapter 9. References

Buck, K. M. 2018. Socio-economic profile of the snapper grouper commercial fishery in the South Atlantic region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

Carter, D.W. and C. Liese. 2012. The Economic Value of Catching and Keeping or Releasing Saltwater Sport Fish in the Southeast USA. North American Journal of Fisheries Management, 32:4, 613-625. http://dx.doi.org/10.1080/02755947.2012.675943

Foster, J., F. J. Breidt, and J. D. Opsomer. 2018. AP AIS Data Calibration Methodology Report, Silver Spring, MD.

Haab, T., R. L. Hicks, K. Schnier, and J. C. Whitehead. 2012. Angler heterogeneity and the species-specific demand for marine recreational fishing. Working Paper No. 10-02. Appalachian State University, Department of Economics. Available: http://econ.appstate.edu/marfin/. (September 2014).

Holland, S. M., C. Oh, S. L. Larkin, and A. W. Hodges. 2012. The operations and economics of the for-hire fishing fleets of the South Atlantic states and the Atlantic coast of Florida. University of Florida. Available: https://fred.ifas.ufl.edu/pdf/Holland.pdf. (December 2018).

Jacob, S., P. Weeks, B. Blount, and M. Jepson. 2013. Development and evaluation of social indicators of vulnerability and resiliency for fishing communities in the Gulf of Mexico. Marine Policy 37:86-95.

Jepson, M. and L. L. Colburn. 2013. Development of social indicators of fishing community vulnerability and resilience in the U.S. Southeast and Northeast Regions. U.S. Dept. of Commerce, NOAA Technical Memorandum NMFS-F/SPO-129, 64 p.

National Marine Fisheries Service (NMFS). 2011. A Users Guide to the National and Coastal State I/O Model. 2011. www.st.nmfs.noaa.gov/documents/commercial_seafood_impacts_2007-2009.pdf (accessed February 2016).

NMFS. 2021a. The Marine Recreational Information Program: Survey design and statistical methods for estimation of recreational fisheries catch and effort. Prepared by K. J. Papacostas and J. Foster. Original December 2018, updates March 2021, September 2021. https://media.fisheries.noaa.gov/2021-09/MRIP-Survey-Design-and-Statistical-Methods-2021-09-15.pdf/

NMFS. 2021b. Fisheries Economics of the United States, 2017. U.S. Dept. of Commerce, NOAA Tech. Memo. NMFS-F/SPO-219, 246 p.

Overstreet, E., L. Perruso, and C. Liese. 2018. Economics of the U.S. South Atlantic Snapper-Grouper Fishery - 2016. NOAA Technical Memorandum NMFS-SEFSC-730. 104 p.

SAFMC (South Atlantic Fishery Management Council). 1983. Fishery Management Plan, Regulatory Impact Review and Final Environmental Impact Statement for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Circle, Suite 306, Charleston, South Carolina, 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1987. Regulatory Amendment 1 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1988a. Amendment 1 and Environmental Assessment and Regulatory Impact Review to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 63 pp.

SAFMC (South Atlantic Fishery Management Council). 1988b. Regulatory Amendment 2 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1989. Regulatory Amendment 3 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990a. Amendment 2, to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1990b. Amendment 3, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1991. Amendment 4, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 200 pp.

SAFMC (South Atlantic Fishery Management Council). 1992a. Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992b. Regulatory Amendment 4 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1992c. Regulatory Amendment 5 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1993. Amendment Number 6, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 155 pp.

SAFMC (South Atlantic Fishery Management Council). 1994a. Amendment 7, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 110 pp.

SAFMC (South Atlantic Fishery Management Council). 1994b. Regulatory Amendment 6 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1997. Amendment 8, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 124 pp.

SAFMC (South Atlantic Fishery Management Council). 1998a. Regulatory Amendment 7 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998b. Amendment 9, Final Supplemental Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region.

South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 246 pp.

SAFMC (South Atlantic Fishery Management Council). 1998c. Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (Amendment 10 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 1998d. Comprehensive Amendment Addressing Sustainable Fishery Act Definitions and Other Required Provisions in Fishery Management Plans of the South Atlantic Region (Amendment 11 to the Snapper Grouper Fishery Management Plan). South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699. 151 pp.

SAFMC (South Atlantic Fishery Management Council). 2000a. Amendment Number 12, Regulatory Impact Review, Social Impact Assessment, Initial Regulatory Flexibility Analysis and Supplemental Environmental Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2000b. Regulatory Amendment 8 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2003. Amendment 13A, Regulatory Impact Review, Initial Regulatory Flexibility Analysis and Environmental Assessment for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Suite 306, Charleston, S.C. 29407-4699.

SAFMC (South Atlantic Fishery Management Council). 2006. Amendment 13C, Final Environmental Assessment, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 1 Southpark Cir., Ste 306, Charleston, S.C. 29407-4699. 631 pp.

SAFMC (South Atlantic Fishery Management Council). 2007. Amendment 14, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008a. Amendment 15A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management

Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2008b. Amendment 15B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009a. Amendment 16, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2009b. Comprehensive Ecosystem Based Amendment 1, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for South Atlantic Region (Amendment 19 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405. 286 pp.

SAFMC (South Atlantic Fishery Management Council). 2010a. Amendment 17A, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2010b. Amendment 17B, Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011a. Regulatory Amendment 9, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011b. Regulatory Amendment 10, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011c. Regulatory Amendment 11, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011d. Comprehensive Annual Catch Limit (ACL) Amendment (Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011e. Amendment 24 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2011f. Comprehensive Ecosystem Based Amendment 2, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. (Amendment 23 to the Snapper Grouper FMP). South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012a. Amendment 18A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012b. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2012c. Regulatory Amendment 12, Final Environmental Assessment, Regulatory Flexibility Analysis/Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement for the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place, Ste 201, North Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013a. Amendment 18B to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Final Environmental Impact Statement, Initial Regulatory Flexibility Analysis, Regulatory Impact Review, and Social Impact Assessment/Fishery Impact Statement. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013b. Amendment 28 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013c. Regulatory Amendment 13 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013d. Regulatory Amendment 15 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013e. Regulatory Amendment 18 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region . South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013f. Regulatory Amendment 19 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013g. Amendment 27 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013h. Joint Headboat Reporting Amendment (Amendment 31). South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2013i. Modifications to federally permitted seafood dealer reporting requirements. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014a. Regulatory Amendment 14 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014b. Regulatory Amendment 21 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014c. Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014d. Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2014e. Amendment 32 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2015a. Regulatory Amendment 15 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2015b. Amendment 33 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2015c. Amendment 34 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2015d. Amendment 35 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2016a. Regulatory Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2016b. Regulatory Amendment 25 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2016c. Amendment 37 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2016d. Amendment 36 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017a. Red Snapper Emergency Rule to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017b. Golden Tilefish Interim Rule to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017c. Amendment 41 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017d. Amendment 43 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017e. Amendment 39 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405.

SAFMC (South Atlantic Fishery Management Council). 2017f. Abbreviated Framework 1: Red Grouper to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, Charleston, S.C. 29405

SAFMC. 2020. Regulatory Amendment 29 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment, Regulatory Impact Review, and Regulatory Flexibility Analysis. South Atlantic Fishery Management Council, 4055 Faber Place Drive, Ste 201, North Charleston, S.C. 29405.

Appendix A. Other Applicable Law

To be completed.

Appendix B. Regulatory Impact Review

Appendix C. Regulatory Flexibility Act Analysis

Appendix D. Essential Fish Habitat and Move to Ecosystem Based Management

EFH and EFH-HAPC Designations and Cooperative Habitat Policy Development and Protection

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) requires federal fishery management Councils and the National Marine Fisheries Service (NMFS) to designate essential fish habitat (EFH) for species managed under federal fishery management plans (FMP). Federal regulations that implement the EFH program encourage fishery management Councils and NMFS also to designate subsets of EFH as a way to highlight priority areas within EFH for conservation and management. These subsets of EFH are called EFH-Habitat Areas of Particular Concern (EFH-HAPCs or HAPCs) and are designated based on ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of the habitat type. Information supporting EFH and EFH-HAPC designations was updated (pursuant to the EFH Final Rule) in Fishery Ecosystem Plan (FEP) II.

South Atlantic Council EFH User Guide

The EFH Users Guide (https://safmc.net/download/SAFMCEFHUsersGuideAugust21.pdf) developed during the FEP II development process is available through the FEP II Dashboard and provides a comprehensive list of the designations of EFH and EFH-HAPCs for all species managed by the South Atlantic Fishery Management Council (South Atlantic Council) and the clarifications identified during FEP II development. As noted above, additional detailed information supporting the EFH designations appears in FEP, FEP II, and in individual FMPs, and general information on the EFH provisions of the Magnuson-Stevens Act and its implementing regulations (50 CFR 900 Subparts J and K) can be found at https://www.fisheries.noaa.gov/region/southeast#habitat. These sources should be reviewed for information on the components of EFH assessments, steps to EFH consultations, and other aspects of EFH program operation.

South Atlantic Council EFH Policy and EFH Policy Statements

Policy for Protection and Restoration of EFH

South Atlantic Council Habitat and Environmental Protection Policy

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the South Atlantic Council to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, "habitat" is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the South Atlantic Council policy will be accomplished through the recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of

productive habitats where increased fishery production is probable. The South Atlantic Council will pursue these goals at state, Federal, and local levels. The South Atlantic Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal decision making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the South Atlantic Council.

