DRAFT DOCUMENT

Amendment 51

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

Catch Level Adjustments, Allocations, and Management Modifications for Snowy Grouper

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

December 2022

South Atlantic Fishery Management Council
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DRAFT DOCUMENT

Amendment 51
to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

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Proposed actions: The actions in Amendment 51 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region would modify management of South Atlantic snowy grouper. Actions would revise annual catch limits, sector allocations, and the fishing season and accountability measures for the recreational sector.

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

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Summary

Why is the South Atlantic Fishery Management Council considering action?

The latest stock assessment (SEDAR 36 Update 2020) indicated the snowy grouper stock is undergoing overfishing and remains overfished. The Magnuson-Stevens Fishery Conservation and Management Act gives the South Atlantic Fishery Management Council (Council) two years from when it receives notification from the National Marine Fisheries Service (NMFS) to develop measures to end overfishing immediately and continue to rebuild the stock consistent with the current rebuilding plan. In addition, the assessment used revised estimates for recreational catch from the Marine Recreational Information Program (MRIP) based on the Fishing Effort Survey (FES). In 2018, the MRIP fully transitioned its estimation of recreational effort to the mail-based FES. Previous estimates of recreational catch for snowy grouper were made using MRIP's Coastal Household Telephone Survey (CHTS) methodology. The latter was not as reliable and robust compared to the new FES survey method (see Section 1.6). 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's Scientific and Statistical Committee (SSC) has recommended a new ABC based on results of the stock assessment, and the total ACL and annual OY must be adjusted accordingly. The Council cannot set the total ACL above their SSC's ABC recommendation. In addition, sector allocations need to be revised because of revisions to recreational catch and effort estimates as explained above as well as to comply with the Council's Allocation Review Trigger Policy (Appendix J). Management measures also need to be adjusted to constrain commercial and recreational harvest to the new fishing levels. Finally, the Council is revising recreational accountability measures (AM) to ensure they are effective at keeping recreational landings from exceeding the recreational ACL and correct for overages when they occur.

Purpose and Need

Purpose: The *purpose* of this fishery management plan amendment is to set an acceptable biological catch level, revise the annual catch limits, annual optimum yield, and sector allocations for South Atlantic snowy grouper based on the results of the most recent stock assessment and modify recreational management measures and accountability measures.

Need: The *need* for this fishery management plan amendment is to end overfishing of South Atlantic snowy grouper, continue to rebuild the stock, and achieve optimum yield while minimizing, to the extent practicable, adverse social and economic effects.

What actions are being proposed in this plan amendment?

Amendment 51 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region proposes four actions. Below are the Council's preferred alternatives for each action.

Action 1: Revise the acceptable biological catch, total annual catch limit and annual optimum yield for snowy grouper

Purpose of Action: The SSC recommended a new OFL and ABC based on results of the SEDAR 36 Update (2020) and the total ACL and annual OY must be adjusted accordingly. The Council cannot set the total ACL above their SSC's recommended ABC.

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 snowy grouper and set them equal to the **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Action 2: Revise the snowy grouper sector allocations and sector annual catch limits

Purpose of Action: The Council's Allocations Trigger Policy (Appendix J) 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 FES methodology. This action allows the Council to consider how to allocate the total ACL between the commercial and recreational sectors from 2023 onwards under the revised catch levels.

Preferred Alternative 2: Allocate 12.45% of the revised total annual catch limit for snowy grouper to the recreational sector and 87.55% of the revised total annual catch limit for snowy grouper to the commercial sector.

Action 3: Modify the snowy grouper recreational season

Purpose of Action: Because the snowy grouper total ACL is being adjusted to address the recent stock assessment and resulting stock status, the Council can adjust management measures to address overfishing and constrain harvest to the proposed recreational ACL.

Preferred Alternative 2. The recreational snowy grouper season is May 1 to June 30.

Action 4: Modify snowy grouper recreational accountability measures

Purpose of Action: Because of the needed reduction in catch levels, the Council is considering a revision to the recreational AM that would be more effective than the current one in keeping catch at the proposed level. In addition, the trigger for the AM may be revised through this action.

Preferred Alternative 3. Remove the current recreational in-season accountability measures. If recreational landings exceed the recreational annual catch limit, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational annual catch limit from being exceeded in the following year. However, the length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that it is not necessary.

Chapter 1. Introduction

1.1 What actions are being proposed in this plan amendment?

The actions in Amendment 51 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) would modify management of South Atlantic snowy grouper. Actions include revising the ABC, annual catch limits (ACL), sector allocations, recreational accountability measures (AM), and management measures for the recreational sector.

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-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 snapper grouper species in the South Atlantic region. The Council develops the amendment and submits it to the National Marine Fisheries Service (NMFS) who determines whether to approve the amendment and publish 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 and other partners to sustainably manage fishery resources in the South Atlantic.