South Atlantic Council *EFH Policy Statements*
Considerations to Reduce or Eliminate the Impacts of Non-Fishing Activities on EFH
In addition to implementing regulations to protect habitat from degradation due to fishing activities, the South Atlantic Council in cooperation with NMFS, actively comments on non-fishing projects or policies that may impact fish habitat. The South Atlantic Council established a Habitat Protection and Ecosystem Based Management Advisory Panel (AP) and adopted a comment and policy development process. Members of the AP serve as the South Atlantic Council's habitat contacts and professionals in the field and have guided the South Atlantic Council's development of the following Policy Statements:

- EFH Policy Statement on South Atlantic Climate Variability and Fisheries (December 2016)
- EFH Policy Statement on South Atlantic Food Webs and Connectivity (December 2016)
- Protection and Restoration of EFH from Marine Aquaculture (June 2014)
- Protection and Enhancement of Marine Submerged Aquatic Vegetation (June 2014)
- Protection and Restoration of EFH from Beach Dredging and Filling, Beach Re-nourishment and Large Scale Coastal Engineering (March 2015)
- Protection and Restoration of EFH from Energy Exploration, Development, Transportation and Hydropower Re-Licensing (December 2015)
- Protection and Restoration of EFH from Alterations to Riverine, Estuarine and Nearshore Flows (June 2014)
- Policies for the Protection of South Atlantic Marine & Estuarine Ecosystems from Non-Native and Invasive Species (June 2014)
- Policy Considerations for Development of Artificial Reefs in the South Atlantic Region and Protection of Essential Fish Habitat (September 2017)

Habitat Conservation and Fishery Ecosystem Plans

The South Atlantic Council, views habitat conservation as the foundation in the move to Ecosystem Based Fishery Management (EBFM) in the region. The South Atlantic Council has been proactive in advancing habitat conservation through extensive gear restrictions in all South Atlantic Council FMPs and by directly managing habitat and fisheries affecting those habitats through two FMPs, the FMP for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP) and the FMP for the Sargassum Fishery of the South Atlantic Region. The FMP for the Dolphin and Wahoo Fishery in the Atlantic represents a proactive FMP which established fishery measures and identified EFH in advance of overfishing or habitat impacts from the fisheries.

Building on the long-term conservation approach, the South Atlantic Council facilitated the evolution of the Habitat Plan into the first FEP to provide a clear description and understanding

of the fundamental physical, biological, and human/institutional context of ecosystems within which fisheries are managed and identify information needed and how that information should be used in the context of FMPs. Developing a South Atlantic FEP required a greater understanding of the South Atlantic ecosystem, including both the complex relationships among humans, marine life, the environment and essential fish habitat and a more comprehensive understanding of the biological, social, and economic impacts of management necessary to initiate the transition from single species management to EBFM in the region. To support the move towards EBFM, the South Atlantic Council adopted broad goals: (1) maintaining or improving ecosystem structure and function; (2) maintaining or improving economic, (3) social, and cultural benefits from resources; and (4) maintaining or improving biological, economic, and cultural diversity.

Ecosystem Approach to Conservation and Management of Deep-water Ecosystems
The South Atlantic Council's Habitat Protection and Ecosystem Based Management AP and Coral AP supported an ecosystem approach and proactive efforts to identify and protect deep-water coral ecosystems in the South Atlantic region. Through Comprehensive Ecosystem-Based Amendment 1, Comprehensive Ecosystem-Based Amendment 2, and Coral Amendment 8, the South Atlantic Council established and expanded deep-water coral HAPCs (CHAPCs) and co-designated them as EFH-HAPCs to protect the largest continuous distribution (>23,000 square miles) of pristine deep-water coral ecosystems in the world from fishing and non-fishing activities.

FEP II Development
The South Atlantic Council developed FEP II (https://safmc.net/fishery-ecosystem-plan-ii-introduction/), in cooperation with NMFS, as a mechanism to incorporate ecosystem principles, goals, and policies into the fishery management process, including consideration of potential indirect effects of fisheries on food web linkages when developing harvest strategies and management plans. South Atlantic Council policies developed through the process support data collection, model and supporting tool development, and implementation of FEP II. FEP II and the FEP II Implementation Plan provide a system to incorporate of ecosystem considerations into the management process.

FEP II was developed employing writing and review teams established from the South Atlantic Council's Habitat Protection and Ecosystem Based Management AP, and experts from state, federal, NGOs, academia and other regional organizations and associations. Unlike the original Plan, FEP II is a living continually developing online information system presenting core sections and sections with links to documents or other online systems with detailed updated information on species, habitat, fisheries and research. A core part of the FEP II development process involved engaging the South Atlantic Council's Habitat Protection and Ecosystem Based Management AP and regional experts in developing new sections and ecosystem- specific policy statements to address South Atlantic food webs and connectivity and South Atlantic climate variability and fisheries. In addition, standing essential fish habitat policy statements were updated and a new artificial reef habitat policy statement was approved. In combination, these statements advance habitat conservation and the move to EBFM in the region. They also serve as the basis for further policy development, consideration in habitat and fish stock assessments

and future management of fisheries and habitat. They also support a more comprehensive view of conservation and management in the South Atlantic and identify long-term information needs, available models, tools, and capabilities that will advance EBFM in the region.

FEP II Dashboard

The FEP II Dashboard and associated online tools provide a clear description of the fundamental physical, biological, human, and institutional context of South Atlantic ecosystems within which fisheries are managed. The FEP II Digital Dashboard layout and online links follow are below:

- Introduction
- South Atlantic Ecosystem
- South Atlantic Habitats
- Managed Species
- Social and Economic
- Essential Fish Habitat
- SAFMC Managed Areas
- Research & Monitoring
- SAFMC Tools

NOAA EBFM Activities Supporting FEP II

NOAA EBFM Policy and Road Map

To support the move to EBFM, NMFS developed an agency-wide EBFM Policy and Road Map (available through Ecosystem page of the FEP II Dashboard https://safmc.net/fishery-ecosystem-plan-ii-introduction/) that outlines a set of principles to guide actions and decisions over the long-term to implement ecosystem-level planning; advance our understanding of ecosystem processes; prioritize vulnerabilities and risks of ecosystems and their components; explore and address trade-offs within an ecosystem; incorporate ecosystem considerations into management advice; and maintain resilient ecosystems.

FEP II Implementation Plan Structure and Framework

The Implementation Plan (http://safmc.net/download/SAFMC-FEP-II-Implementation-Plan-March-2018.pdf) is structured to translate approved policy statements of the South Atlantic Council into actionable items. The plan encompasses chapters beginning with an introduction to the policy statement, a link to the complete policy statement, and a table which translates policies and policy components into potential action items. The actions within the plan are recommendations for activities that could support the South Atlantic Council's FEP II policies and objectives.

FEP II Two Year Roadmap

The FEP II Two Year Roadmap (http://safmc.net/download/SAFMC-FEP-II-Two-Year-Roadmap-March-2018.pdf) draws from the Implementation Plan and presents three to five priority actions for each of the nine approved policy statements of the South Atlantic Council which would be initiated or completed over the next two years (2019-2020). The Roadmap

provides "Potential Partners" and other potential regional collaborators, a focused list of priority actions they could cooperate with the South Atlantic Council on to advance policies supporting the move to EBFM in the South Atlantic region.

Monitoring/Revisions to FEP II Implementation Plan
FEP II and this supporting Implementation Plan are considered active and living documents. The Implementation Plan will be reviewed and updated periodically. During their spring meeting in 2021 and every three years following, the Habitat Protection and Ecosystem Based Management AP will engage regional experts as needed, to determine whether additional actions addressing council policies should be added to the implementation plan. The South Atlantic Council's Habitat Protection and Ecosystem Based Management Committee will review, revise and refine those recommendations for South Atlantic Council consideration and approval for inclusion into the implementation plan.

Regional Habitat and Ecosystem Partners

The South Atlantic Council, with the Habitat Protection and Environmental Based Management AP as the foundation, collaborates with regional partners to create a comprehensive habitat and ecosystem network in the region to enhance habitat conservation and EBFM.
Detailed information and links to partners are highlighted online:
https://ocean.floridamarine.org/safmc_dashboard/partners.html.

Regional Ecosystem Modeling in the South Atlantic

South Atlantic Ecopath with Ecosim Model
The South Atlantic Council worked cooperatively with the University of British Columbia and the Sea Around Us project to develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the South Atlantic Council. This effort helped the South Atlantic Council and cooperators identify available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provided a vehicle to identify research necessary to better define populations, fisheries, and their interrelationships. While individual efforts were underway in the South Atlantic, only with significant investment of resources through other programs was a comprehensive regional model further developed.

A subsequent collaboration building on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight focused on simulating forage fish population changes that could result from environmental or oceanographic variation associated with climate change effect and how it could potentially affect managed species.

As part of the FEP II development process a new generation South Atlantic ecosystem modeling effort funded by the SALCC, was conducted to engage a broader scope of regional partners. This effort facilitated development of a new generation Ecopath with Ecosim (EwE) model which will ultimately provide evaluation tools for the SSC and South Atlantic Council and inform other regional conservation planning efforts.

The new South Atlantic EwE model provides a more complete view of the system and supports potential future evaluations that may be possible with the model. With the model complete and tuned to the available data it can be used to address broad strategic issues, and explore "what if" scenarios that could then be used to address tactical decision-making questions such as provide ecosystem context for single species management, address species assemblage questions, and address spatial questions using Ecospace.

A modeling team comprised of FWRI staff, South Atlantic Council staff and other technical experts as needed, will coordinate with members of the original Ecosystem Modeling Workgroup to maintain and further refine the South Atlantic Model. Online access to Managed Species Section http://safmc.net/uncategorized/safmc-managed-species/ .

Tools to support EBFM in the South Atlantic Region

The South Atlantic Council developed a Habitat Conservation and Ecosystem Management Section of the website http://safmc.net/fishery-ecosystem-plan-ii-introduction/which provides access to the FEP II Digital Dashboard and associated tools. Florida's FWRI maintains and distributes GIS data, imagery, and documents relevant to habitat conservation and ecosystem-based fishery management in their jurisdiction. Over the last several years, FWRI has created web services and applications using the ArcGIS for Server (AGS) software. AGS enables collaboration among various federal, state and local agencies to evaluate and analyze fisheries-related information in a new way. By transitioning to the AGS platform, the South Atlantic Council enhanced their online suite of tools to support fisheries management in their region. The South Atlantic Council has continued its collaboration with FWRI in the evolution to Web Services provided through the regional South Atlantic Habitat and Ecosystem Atlas (https://safmc-myfwc.hub.arcgis.com/). The Atlas is a platform for searching and visualizing GIS data relevant to the Council's mission. You can view story maps, dashboards, web maps and applications and the South Atlantic Digital Dashboard (http://ocean.floridamarine.org/safmc_dashboard/). The online systems provide access to the following Services:

South Atlantic Fisheries Webservice: (http://ocean.floridamarine.org/SA_Fisheries/)
The service provides access to species distribution and spatial presentation of regional fishery independent data from the Southeast Area Monitoring and Assessment Program (South Atlantic) SEAMAP-SA, the Marine Resources Monitoring, Assessment, and Prediction program (MARMAP), and NOAA Southeast Fishery-Independent Survey (SEFIS).

South Atlantic EFH Webservice: (http://ocean.floridamarine.org/sa_efh/)
The EFH service provides access to spatial representation of EFH and EFH-HAPCs for South Atlantic Council-managed species and Highly Migratory Species.

South Atlantic Managed Areas Service:
(http://ocean.floridamarine.org/safmc_managedareas/).
The Managed Area service provides access to spatial presentations of South Atlantic Council and other managed areas in the region. A new data layer of gear restrictions to include in the Managed Areas map service. Restrictions for black sea bass pots, fish traps, roller rigs, octocoral

harvest, spiny lobster closed areas, golden crab closed areas, pelagic sargassum harvest, and longline prohibited areas are provided.

South Atlantic Artificial Reefs Web Application:
(http://myfwc.maps.arcgis.com/apps/webappviewer/index.html?id=f3c6ac59ee5f49e59f1ae5c96c5bc76b). This application provides a regional view of artificial reefs locations, contents and eventually imagery associated with programs in the southeastern U.S. overseen by individual states (Florida, Georgia, South Carolina, North Carolina).

South Atlantic ACCSP Web Map and Application:
A new ArcGIS Online web map displays Atlantic Coastal Cooperative Statistics Program (ACCSP) Statistical Areas with related ACCSP non-spatial tables of non-confidential data binned into 5-year time steps to better represent catch and values of Council-managed species across time. The web map provides an easy interface to view landings of a statistical area over time. FWRI also created an ACCSP web application for users to query by species for each time step or query by ACCSP Statistical Areas. The ACCSP web application is powered by the web map to display charts of landings and values for ACCSP Statistical Areas. The related table widgets summarize the fields for "live_pounds" and "dollar_values" by species and time step.

South Atlantic Council Habitat and Ecosystem Digital Dashboard Enhancements:
To further enhance the South Atlantic Council's Digital Dashboard and enhance linkages with regional partners mapping and characterizing habitats and documenting species use of habitats in the South Atlantic Region, a live link to the *Okeanos Explorer* while on cruise was added to the Projects page and a link to the Atlantic Coastal Fish Habitat Partnership (ACFHP) was added to the Partners page.

Ecosystem-Based Action, Future Challenges and Needs

The South Atlantic Council has implemented ecosystem-based principles through several existing fishery management actions including establishment of deep-water Marine Protected Areas for the Snapper Grouper fishery, proactive harvest control rules on species (e.g., dolphin and wahoo) which are not overfished, implementing extensive gear area closures which in most cases eliminate the impact of fishing gear on EFH, and use of other spatial management tools including Special Management Zones and Spawning Special Management Zones. Through development of the Comprehensive Ecosystem-Based Amendments, the Council has taken an ecosystem approach to protecting deep-water ecosystems while providing for traditional fisheries for the Golden Crab in areas where they do not impact deep-water coral habitat. The stakeholder-based process tapped into an extensive regional Habitat and Ecosystem network. Support tools facilitate South Atlantic Council deliberations and with the help of regional partners, are being refined to address long-term habitat conservation and EBFM needs.

One of the greatest challenges to enhance habitat conservation and EBFM in the region is funding high priority research, including comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex, and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat

impacts and for South Atlantic Council use in place-based management measures. Additional resources need to be dedicated to expanding regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP, and SEFIS) which are linking directly to addressing high priority management needs. The FEP II Implementation Plan includes Appendix A to highlight research and data needs excerpted from the SEAMAP 5 Year Plan because they represent short and long-term research and data needs that support EBFM and habitat conservation in the South Atlantic Region.

Development of ecosystem information systems to support South Atlantic Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term South Atlantic Council needs. NOAA should support and build on the regional coordination efforts of the South Atlantic Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update information supporting FEP II, which support refinement of EFH designations and spatial representations and future EBFM actions. These are the highest priority needs to support habitat conservation and EBFM, the completion of mapping of near-shore, mid-shelf, shelf edge, and deep-water habitats in the South Atlantic region and refinement in the characterization of species use of habitats.

Appendix E. Alternatives considered but eliminated from detailed analysis

Action 1.

Alternative 5. Revise the total annual catch limit and annual optimum yield for greater amberjack. For the 2022/2023 season through the 2024/2025 season, set the total annual catch limit and annual optimum yield equal to the middle value of the updated acceptable biological catch projected for 2022/2027. For the 2025/2026 season through the 2026/2027 season, set the total annual catch limit and annual optimum yield equal to the updated acceptable biological catch. The 2026/2027 total annual catch limit and annual optimum yield would remain in place until modified.

Fishing Year	Total ACL (lbs ww)
2022/2023	2,818,000
2023/2024	2,818,000
2024/2025	2,818,000
2025/2026	2,699,000
2026/2027+	2,669,000

Appendix F. Data Analyses

Recreational Sector Analyses

The South Atlantic Fishery Management Council's Snapper-Grouper Amendment 49 (Amendment 49) is considering changes to management regulations for the greater amberjack stock. Amendment 49 is considering changes to the recreational sector's Annual Catch Limit (ACL) in Action 2, minimum size limit in Action 3, and closing the recreational sector in April in Action 6.

Predicting Recreational Landings

Recreational landings data for South Atlantic greater amberjack were obtained from the Southeast Fisheries Science Center (SEFSC) on September 1, 2021. The current ACL is being tracked using Marine Recreational Fisheries Statistics Survey (MRFSS) equivalent landings. However, this analysis uses Marine Recreational Informational Program (MRIP) Fishing Effort Survey (FES) data to match the same currency (MRIP FES) as the most recent South Atlantic greater amberjack assessment (SEDAR 59). The data also contains landing from the Southeast Regional Headboat Survey (Headboat). Recreational landings are collected and organized in two-month increments called waves (e.g., January and February = wave 1, March and April = wave 2, etc.).

Future recreational landings were determined from reviewing recent recreational landings data. The greater amberjack recreational fishing year is from March 1 of one year then goes to February 28 in the following year. The most recent complete five years of data are from the fishing years of 2016/2017 to 2020/2021. These data were used to generate three potential future recreational landings scenarios: 1) three year average of the most recent years of complete data (2018/2019, 2019/2020, and 2020/2021), 2) five year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data. The year with the maximum landings in the last five years is the 2016/2017 fishing year. Due to closures in the 2016/2017 fishing year (closed on November 30, 2016) and the 2017/2018 fishing year (closed on October 31, 2017) both landings for scenario 2 and also scenario 3 used the three-year average landings for the November/December and January/February time periods. Figure 1 displays the recreational landings used in this analysis.

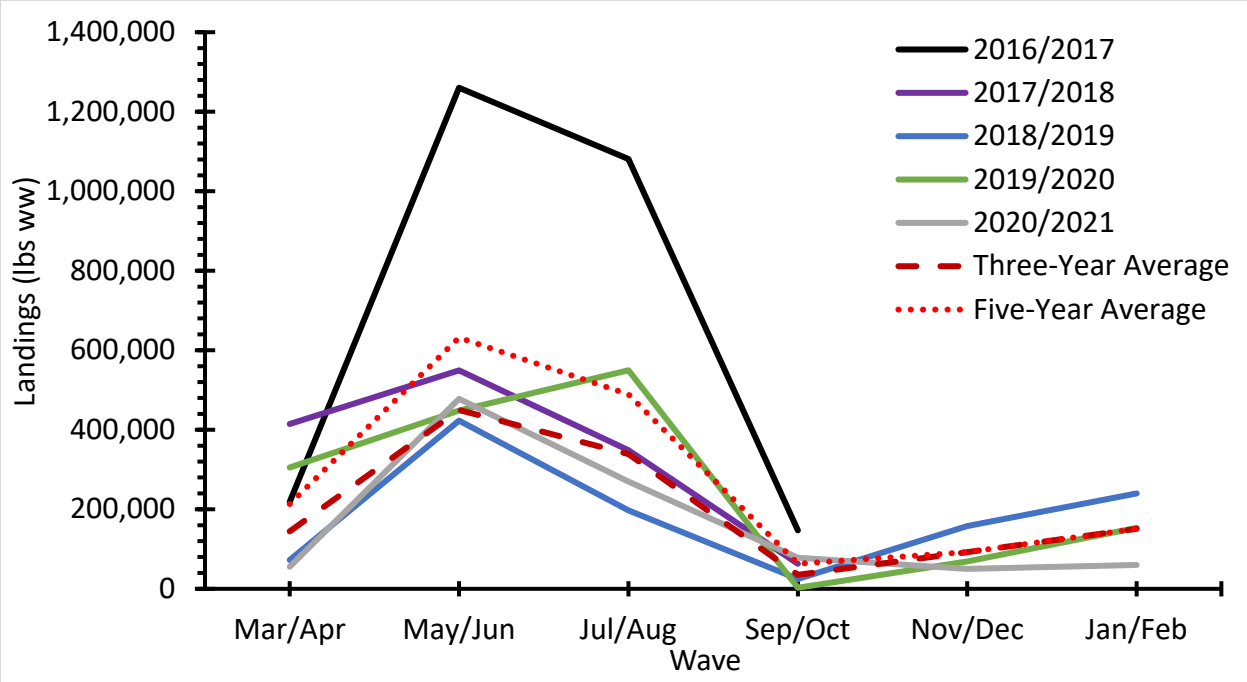

Figure 1. South Atlantic greater amberjack recreational landings by two-month wave for the 2016/2017 to the 2020/2021 fishing years, and the three-year and five-year average. Landings are in pounds whole weight. The fishing years of 2016/2017 and 2017/2018 are not for the full fishing year because these fishing years had recreational closures.