The Council and NMFS are also responsible for making this document available for public comment. The draft environmental assessment (EA) was made available to the public during the scoping process, public hearings, and Council meetings. The EA/amendment will be made available for comment during the rulemaking process.

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 55 species managed by the Council under the Snapper Grouper FMP.

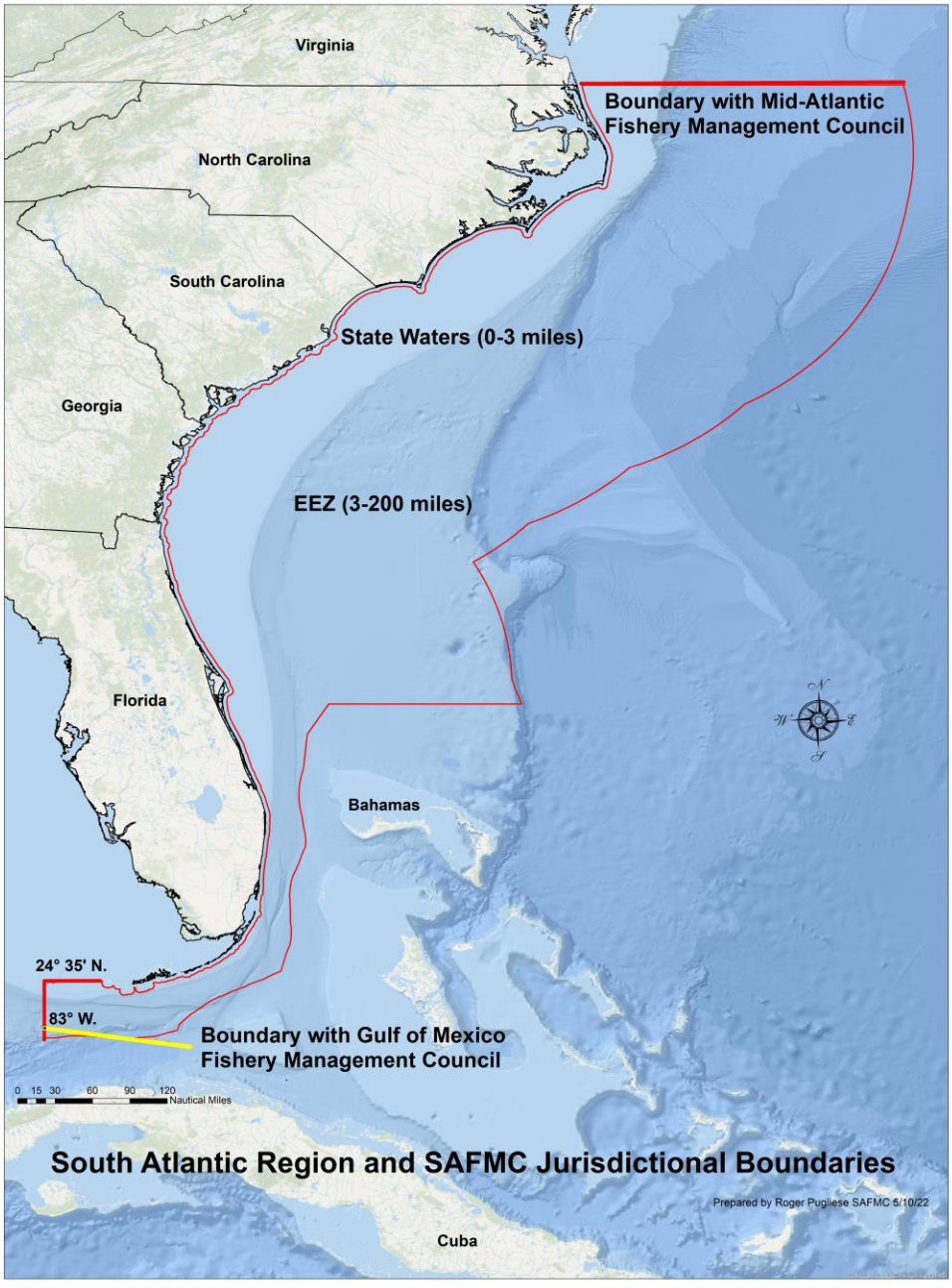

Figure 1.3.1. Jurisdictional boundaries of the Council.

1.4 Why is the Council considering action (Purpose and need statement)?

Purpose: The *purpose* of this fishery management plan amendment is to revise the acceptable biological catch, annual catch limits, and sector allocations for South Atlantic snowy grouper based on the results of the most recent stock assessment and modify management and accountability measures.

Need: The *need* for this fishery management plan amendment is to end overfishing of South Atlantic snowy grouper, continue to rebuild the stock, and achieve optimum yield while minimizing, to the extent practicable, adverse social and economic effects.

The Council is considering action to respond to the most recent stock assessment for South Atlantic snowy grouper (SEDAR 36 Update 2020). The findings of the assessment indicated that the South Atlantic snowy grouper stock remains overfished and undergoing overfishing. The most recent update assessment was finalized in 2021, using data through 2018. The Council's Scientific and Statistical Committee (SSC) reviewed the SEDAR 36 Update and determined that the assessment is based on the best scientific information available. The 2021 stock assessment determined that South Atlantic snowy grouper remains overfished because SSB_{2018} (690 mt) is less than the minimum stock size threshold (MSST) (1,431 mt) and is subject to overfishing because $F_{2016\text{-}2018}$ (0.114) is greater than the maximum fishing mortality threshold (MFMT) (0.101) (Figure 1.4.1). Therefore, the NMFS has determined management action is necessary for snowy grouper in the South Atlantic region as the stock is undergoing overfishing and remains overfished.

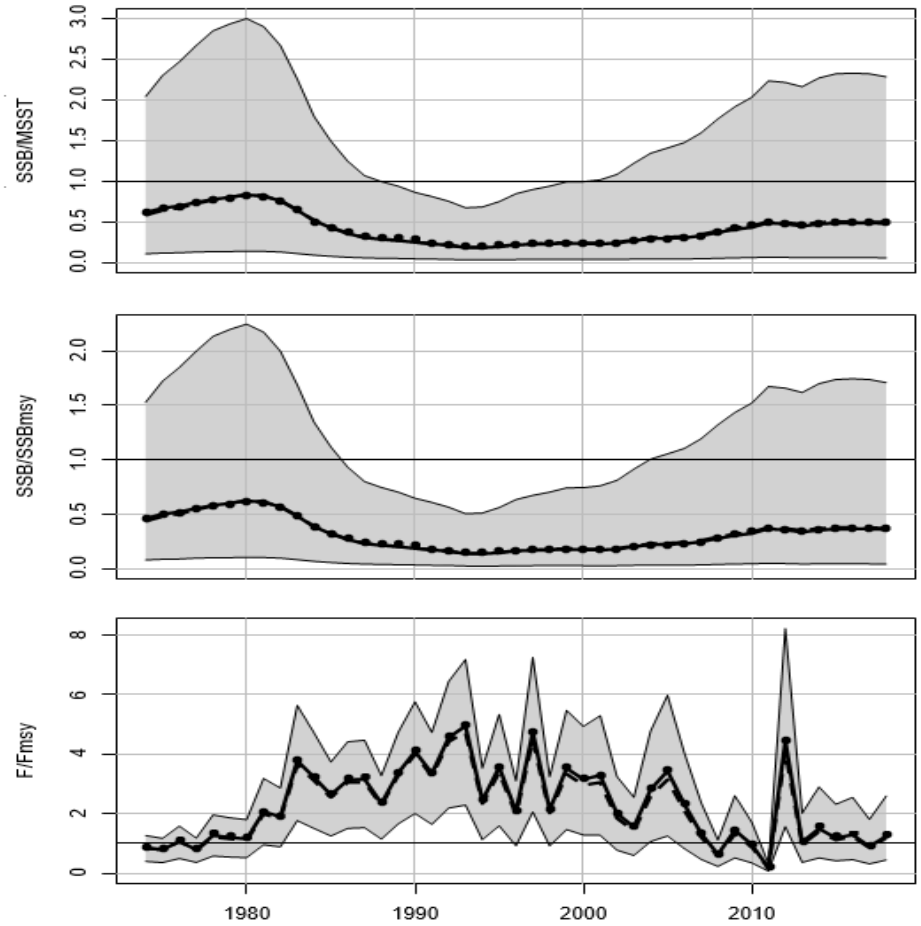

Figure 1.4.1 Estimated time series of spawning stock biomass (SSB) and fishing mortality (F) relative to benchmarks. Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the ensemble modeling. Top panel: SSB relative to the minimum stock size threshold (MSST); if less than 1, stock is overfished. Middle panel: SSB relative to SSB_{MSY}; if less than 1, stock is overfished. Bottom panel: F relative to F_{MSY}; if > 1 stock is undergoing overfishing. *Source: SEDAR 36 Update (2020).*

Amendment 15A (2006) established a 34-year rebuilding plan projecting the stock to be rebuilt in 2039. Stock projections provided in SEDAR 36 Update (2020) projected the stock to have a $P_{rebuild}$ of 0.504 in 2039. These projections show adequate progress within the rebuilding plan in accordance with National Standard 1 (50 CFR 600.310(j)(3)(iv)). Since snowy grouper is making adequate progress toward rebuilding under the current rebuilding plan, the Council is not revising the rebuilding plan through Amendment 51 to the Snapper Grouper Fishery Management plan. See Appendix K for rebuilding projections.

The Council received notification from NMFS (via letter dated June 10, 2021) of the status of the snowy grouper stock. Following notification that a stock is undergoing overfishing and overfished, the Magnuson-Stevens Act requires the Council to develop a fishery management plan amendment with actions that end overfishing immediately and rebuild the affected stock.