Action 2 of Amendment 49 is considering a range of recreational ACLs with different ACLs for each Amendment Alternative and each fishing year. To simplify the analysis only the lowest, middle, and highest ACLs for each Alternative of Action 2 was included in the analysis. Season lengths were projected by cumulatively summing the recreational landings for the three landings scenarios, and compare the results to the range of recreational ACL options in Action 2 of Amendment 49. **Table 1** provides the predicted closure dates. The predicted closure dates span from July 7 to no closure needed. No closure dates were needed for landings scenario 1 because the three-year average of the recreational landings generated landings below all of the recreational ACLs provided in Action 2. Landings scenario 2 resulted in only one closure date. Landings scenario 3 resulted in a range of closure dates.

Table 1. The projected closure dates for the greater amberjack recreational sector for a range of recreational ACLs from Action 2 assuming total ACLs from Action 1-Preferred Alternative 2. The closure dates were generated from the three different landings scenarios of 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Action 2 Alternative	Year	Recreational ACL	Scenario 1 Closure Date	Scenario 2 Closure Date	Scenario 3 Closure Date
1 (Preferred)	2022/2023	2,599,092	None	None	17-Sep
1 (Preferred)	2024/2025	1,672,201	None	None	12-Jul

1 (Preferred)	2026/2027	1,583,785	None	6-Feb	7-Jul
2	2022/2023	3,073,008	None	None	None
2	2024/2025	1,977,109	None	None	29-Jul
2	2026/2027	1,872,570	None	None	23-Jul
3	2022/2023	2,847,000	None	None	19-Jan
3	2024/2025	1,831,700	None	None	21-Jul
3	2026/2027	1,734,850	None	None	15-Jul

Impact from Increasing the Recreational Minimum Size Limit

Action 3 of Amendment 49 considers an increase to the recreational minimum size limit. The current minimum size limit is 28 inches fork length, and Action 3 considers increasing the minimum size limit to 30, 32, and 36 inches fork length. Available lengths of South Atlantic greater amberjack harvested in the recreational sector in recent years (2015 through 2020) are available from MRIP and Headboat. In August of 2021 MRIP harvested fish lengths were downloaded from the website of www.fisheries.noaa.gov, and Headboat harvested fish lengths were provided from the SEFSC. The harvested fish lengths are shown in Figure 2.

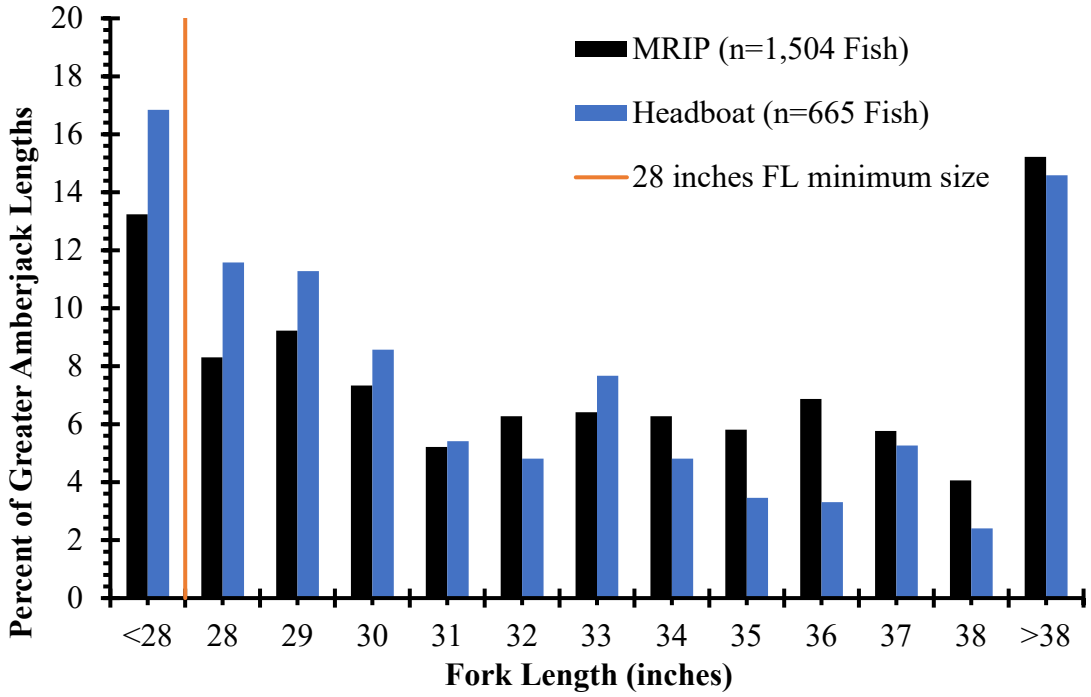

Figure 2. Percent of south Atlantic greater amberjack fork lengths in the recreational sector in 1-inch fork length increments by dataset. The orange line represents the current recreational minimum size limit. Length data came from MRIP and Headboat harvested fish. All of the data came from 2015 through 2020.

The harvested lengths also had weight data for each fish. Percent reductions in harvest weight were calculated for the different Action 3 minimum size limits as follows:

Percent reduction = $((C - G) - B)/C$, where:
C = *catch in pounds whole weight*

G = weight of fish that are greater than or equal to the minimum size limit being considered
B = weight of fish smaller than the 28-inch minimum size limit

Percent reductions associated with minimum size limit were normalized to a 0% reduction at the commercial status quo of 28 inches fork length. Length data from 2015 to 2020 were used for the size limit analysis. Table 2 provides the calculated percent reduction in landings.

Table 2. Calculated percent reduction in recreational landings for the different Amendment 49 Action 3 size limit alternatives using the recent recreational data (2015-2020). The results are separated by the different recreational datasets (MRIP and Headboat).

Action 3 Alternative	Size Limit (Inches FL)	MRIP Reduction (%)	Headboat Reduction (%)
1	28	0	0
2	30	7.4	13.0
3	32	14.4	22.5
4	36	34.9	40.2

Since this South Atlantic analysis used two different datasets (MRIP and Headboat) the percent reductions were simplified by weighting the impact of the percent reductions by each datasets contribution to the total South Atlantic greater amberjack landings. Using the 2015 to 2020 landings data the contribution of the total landings by dataset are shown in Table 3. The simplified weighted percent reductions are shown in Table 4.

Table 3. Percent contribution of the total South Atlantic greater amberjack recreational landings by each dataset. These estimates were generated from the 2015 to 2020 South Atlantic greater amberjack recreational landings.

Dataset	Percentage of Total Landings
MRIP	96.6%
Headboat	3.4%

Table 4. Calculated percent reductions of the total South Atlantic greater amberjack landings for each of the Amendment 49 Action 3 alternatives. The reductions by dataset from Table 2 were weighted by the percent of total landings from Table 3.

Action 3 Alternative	Size Limit (Inches FL)	Weighted Percent Reduction (%)
1	28	0.0
2	30	7.6
3	32	14.7
4	36	35.1

The reduction in landings from increasing the recreational minimum length to 30, 32, and 36 inches fork length were applied to the three recreational landings scenarios. The reduction from increasing the minimum size limit resulted in longer seasons. Table 5 provides the estimated closure dates from the increase in the minimum size limit. This resulted in closures from June 22 to having the recreational sector open a full 12 months.

Table 5. The projected closure dates for greater amberjack for a range of recreational ACLs from Action 1 with three different landings scenarios combined with increased minimum size length of 30, 32, and 36 inches fork length from Action 3. Closure dates for the Action 3 Alternative 1 minimum size limit of 28 inches are provided in Table 1 since this is the current minimum size limit, and assumes no change to the minimum size limit. The three different recreational landings scenarios are 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Alternative	Year	Recreational ACL	Scenario 1	Scenario 2	Scenario 3
			Closure Date	Closure Date	Closure Date
Increased Minimum Size Limit to 30 inches Fork Length					
1	2022/2023	2,599,092	None	None	17-Feb
	2024/2025	1,672,201	None	None	26-Jul
	2026/2027	1,583,785	None	None	20-Jul
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	14-Aug
	2026/2027	1,872,570	None	None	7-Aug
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	5-Aug
	2026/2027	1,734,850	None	None	30-Jul
Increased Minimum Size Limit to 32 inches Fork Length					
1	2022/2023	2,599,092	None	None	None
	2024/2025	1,672,201	None	None	3-Aug
	2026/2027	1,583,785	None	None	28-Jul
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	24-Aug
	2026/2027	1,872,570	None	None	17-Aug
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	14-Aug
	2026/2027	1,734,850	None	None	7-Aug
Increased Minimum Size Limit to 36 inches Fork Length					
1	2022/2023	2,599,092	None	None	None

	2024/2025	1,672,201	None	None	22-Oct
	2026/2027	1,583,785	None	None	31-Aug
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	None
	2026/2027	1,872,570	None	None	None
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	20-Feb
	2026/2027	1,734,850	None	None	19-Dec

Impact from Closing the Recreational Sector in April

Amendment 49 Action 6 is considering closing the recreational sector by not allowing any harvest or possession of greater amberjack in the month of April. This April closure was analyzed by assuming the April recreational landings were zero. The recreational landings are collected in two-month waves and the March/April wave of landings were separated into each month by assuming uniform landings within the March/April wave, and dividing by the number of days each month contributed to the March/April wave. Following the three recreational landing scenarios the predicted April landings are provided in Table 6. Assuming the April landings are zero the predicted closure dates are shown in Table 7. The closure dates ranged from July 13 to having the recreational sector open a full 12 months.