1.5 What are the acceptable biological catch and overfishing limit recommendations for snowy grouper?

The Council's (SSC) reviewed the snowy grouper stock assessment (SEDAR 36 Update 2020) at their January 2021 meeting. The assessment followed a standard approach with data through 2018 and incorporated the revised estimates for recreational catch (Fishing Effort Survey). The current acceptable biological catch (ABC) is inclusive of Coastal Household Telephone Survey (CHTS) units to account for private recreational and charter catch and effort while the updated ABC would be inclusive of Fishing Effort Survey (FES) units for these landings. The SSC found that the assessment was conducted using the best scientific information available, was adequate for determining stock status and supporting fishing level recommendations and addressed uncertainty consistent with expectations and available information.

The SSC provided OFL and ABC recommendations for 2023 through 2026 (Table 1.5.1). During their September 2021 meeting, the Council decided to continue to express the commercial ACL in pounds gutted weight and the recreational ACL in numbers of fish. The following SSC recommendations are based on landings in total removals. According to the SEDAR 36 Update, 95.4% of total removals of snowy grouper are landings and 4.6% are dead discards. Landings recommendations have been calculated to account for dead discards (highlighted in blue).

The Council is not exploring options for adjusting the stock status criteria or formulas for determining the associated stock status values in this FMP amendment. This FMP amendment would adopt the values as determined by the SEDAR 36 Update assessment and recommended by the SSC (Deterministic values in Table 1.5.2).

Table 1.5.1. South Atlantic snowy grouper OFL and ABC recommendations (in pounds and numbers of fish) based on management starting in 2023.

Year	OFL in Removals (lbs ww)	OFL Removals (lbs gw)	OFL in Removals (numbers of fish)	OFL in Landings (lbs gw)	OFL in Landings (numbers of fish)
2023	194,000	164,407	21,000	156,844	20,034
2024	193,000	163,559	20,000	156,035	19,080
2025	192,000	162,712	20,000	155,227	19,080
2026	188,000	159,322	20,000	151,993	19,080
Year	**ABC Removals (lbs ww)**	**ABC Removals (lbs gw)**	**ABC Removals (numbers of fish)**	**ABC in Landings (lbs gw)**	**ABC in Landings (numbers of fish)**
2023	148,000	125,424	16,000	119,654	15,264
2024	150,000	127,119	16,000	121,272	15,264
2025	152,000	128,814	16,000	122,889	15,264
2026	152,000	128,814	16,000	122,889	15,264

NOTE: Numbers of fish remain the same throughout the time period for the ABC because it is assumed that fish moving through age classes gain weight therefore increasing the available poundage, however this does not increase the number of fish.

Table 1.5.2. South Atlantic snowy grouper stock status criteria recommendations based on the results of SEDAR 36 Update 2020 (SSC Meeting Report, April 2020).

Criteria	Deterministic	Probabilistic
Overfished evaluation (SSB/SSB_{MSY})	0.48	0.5
Overfishing evaluation ($F_{current}/F_{MSY}$	1.24	1.08
MFMT (F_{MSY})	0.1	0.1
SSB_{MSY} (Total Biomass, mt)	1,908.00	1,930.90
MSST (Total Biomass, mt)	1,430.80	1,448.20
MSY (1000 lbs.)	532	533.6
Y at 75% F_{MSY} (1000 lbs.)	518.5	519.3

1.6 How has recreational data collection changed in the southeast?

The Marine Recreational Fisheries Statistics Survey (MRFSS) was created in 1979 by 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.

MRIP[1] replaced MRFSS in 2013 to meet increasing demand for more precise, accurate, and timely recreational catch estimates. 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 2021).

MRIP also transitioned from the legacy CHTS to a new mail survey (FES) beginning in 2015, and in 2018, the FES replaced the CHTS. Both survey methods collect data needed to estimate marine recreational fishing effort (number of fishing trips) by shore and private/rental boat

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

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 so different, NMFS conducted side-by side testing of the two methods from 2015 to 2018 and developed calibration procedures to convert the historical catch estimates (MRFSS, 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 2021).

1.7 What is the history of management for the snowy grouper fishery?

Snapper grouper regulations in the South Atlantic were first implemented in 1983. The reader is referred to Appendix I for the management history of the species in the Snapper Grouper FMP. Below are amendments to the Snapper Grouper FMP addressing snowy grouper within the South Atlantic EEZ.

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 6 (1993)
The amendment established a separate total allowable catch (TAC) level for golden tilefish and snowy grouper. Incidental catch was estimated at 96,000 pounds and was deducted from the total TAC prior to the start of the fishing year. This amendment also established a commercial trip limit of 2,500 lbs gutted weight for snowy grouper.

Amendment 11 (1998)
The amendment modified 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 snowy grouper F_{msy} proxy as F30%SPR.