Table 6. The projected recreational landings in April for the three landings scenarios. The three different recreational landings scenarios are 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data. Landings are in pounds whole weight.

Landings Scenario	Predicted April Landings
3 Year average	71,013
5 year average	104,892
Max	107,456

Table 7. The projected closure dates for greater amberjack for a range of recreational ACLs from Action 1 with three different landings scenarios and a closure of the recreational sector in April. The three different recreational landings scenarios are 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Alternative	Year	Recreational ACL	Scenario 1	Scenario 2	Scenario 3
			Closure Date	Closure Date	Closure Date
1	2022/2023	2,599,092	None	None	31-Oct
	2024/2025	1,672,201	None	None	18-Jul
	2026/2027	1,583,785	None	None	13-Jul
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	4-Aug

	2026/2027	1,872,570	None	None	29-Jul
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	27-Jul
	2026/2027	1,734,850	None	None	21-Jul

Combining the Increased Minimum Size Limit with the April closure

Closure dates were projected from combining the reduction in landings from increasing the minimum size limit with the April closure for the three landings scenarios. This resulted in a range of closure dates from as early as July 28 to no closure (Table 8).

Table 8. The projected closure dates for greater amberjack for a range of recreational ACLs from Action 1 with three different landings scenarios combined with increased minimum size length of 30, 32, and 36 inches fork length from Action 3 with the Action 6 April closure. The three different recreational landings scenarios are 1) three-year average of the most recent years of complete data (2018/2019 through 2020/2021), 2) five-year average of the most recent years of complete data (2016/2017 through 2020/2021), and 3) the maximum landings in the last five years of complete data.

Alternative	Year	Recreational ACL	Scenario 1	Scenario 2	Scenario 3
			Closure Date	Closure Date	Closure Date
Increased Minimum Size Limit to 30 inches Fork Length					
1	2022/2023	2,599,092	None	None	None
	2024/2025	1,672,201	None	None	29-Jul
	2026/2027	1,583,785	None	None	23-Jul
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	17-Aug
	2026/2027	1,872,570	None	None	10-Aug
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	8-Aug
	2026/2027	1,734,850	None	None	2-Aug
Increased Minimum Size Limit to 32 inches Fork Length					
1	2022/2023	2,599,092	None	None	None
	2024/2025	1,672,201	None	None	6-Aug
	2026/2027	1,583,785	None	None	31-Jul
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	27-Aug
	2026/2027	1,872,570	None	None	20-Aug
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	17-Aug

	2026/2027	1,734,850	None	None	11-Aug
Increased Minimum Size Limit to 36 inches Fork Length					
1	2022/2023	2,599,092	None	None	None
	2024/2025	1,672,201	None	None	21-Nov
	2026/2027	1,583,785	None	None	18-Sep
2	2022/2023	3,073,008	None	None	None
	2024/2025	1,977,109	None	None	None
	2026/2027	1,872,570	None	None	None
3	2022/2023	2,847,000	None	None	None
	2024/2025	1,831,700	None	None	None
	2026/2027	1,734,850	None	None	15-Jan

Commercial Sector Analyses

The South Atlantic Fishery Management Council's Snapper-Grouper Amendment 49 (Amendment 49) is considering changes to management regulations for the greater amberjack stock. Amendment 49 is considering changes to the commercial sector's Annual Catch Limit (ACL) in Action 2, minimum size limit in Action 4, increasing the commercial trip limit in Action 5, and allow commercial harvest of greater amberjack in April in Action 6.
The South Atlantic greater amberjack commercial sector is separated into two fishing seasons: 1) March 1 through August 31 and 2) September 1 through February 28. This amendment analysis was written with all of the season 1 information is located together in the beginning of the report, and then all of the season 2 information is located together at the end of the report.

Season 1: March 1 through August 31

Predicting Commercial Landings
Commercial landings data for South Atlantic greater amberjack were obtained from the Southeast Fisheries Science Center (SEFSC) on September 29, 2021. Future commercial landings were determined from reviewing recent commercial landings data. The greater amberjack commercial season 1 is from March 1 through August 31. The most recent five years of complete data are from the fishing years of 2016 through 2020. These data were used to generate three potential future commercial landings scenarios: 1) three year average of the most recent years of complete data (2018, 2019, and 2020), 2) five year average of the most recent years of complete data (2016 through 2020), and 3) the maximum landings in the last five years of complete data. The year with the maximum commercial landings in season 1 in the last five years is 2017. Figure 1 displays the season 1 commercial landings used in this analysis.

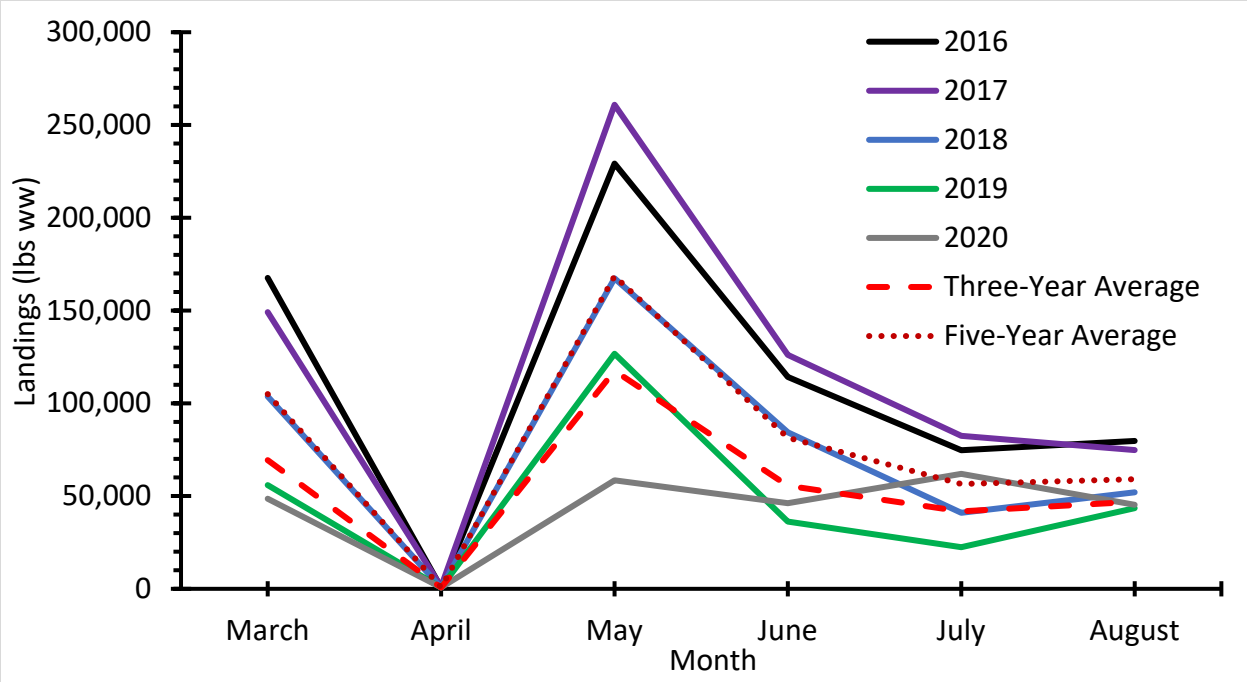

Figure 1. South Atlantic greater amberjack commercial landings by month for season 1 from 2016 to 2020, three-year average, and five-year average. Season 1 is from March through August, and the landings are in pounds whole weight.

Action 2 of Amendment 49 is considering a range of commercial Annual Catch Limits (ACLs) for season 1 with different ACLs for each Amendment Alternative and year. To simplify the analysis only the preferred alternative (Alternative 1 of Action 2) was analyzed. Since Alternative 1 provides a range of five different ACLs only the lowest, middle, and highest ACLs were included in the analysis. Season lengths were projected by cumulatively summing the commercial landings for the three landings scenarios, and compare the results to the lowest, middle, and highest Action 2 Alternative 1 commercial season 1 ACL options. Table 1 provides the predicted closure dates. No closure dates were needed for landings scenario 1 and 2 because these landings were below all of the Alternative 1 season 1 commercial ACLs provided in Action 2. Scenario 3 had predicted closure dates span from August 3 to no closure needed.

Table 1. The projected closure dates for the greater amberjack commercial sector season 1 for Preferred Alternative 1 of Action 2 and Preferred Alternative 2 of Action 1. The closure dates were generated from the three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Action 2 Alternative	Year	Commercial ACL Season 1	Scenario 1 Closure Date	Scenario 2 Closure Date	Scenario 3 Closure Date
1 (Preferred)	2022/2023	1,027,447	None	None	None
1 (Preferred)	2024/2025	661,038	None	None	18-Aug
1 (Preferred)	2026/2027	626,086	None	None	3-Aug

Impact from Decreasing the Commercial Minimum Size Limit in Season 1

Action 4 of Amendment 49 considers a decrease to the commercial minimum size limit. The current commercial minimum size limit is 36 inches fork length, and Action 4 considers decreasing the commercial minimum size limit to 30, 32 and 28 inches fork length. Harvest datasets were not useful for this analysis since it is illegal to harvest greater amberjack below the minimum size limit, and this results in dockside commercial harvest surveys collecting very little length data for greater amberjack below the minimum size limit. However, observer data has length information for released fish, and observer data were provided from the SEFSC on October 12, 2021. The commercial observer program started in the South Atlantic region in 2018, and South Atlantic observer data is only available for the years of 2018, 2019, and 2020. The commercial observer program produced lengths from 38 released greater amberjack in the South Atlantic region. These lengths were plotted in Figure 2. Due to the relatively small number of lengths available for discarded South Atlantic greater amberjack the data were not separated into season 1 and season 2.