Amendment 13C (2006)
The amendment reduced the commercial annual quota from 344,508 pounds gutted weight to 84,000 pounds gutted weight and modified the commercial trip limit from 2,500 pounds gutted weight to 275 pounds gutted weight in year one; 175 pounds gutted weight in year 2; and 100

pounds gutted weight year 3 and onward. This amendment also reduced the recreational bag limit from 5 per person per day to 1 per person per day.

Amendment 15A (2008)
Following the results of SEDAR 4 (2006) which indicated the stock was both overfished and experiencing overfishing, the amendment established a new rebuilding plan and status determination criteria for snowy grouper with the stock projected to be rebuilt in 2039.

Amendment 15B (2008)
Based on landings from 1986-2005 from the Accumulated Landings Systems (ALS), Marine Recreational Fisheries Statistics Survey (MRFSS), and headboat databases to set allocations of 95% to the commercial sector and 5% to the recreational sector.

Amendment 17B (2010)
Amendment 17B modified the recreational bag limit from one per person per day to one per vessel per day and implemented a recreational accountability measure (AM) that would shorten the following fishing year if the recreational ACL was exceeded. This amendment also prohibited the harvest of six deepwater species, including snowy grouper, seaward of 240 feet to reduce bycatch of speckled hind and warsaw grouper.

Regulatory Amendment 11 (2011)
The amendment eliminated the 240-foot harvest prohibition for six deepwater species including snowy grouper.

Regulatory Amendment 20 (2015)
Following SEDAR 36 (2013) which indicated the stock remained overfished but was no longer experiencing overfishing, the amendment modified the snowy grouper rebuilding strategy to maintain a constant fishing mortality rate of $F=75\%F_{MSY}$ throughout the rebuilding timeframe with the ABC changing each year until 2019, after which it would remain in place until modified. The amendment also modified the ACL to equal the ABC and OY, increased the trip limit to 200 lbs gw, and modified the recreational fishing season from the calendar year to May through August. The Council applied its existing allocation formula to the landings data used in SEDAR 36 and adjusted the allocations to 83% commercial and 17% recreational. This recalculation of allocations included landings estimates from Monroe County FL (See Table 1.7.1 for current catch levels).

Year	OFL (lbs gw)	ABC (lbs gw)	Annual OY (lbs gw)	ACL (lbs gw)	Total Commercial ACL (83%) (lbs gw)	Total Recreational ACL (17%) (numbers of fish)
2015	139,098	139,098	139,098	139,098	115,451	4,152
2016	151,518	151,518	151,518	151,518	125,760	4,483
2017	163,109	163,109	163,109	163,109	135380	4,819
2018	173,873	173,873	173,873	173,873	144,315	4,983
2019	185,464	185,464	185,464	185,464	153,935	4,983
2020	185,464	185,464	185,464	185,464	153,935	4,983
2021	185,464	185,464	185,464	185,464	153,935	5,315
2022	185,464	185,464	185,464	185,464	153,935	5,315

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Revise the acceptable biological catch, annual catch limit and annual optimum yield for snowy grouper

2.1.1 Alternatives

Alternative 1 (No Action). The total annual catch limit and annual optimum yield for snowy grouper are equal to the **current** acceptable biological catch level (218,848 pounds whole weight, 185,464 pounds gutted weight). The current acceptable biological catch level is inclusive of recreational estimates from the Marine Recreational Information Program's Coastal Household Telephone 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 snowy grouper and set them equal to the **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Year	OFL (lbs gw)	ABC (lbs gw)	ACL (lbs gw)	Annual OY (lbs gw)
2023	156,844.00	119,654	119,654	119,654
2024	156,035.00	121,272	121,272	121,272
2025	155,227.00	122,889	122,889	122,889
2026	151,993.00	122,889	122,889	122,889

Year	OFL (numbers of fish)	ABC (numbers of fish)	ACL (numbers of fish)	Annual OY (numbers of fish)
2023	20,034	15,264	15,264	15,264
2024	19,080	15,264	15,264	15,264
2025	19,080	15,264	15,264	15,264
2026	19,080	15,264	15,264	15,264

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 snowy grouper and set them equal to 95% of the **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Year	OFL (lbs gw)	ABC (lbs gw)	ACL (lbs gw)	Annual OY (lbs gw)
2023	156,844	119,654	113,671	113,671
2024	156,035	121,272	115,208	115,208
2025	155,227	122,889	116,745	116,745
2026	151,993	122,889	116,745	116,745

Year	OFL (numbers of fish)	ABC (numbers of fish)	ACL (numbers of fish)	Annual OY (numbers of fish)
2023	20,034	15,264	14,501	14,501
2024	19,080	15,264	14,501	14,501
2025	19,080	15,264	14,501	14,501
2026	19,080	15,264	14,501	14,501

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 snowy grouper and set them equal to 90% of the **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