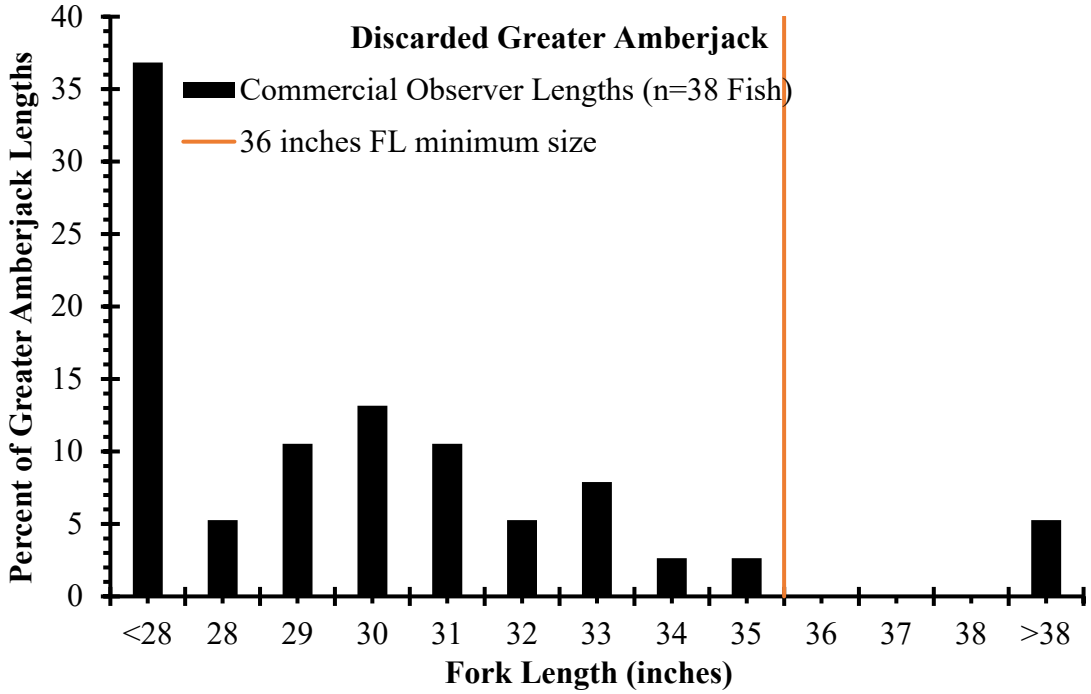

Figure 2. Percent of south Atlantic greater amberjack lengths from released fish in the commercial sector. The data were plotted in 1-inch length increments, and the length data is in fork length. The data came from the commercial observer program which started in the South Atlantic region in 2018. All of the data came from 2018 through 2020. The orange line represents the current commercial minimum size limit of 36 inches fork length.

Reliable estimates of percent reductions in harvest from decreasing the minimum size limit are not possible because of two factors: 1) low number of available data on discarded greater amberjack lengths, and, 2) not having a reliable estimate of the proportion of discards to the total South Atlantic greater amberjack commercial catch. The commercial observer program did not start in the South Atlantic region until 2018, and the program still only sampled a small proportion of the commercial fleet. Therefore, making an assumption on greater amberjack discards compared to the total commercial catch would likely be erroneous. Instead the lengths

shown in Figure 2 can likely only be used for qualitative analysis instead of quantitative analysis. In summary, length data on released greater amberjack is limited. Reducing the minimum size limit will allow harvest of smaller greater amberjack and will likely increase harvest.

Impact from Increasing the Trip Limit for Season 1

Sub-Action 5.1 of Amendment 49 considers increasing the commercial trip limit in season 1. Commercial logbook data provides the pounds harvested per trip, and commercial logbook data were provided from the SEFSC on May 2, 2021. The current trip limit is 1,200 pounds and Sub-Action 5.1 is considering increasing the season 1 trip limit to 1500, 2000, and 2500 pounds. Figure 3 provides the season 1 distribution of greater amberjack harvested per trip in the commercial sector from 2015 to 2020. There are trips (about 8%) that exceeded the current South Atlantic greater amberjack 1,200 pound trip limit.

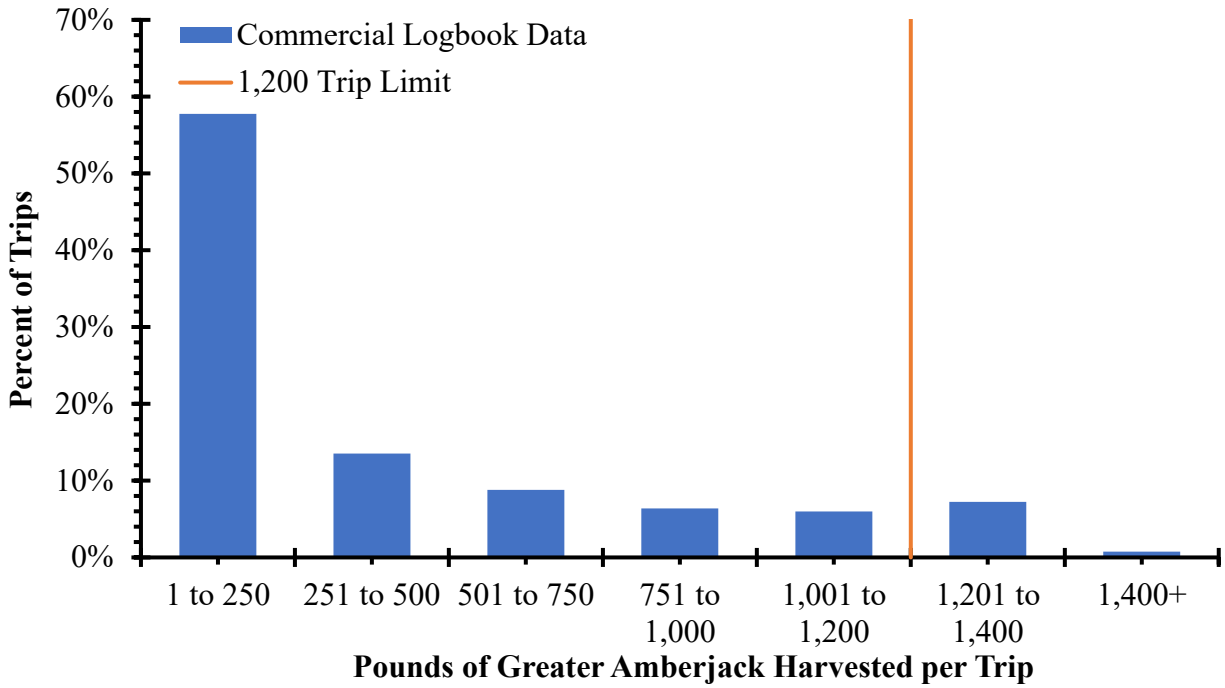

Figure 3. Distribution of the South Atlantic greater amberjack commercially harvested per trip (lbs ww) for season 1. Season 1 is from March 1 through August 31. Data comes from the commercial logbook dataset from 2015 to 2020 (n = 7,720 trips), and the weight unit is in pounds whole weight. The orange line represents the current commercial trip limit of 1,200 pounds whole weight.

Sub-Action 5.1 considers increasing the trip limit in season 1. The impact from increasing the trip limit in season 1 was evaluated assuming that trips that met the current trip limit in recent years will also meet the new trip limit. This provides a maximum estimated harvest rate that may occur if the trip limit is increased. Not all trips meeting the current trip limit will likely meet newly proposed trip limits, but information is not available to determine exactly how many additional pounds of greater amberjack these trips would harvest once the trip limit is increased. Trips that met the current trip limit were defined as trips that landed 1,001 to 1,200 pounds. Therefore, the proposed trip limit of 1,500 pounds is being explored by adjusting any trips that

had 1,001 to 1,200 pounds per trip, and adjusting them to meet the new trip limit of 1,500 pounds per trip. The range starts at 1,001 pounds instead of 1,200 pounds to account for any trips that were close to but under the current trip limit of 1,200 pounds. Trips that harvested below 1,001 pounds per trip were not modified. Trips with landings greater than the current trip limit of 1,200 pounds were not changed since these trips did not follow the current trip limit in the past, and will probably not follow the new implemented trip limit in the future. This modified trip limit analysis was conducted using only season 1 data (March through August) from 2015 to 2020. The analysis resulted in estimated percent increase in commercial landings from increasing the commercial trip limit, and the results are provided in Table 2. The percent increase in landings estimated from increasing the trip limit were applied to the projected landings to generate predicted closure dates. Table 3 provides the predicted closure dates from analyzing the different trip limit increases. Most of the scenarios resulted in no closures, and the earliest closure was July 3rd.

Table 2. Calculated percent increase in commercial landings for the different Amendment 49 Sub-Action 5.1 season 1 trip limit alternatives using the recent commercial logbook data (2015-2020).

Trip Limit	Percent Increase in Landings
1,200	0.0
1,500	3.5
2,000	9.2
2,500	14.9

Table 3. Projected closure dates for the greater amberjack commercial sector season 1 for a range of commercial trip limits (Action 5), assuming the commercial ACL from Preferred Alternative 1 of Action 2 and Preferred Alternative 2 of Action 1. The closure dates were generated from the three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Action 5 Alternative	Season 1 Trip Limit (lbs gw)	Year	Commercial ACL Season 1	Scenario 1 Closure Date	Scenario 2 Closure Date	Scenario 3 Closure Date
1 (No Action)	1200	2022/ 2023	1,027,447	None	None	None
1 (No Action)	1200	2024/ 2025	661,038	None	None	18-Aug
1 (No Action)	1200	2026/ 2027	626,086	None	None	3-Aug
Sub-Alt 2a	1500	2022/ 2023	1,027,447	None	None	None
Sub-Alt 2a	1500	2024/ 2025	661,038	None	None	8-Aug
Sub-Alt 2a	1500	2026/	626,086	None	None	26-Jul

		2027				
Sub-Alt 2b	2000	2022/ 2023	1,027,447	None	None	None
Sub-Alt 2b	2000	2024/ 2025	661,038	None	None	26-Jul
Sub-Alt 2b	2000	2026/ 2027	626,086	None	None	14-Jul
Sub-Alt 2c	2500	2022/ 2023	1,027,447	None	None	None
Sub-Alt 2c	2500	2024/ 2025	661,038	None	None	15-Jul
Sub-Alt 2c	2500	2026/ 2027	626,086	None	None	3-Jul

Allow commercial harvest of greater amberjack in April

Commercial harvest of greater amberjack in the month of April has been closed since it was implemented in 1999 by Amendment 9. Action 6 of Amendment 49 considers opening up the commercial sector to greater amberjack harvest in the month of April. Since the commercial sector has been closed in the month of April for more than twenty years predicted April landings came from taking the average of the landings from the two closest months to April (March and May). Table 4 provide the results of the predicted April landings, and the predicted April landings are also shown in Figure 4. Table 5 has the closure dates that were estimated from applying the predicted April landings to the predicted landings for the rest of the months in season 1.

Table 4. Predicted South Atlantic greater amberjack commercial landings for the month of April for the three different landings scenarios. The three different landings scenarios are 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Landing Scenario	April Landings (lbs ww)
3 year average	93,451
5 year average	136,748
Max	204,985

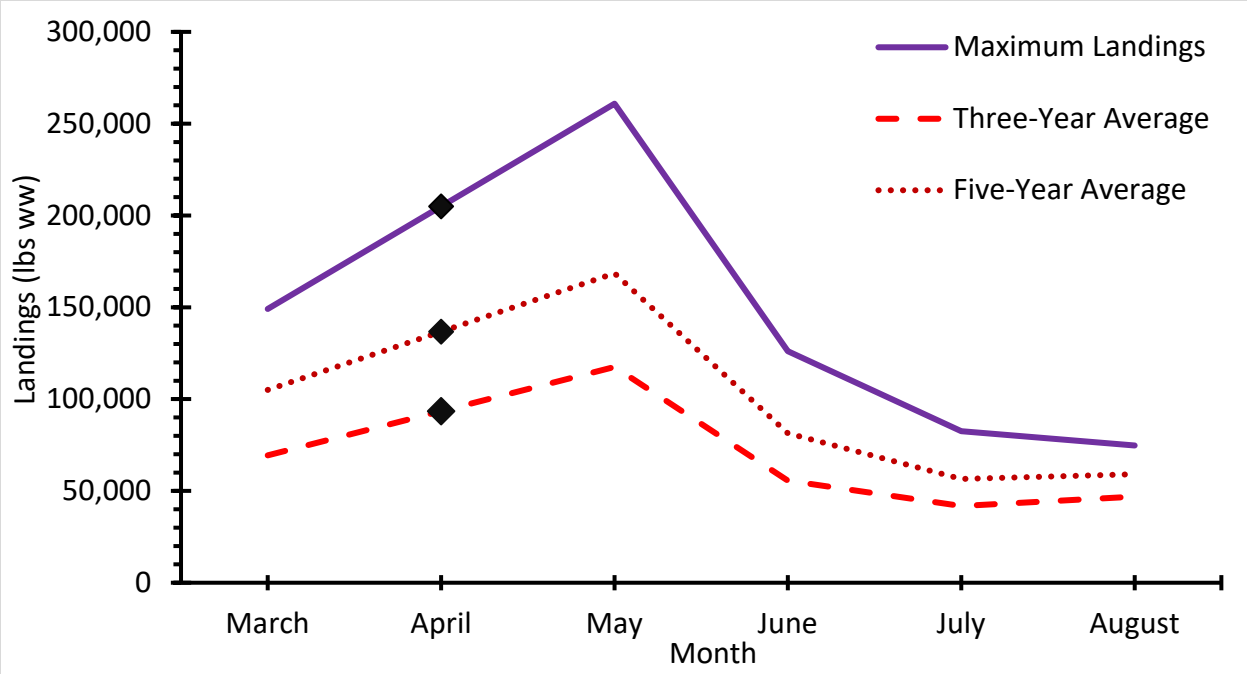

Figure 4. South Atlantic greater amberjack commercial landings by month for season 1 from 2016 to 2020, three-year average, and five-year average with predicted April landings. Predicted April landings are represented with a black diamond. Season 1 is from March through August, and the landings are in pounds whole weight.

Table 5. The projected closure dates for the greater amberjack commercial sector season 1 if the commercial sector was open to commercial harvest in April. The closure dates were generated from three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

	Year	Commercial ACL Season 1	Scenario 1	Scenario 2	Scenario 3
			Closure Date	Closure Date	Closure Date
Preferred Alternative 1	2022/2023	1,027,447	None	None	None
	2024/2025	661,038	None	None	11-Jun
	2026/2027	626,086	None	None	3-Jun

Combination of the Season 1 trip limit increases with the commercial sector being open in April

Amendment 49 has the option to increase the commercial trip limit for season 1 and also open April to commercial harvest of greater amberjack. Table 6 provides predicted closures dates by combining the increased harvest from both the increased trip limits and opening the commercial sector in April. The closure dates range from May 23rd to no closure.

Table 6. The projected closure dates for the greater amberjack commercial sector season 1 for the various trip limit increases and if the commercial sector was open to commercial harvest in

April. The closure dates were generated from three different landings scenarios of 1) three-year average of the most recent years of complete data, 2) five-year average of the most recent years of complete data, and 3) the maximum landings in the last five years of complete data.

Action 5 Alternative	Season 1 Trip Limit (lbs gw)	Year	Commercial ACL Season 1	Scenario 1 Closure Date	Scenario 2 Closure Date	Scenario 3 Closure Date
1 (No Action)	1200	2022/ 2023	1,027,447	None	None	None
1 (No Action)	1200	2024/ 2025	661,038	None	None	11-Jun
1 (No Action)	1200	2026/ 2027	626,086	None	None	3-Jun
Sub-Alt 2a	1500	2022/ 2023	1,027,447	None	None	None
Sub-Alt 2a	1500	2024/ 2025	661,038	None	None	6-Jun
Sub-Alt 2a	1500	2026/ 2027	626,086	None	None	30-May
Sub-Alt 2b	2000	2022/ 2023	1,027,447	None	None	None
Sub-Alt 2b	2000	2024/ 2025	661,038	None	None	30-May
Sub-Alt 2b	2000	2026/ 2027	626,086	None	None	27-May
Sub-Alt 2c	2500	2022/ 2023	1,027,447	None	None	30-Aug
Sub-Alt 2c	2500	2024/ 2025	661,038	None	None	27-May
Sub-Alt 2c	2500	2026/ 2027	626,086	None	None	23-May

Season 2: September 1 through February 28

Predicting Commercial Landings

Commercial landings data for South Atlantic greater amberjack were obtained from the Southeast Fisheries Science Center (SEFSC) on September 29, 2021. Future commercial landings were determined from reviewing recent commercial landings data. The greater amberjack commercial season 2 is September 1 through February 28. Therefore, season 2 is split between two different years such as September 1, 2019 through February 28, 2020, and this example would generate the 2019/2020 season. Season 2 has had some closures in recent years. The season 2 years of 2015/2016, 2016/2017, 2017/2018 all had closures that prevented a full six months of an open season 2. The most recent three years of complete data are from the fishing seasons of 2014/2015, 2018/2019, and 2019/2020. These data were used to generate two potential future commercial landings scenarios: 1) three year average of the most recent years of complete data (2014/2015, 2018/2019, and 2019/2020), and, 2) the maximum landings in the last five years. The year with the maximum commercial landings in season 2 in the last five years came from 2014/2015. Figure 5 displays the season 2 commercial landings used in this analysis.

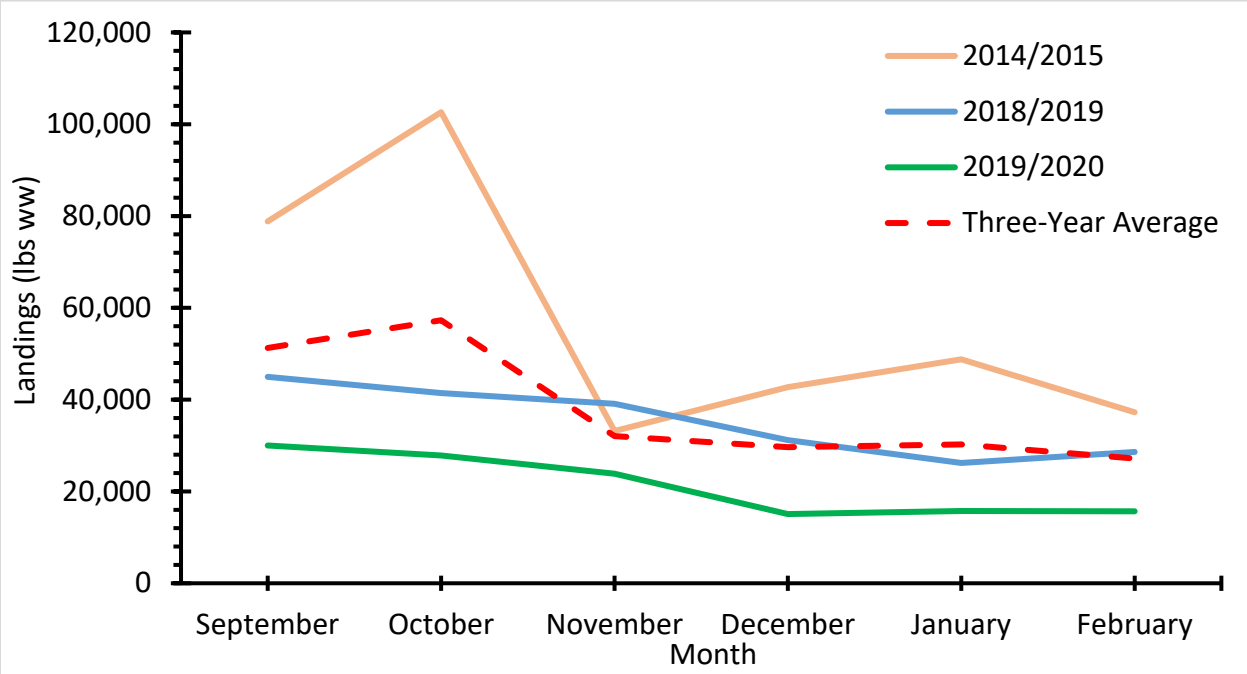

Figure 5. South Atlantic greater amberjack commercial landings by month for season 2 for recent years that did not have a closure, and the three-year average. The three year average came from the most recent years of complete data (2014/2015, 2018/2019, and 2019/2020). Season 2 is from September through February, and the landings are in pounds whole weight.