Year	OFL (lbs gw)	ABC (lbs gw)	ACL (lbs gw)	Annual OY (lbs gw)
2023	156,844	119,654	107,689	107,689
2024	156,035	121,272	109,145	109,145
2025	155,227	122,889	110,600	110,600
2026	151,993	122,889	110,600	110,600

Year	OFL (numbers of fish)	ABC (numbers of fish)	ACL (numbers of fish)	Annual OY (numbers of fish)
2023	20,034	15,264	13,738	13,738
2024	19,080	15,264	13,738	13,738
2025	19,080	15,264	13,738	13,738
2026	19,080	15,264	13,738	13,738

Discussion:

The updated ABC and OFL recommendations from the SSC are based on the results of the SEDAR 36 Update 2020 snowy grouper stock assessment. The assessment included updated estimates of recreational fishing effort resulting from the Fishing Effort Survey (FES; Sections 1.5 and 1.6).

Alternative 1 (No Action) would retain the current ABC, OFL, total ACL, and annual OY implemented through Regulatory Amendment 20 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2015). **Preferred Alternative 2** would implement the ABC recommended by the SSC and would establish ABC=ACL=OY. **Alternatives 3** and **4** would also adopt the ABC recommended by the SSC but would add a 5% and 10% buffer, respectively, between the ABC and total ACL and annual OY.

2.1.2 Comparison of Alternatives:

Alternative 1 (No Action) is no longer be based on the best scientific information available (BSIA) and, therefore, is not a viable alternative for consideration in this plan amendment. Relative to **Alternative 1 (No Action)**, **Preferred Alternative 2** through **Alternative 4** would be expected to end overfishing as they do not exceed the SSC's recommended ABCs and would be expected to result in positive biological effects to the snowy grouper stock. **Preferred Alternative 2** could result in the least biological benefit to the snowy grouper stock as there would be no buffer between the SSC's recommended ABCs and the total ACLs and OYs. Biological benefits resulting from **Alternatives 3** and **4** would increase as the buffer increases. Although **Preferred Alternative 2** would allow the greatest amount of harvest of the action alternatives considered, it is equal to the SSC's ABC recommendation and BSIA and represents a catch level that does not result in overfishing and would continue to rebuild the stock under the current rebuilding plan.

Reducing the ABCs, total ACLs and OYs from the current level, as proposed under **Preferred Alternative 2** through **Alternative 4**, would result in an approximately 40% ACL reduction for the commercial sector and approximately 70% ACL reduction for the recreational sector (Action 3). As such, the ACLs would be constraining on the sectors thereby resulting in reduced landings. Total short-term economic benefits for both commercial and recreational vessels would be highest under **Alternative 1 (No Action)**, followed in turn by **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**.

2.2 Action 2. Revise sector allocations and annual catch limits for snowy grouper

2.2.1 Alternatives

Note: The revised sector annual catch limits in Alternatives 1 (No Action) through 4 reflect the revised total annual catch limit in Alternative 2 of Action 1. The revised total annual catch limit includes recreational landings from the MRIP using the FES method used in the latest assessment (SEDAR 36 Update 2020). The commercial season is currently split into two separate seasons, season 1 from January 1 through June 30 receiving 70% of the total commercial ACL and season 2 from July 1 through December 31 receiving 30% of the total commercial ACL.

Alternative 1 (No Action). Retain the current commercial sector and recreational sector allocations as 83% and 17%, respectively, of the revised total annual catch limit for snowy grouper. Apply these percentages to the revised total annual catch limit.

Year	Total ACL (lbs gw)	Total Commercial ACL (lbs gw) 83%	Season 1 (70%)	Season 2 (30%)
2023	119,654	99,313	69,519	29,794
2024	121,272	100,656	70,459	30,197
2025	122,889	101,998	71,399	30,599
2026*	122,889	101,998	71,399	30,599

*Based on Preferred Alternative 2 from Action 1.

Year	Total ACL (numbers of fish)	Recreational ACL (numbers of fish)[2] 17%
2023	15,264	2,278
2024	15,264	2,309
2025	15,264	2,339
2026*	15,264	2,339

*Based on Preferred Alternative 2 from Action 1

*The 2026 ACL would remain in place until modified.

[2] ABC/OFL recommendations in pounds whole weight are converted to pounds gutted weight using a 1.18 NMFS conversion factor. According to SEDAR 36 Update, 95.4% of total removals of snowy grouper are landings and 4.6% are dead discards. Landings recommendations have been calculated to account for dead discards. Recreational allocations in numbers of fish were determined using an average weight from 2016-2018 from SEDAR 36 Update (8.93 lbs gw).

Preferred Alternative 2. Allocate 87.55% of the revised total annual catch limit for snowy grouper to the commercial sector and 12.45% of the revised total annual catch limit for snowy grouper to the recreational sector.

Year	Total ACL (lbs gw)	Total Commercial ACL (lbs gw) 87.55%	Season 1 (70%)	Season 2 (30%)
2023	119,654	104,757	73,330	31,427
2024	121,272	106,174	74,322	31,852
2025	122,889	107,589	75,312	32,277
2026*	122,889	107,589	75,312	32,277

*Based on Preferred Alternative 2 from Action 1.

Year	Total ACL (numbers of fish)	Recreational ACL (numbers of fish)[2] 12.45%
2023	15,264	1,668
2024	15,264	1,691
2025	15,264	1,713
2026*	15,264	1,713

*Based on Preferred Alternative 2 from Action 1.
*The 2026 ACL would remain in place until modified.

Alternative 3. Allocate 73.36% of the revised total annual catch limit for snowy grouper to the commercial sector and 26.64% of the revised total annual catch limit for snowy grouper to the recreational sector.

Year	Total ACL (lbs gw)	Total Commercial ACL (lbs gw) 73.36%	Season 1 (70%)	Season 2 (30%)
2023	119,654	87,778	61,445	26,333
2024	121,272	88,965	62,276	26,689
2025	122,889	90,151	63,106	27,045
2026*	122,889	90,151	63,106	27,045

*Based on Preferred Alternative 2 from Action 1.

Year	Total ACL (numbers of fish)	Recreational ACL (numbers of fish)[2] 26.64%
2023	15,264	3,570
2024	15,264	3,618
2025	15,264	3,666
2026*	15,264	3,666

*Based on Preferred Alternative 2 from Action 1.
*The 2026 ACL would remain in place until modified.

Discussion:
The Council's Allocations Trigger Policy (Appendix J) states the Council will review sector allocations upon completion of a stock assessment. In addition, recreational landings estimates used in the recent stock assessment have been revised to adopt the new FES methodology (Section 1.6). This action allows the Council to consider how to allocate the total ACL between the commercial and recreational sectors from 2023 onwards under the revised catch levels.

The current sector allocations for snowy grouper were implemented through Regulatory Amendment 20 to the Snapper Grouper FMP (SAFMC 2015), in which the Council applied its existing allocation formula to the landings data used in SEDAR 36. The Council used the average landings from 1986 through 2005 to determine the 83% commercial 17% recreational allocation. **Alternative 1 (No Action)** would retain the allocation percentages but apply them to the updated ACL determination in Action 1. **Alternative 2** would use the average landings of updated (FES recreational landings) from 1986-2005 to determine the allocation percentages and apply those percentages to the updated ACL determination in Action 1.

Alternative 3 would use the allocations formula adopted through the Comprehensive ACL Amendment (SAFMC 2011b) for unassessed species. The Council has used this formula to allocate the total ACL for some assessed species such as golden tilefish and red porgy. The formula is as follows:

Sector Allocation Percentage = ((sector's mean landings 2006 to 2008)*0.5)+((sector's mean landings 1986 to 2008)*0.5)

2.2.2 Comparison of Alternatives:

Under **Alternative 1 (No Action)**, sector allocations would remain at 83% of the ACL for the commercial sector and 17% for the total recreational sector. **Preferred Alternative 2** would result in a shift of 4.55% to the commercial sector. **Alternative 3** would result in a shift of 9.64% to the recreational sector. Because the difference between percentages for **Alternative 1 (No Action), Preferred Alternative 2,** and **Alternative 3** differ little, biological effects between alternatives are not expected to differ substantially.

Allocations that allow for more fish to be landed can result in increased positive social and economic effects. For the commercial sector the highest economic and social benefits result from **Preferred Alternative 2** followed by **Alternative 1 (No Action)** and **Alternative 3**. For the recreational sector the highest economic and social benefits result from **Alternative 3**, followed by **Alternative 1 (No Action)** and **Preferred Alternative 2**.

2.3 Action 3. Modify the snowy grouper recreational season

2.3.1 Alternatives

Alternative 1 (No Action). The recreational snowy grouper season is May 1 to August 31.

Preferred Alternative 2. Modify the recreational snowy grouper season to begin on May 1 and end on June 30.

Alternative 3. Modify the recreational snowy grouper season to begin on July 1 and end on August 31.

Discussion:

The updated ABCs recommended by the SSC based on the SEDAR 36 Update (2020) and adopted by the Council, will result in a reduction in harvest. The recreational season is currently monitored in waves, with each wave containing 2 months and a total of 6 waves in the calendar year. The current recreational season spans two waves, wave 3 and 4 of the Marine Recreational Information Program's survey. The average number of snowy grouper landed from the MRIP FES from 2015-2019 were used to predict the season length under updated catch levels based on **Preferred Alternative 2** from **Action 1.** This analysis indicated that the length of the season would be approximately less than one two-month wave.

Alternative 2 would shorten the season to a single two-month wave, with the season open during wave 3 from May 1 through June 30. **Alternative 3** would also shorten the season to a single two-month wave, but the season would be open during wave 4, July 1 through August 31.