Season lengths were projected by cumulatively summing the commercial landings for the two landings scenarios, and compare the results to the preferred Alternative 1 of Action 2 of Amendment 49. Table 7 provides the predicted closure dates, and the preferred Alternative 1 of Action 2 ACLs did not result in any closures.

Table 7. The projected closure dates for the greater amberjack commercial sector season 2 for Preferred Alternative 1 of Action 2 and Preferred Alternative 2 of Action 1. The closure dates were generated from the two different landings scenarios of 1) three-year average of the most recent years of complete data, and, 2) the maximum landings in the last five years.

Action 2 Alternative	Year	Commercial ACL Season 2	Scenario 1 Closure Date	Scenario 2 Closure Date
1 (Preferred)	2022/2023	684,965	None	None
1 (Preferred)	2024/2025	440,692	None	None
1 (Preferred)	2026/2027	417,391	None	None

Impact from Decreasing the Commercial Minimum Size Limit in Season 2
Action 4 of Amendment 49 considers a decrease to the commercial minimum size limit. As discussed earlier in this report, reliable estimates of percent reductions in harvest from decreasing the minimum size limit are not possible because of two factors: 1) low number of available data on discarded greater amberjack lengths, and, 2) not having a reliable estimate of the proportion of discards to the total South Atlantic greater amberjack commercial catch. Reducing the minimum size limit will allow harvest of smaller greater amberjack which will likely increase harvest.

Impact from Increasing the Trip Limit for Season 2
Sub-Action 5.2 of Amendment 49 considers increasing the commercial trip limit in season 2. Commercial logbook data provides the pounds harvested per trip, and commercial logbook data were provided from the SEFSC on May 2, 2021. The current trip limit is 1,000 pounds and Sub-Action 5.2 is considering increasing the season 2 trip limit to 1200, 1500, 2000, and 2500 pounds. Figure 6 provides the season 2 distribution of greater amberjack harvested per trip in the commercial sector from 2015 to 2020. There are a relatively large number of trips (9%) in recent years that exceeded the current 1,000 pound trip limit.

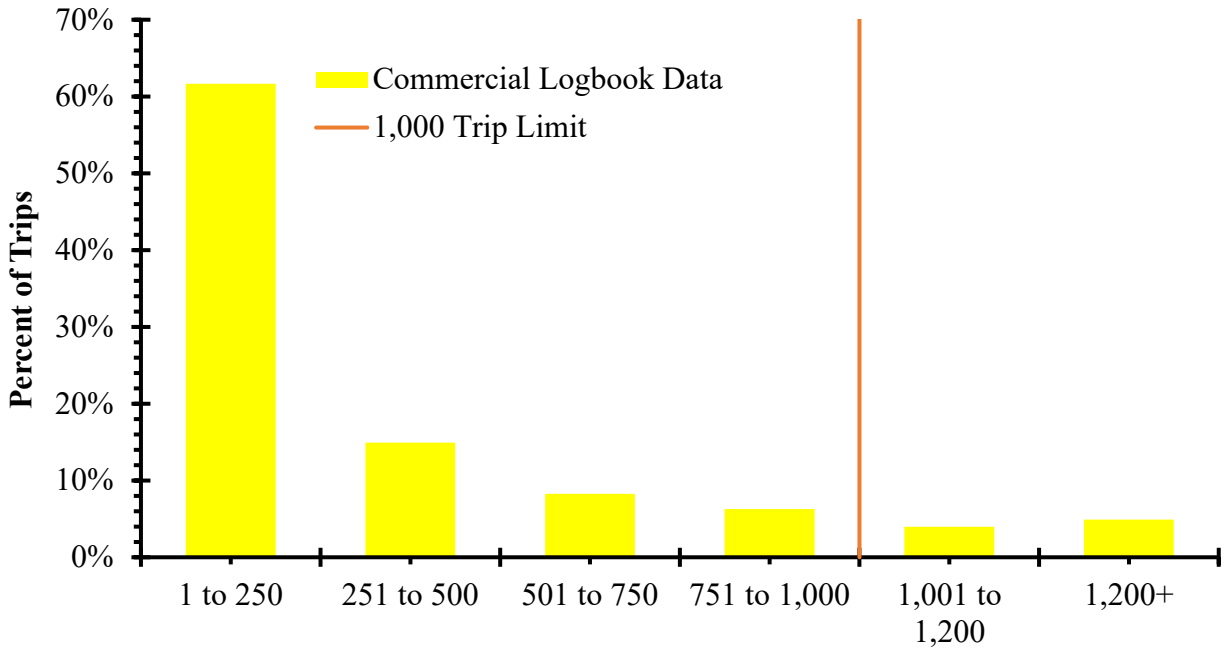

Figure 6. Distribution of the South Atlantic greater amberjack commercially harvested per trip (lbs ww) for season 2. Season 2 is from September 1 through February 28. Data comes from the commercial logbook dataset from 2015 to 2020 (n = 3,075 trips), and the weight unit is pounds whole weight. The orange line represents the current commercial trip limit of 1,000 pounds whole weight.

Sub-Action 5.2 considers increasing the trip limit in season 2. The impact from increasing the trip limit in season 2 was evaluated assuming that trips that met the current trip limit in recent years will also meet the new trip limit. This provides a maximum estimated harvest rate that may occur if the trip limit is increased. Not all trips meeting the current trip limit will likely meet newly proposed trip limits, but information is not available to determine exactly how many additional pounds of greater amberjack these trips would harvest once the trip limit is increased. Trips that met the current trip limit were defined as trips that landed 751 to 1,000 pounds. Therefore, the proposed trip limit of 1,200 pounds is being explored by adjusting any trips that had 751 to 1,000 pounds per trip, and adjusting them to meet the new trip limit of 1,200 pounds per trip. The range starts at 751 pounds instead of 1,000 pounds to account for any trips that were close but under the current trip limit. Trips that harvested below 751 pounds were not modified. Trips with landings greater than the current trip limit of 1,000 pounds were not changed since these trips did not follow the current trip limit in the past, and will probably not follow the implemented trip limit in the future. This modified trip limit analysis was only done using season 2 data (September through February) from 2015 to 2020. The analysis resulted in estimated percent increase in commercial landings from increasing the commercial trip limit, and the results are provided in Table 8. The percent increase in landings estimated from increasing the trip limit were applied to the projected landings to generate predicted closure dates. Table 9 provides the predicted closure dates from the increase in the trip limit. Most of the scenarios resulted in no closures, and the closures that were predicted ranged from February 8 to February 28.

Table 8. Calculated percent increase in commercial landings for the different Amendment 49 Action 5 season 2 trip limit alternatives using the recent commercial data (2015-2020).

Trip Limit	Percent Increase in Landings
1,000	0.0
1,200	5.9
1,500	12.3
2,000	22.0
2,500	31.8

Table 9. The projected closure dates for the greater amberjack commercial sector season 2 for a range of commercial ACLs from Action 1 from increasing the trip limit. The closure dates were generated from the two different landings scenarios of 1) three-year average of the most recent years of complete data, and 2) the maximum landings in the last three years of complete data.

Action 5 Alternative	Season 2 Trip Limit (lbs gw)	Year	Commercial ACL Season 2	Scenario 1 Closure Date	Scenario 2 Closure Date
1 (No Action)	1000	2022/ 2023	684,965	None	None
1 (No Action)	1000	2024/ 2025	440,692	None	None
1 (No Action)	1000	2026/ 2027	417,391	None	None
Sub-Alt 2a	1200	2022/ 2023	684,965	None	None
Sub-Alt 2a	1200	2024/ 2025	440,692	None	None
Sub-Alt 2a	1200	2026/ 2027	417,391	None	None
Sub-Alt 2b	1500	2022/ 2023	684,965	None	None
Sub-Alt 2b	1500	2024/ 2025	440,692	None	None
Sub-Alt 2b	1500	2026/ 2027	417,391	None	None
Sub-Alt 2c	2000	2022/ 2023	684,965	None	None
Sub-Alt 2c	2000	2024/ 2025	440,692	None	None
Sub-Alt 2c	2000	2026/ 2027	417,391	None	28-Feb
Sub-Alt 2d	2500	2022/ 2023	684,965	None	None
Sub-Alt 2d	2500	2024/	440,692	None	22-Feb

		2025			
Sub-Alt 2d	2500	2026/ 2027	417,391	None	8-Feb

Appendix G. Bycatch Practicability Analysis

Appendix H. Fishery Impact Statement