2.3.2 Comparison of Alternatives:

Under **Alternative 1 (No Action)**, the current four-month season, it is expected that the recreational ACL would be met before the end of the recreational season as a result of the reduced catch levels. This alternative would rely on the effectiveness of the recreational accountability measure to ensure the recreational ACL is not exceeded. Compared to **Alternative 1 (No Action)** biological benefits are expected to be greater under **Preferred Alternative 2** and **Alternative 3** as they shorten the season to 2 months. A shorter recreational season would reduce recreational landings and potentially prevent ACL overages. **Preferred Alternative 2** and **Alternative 3** may cause an increase in snowy grouper discards as recreational fishermen continue to fish for blueline tilefish in some areas (See section 4.1.1 for co-catch information).

Fewer net economic benefits can be expected when a sector ACL is not fully harvested. Therefore, under **Preferred Alternative 2** and **Alternative 3**, there is potential for the ACL to not be fully harvested. **Alternative 1 (No Action)** provides the longest season and therefore the greatest opportunity to harvest the full ACL. Participation in the recreational sector of the South Atlantic snowy grouper fishery typically peaks in May and August but can vary regionally, therefore **Preferred Alternative 2** would allow for recreational access during a time when

participation is high with potentially lower chance of accountability measures being triggered when compared to **Alternative 1 (No Action)**. **Preferred Alternative 2** and **Alternative 3** would be less likely to exceed the recreational ACL and trigger the recreational accountability measures, which generally have a negative social effect. **Preferred Alternative 2** and **Alternative 3** also reduce harvest during the spawning season when compared to the current four-month season, which could contribute to rebuilding goals and provide long-term social benefits. See section 4.3.1 for spawning season information.

Administrative effects may be greater with a shorter season, as overages and thus the actions needed to prevent or correct for them would be more likely for either single wave alternative (**Preferred Alternative 2** and **Alternative 3**). There is currently an in-season accountability measure for the recreational snowy grouper fishery that closes the current season if the recreational ACL is met or expected to be met. If this closure is implemented, then the closure would need to be announced through a Federal Register Notice and NMFS would need to determine if the current post-season accountability measure would also be triggered.

2.4 Action 4. Revise the snowy grouper recreational accountability measures

2.4.1 Alternatives

Note: The May 1 date in **Alternative 2** is dependent on the selected preferred alternative from Action 3. If the preferred alternative changes, then this date will be modified.

Alternative 1 (No Action). If recreational landings reach or are projected to reach the recreational annual catch limit, recreational harvest of snowy grouper is closed for the remainder of the fishing year, regardless of stock status, unless National Marine Fisheries Service determines that no closure is necessary based on the best scientific information available.

If recreational landings exceed the recreational annual catch limit, then during the following fishing year recreational landings will be monitored for a persistence in increased landings. If the total annual catch limit is exceeded that year and snowy grouper are overfished, the length of the recreational fishing season and the recreational annual catch limit are reduced by the amount of the recreational annual catch limit overage.

Alternative 2. For the snowy grouper recreational sector, National Marine Fisheries Service will annually announce the recreational fishing season start and end dates in the *Federal Register* and by other methods, as deemed appropriate. The fishing season will start on May 1 and end on the date National Marine Fisheries Service projects the recreational annual catch limit will be met.

Preferred Alternative 3. Remove the current recreational in-season accountability measures. If recreational landings exceed the recreational annual catch limit, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational annual catch limit from being exceeded in the following year. However, the length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that it is not necessary.

Alternative 4. Retain the current recreational in-season accountability measures. If recreational landings exceed the recreational annual catch limit, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational annual catch limit from being exceeded in the following year. However, the length of the recreational season will not be reduced if the Regional Administrator determines, using the best scientific information available, that it is not necessary.

Discussion:

Alternative 1 (No Action) would retain an in-season closure and a potential payback provision for an overage of the recreational ACL, if the total ACL were also exceeded, that would reduce the sector ACL by the amount of the overage. Since the commercial AM is likely to be triggered under the proposed reduced catch level, the total ACL may become a "moving target" if payback is triggered in the commercial sector.

Under **Alternative 2**, NMFS would announce the length of the recreational season annually prior to the start date each year, with an end date corresponding to when the recreational ACL is projected to be met for that year.

Preferred Alternative 3 would remove the potential "double penalty" of a reduction in the season length and a payback of the overage if the total ACL was exceeded. Under this alternative, the AM would not be tied to the total ACL or stock status, but rather only to the recreational ACL. Since the commercial AM is likely to be triggered under the proposed snowy grouper catch level reductions in Amendment 51, the proposed AM modifications in **Preferred Alternative 3** would ensure that overages in the commercial sector do not in turn affect the catch level for the recreational sector. The reduced season length would apply to the fishing season in the year following an overage. **Alternative 4** would retain the current in-season AM, but like **Preferred Alternative 3**, the post-season AM would not be tied to the total ACL or stock status, but rather only to the recreational ACL.

2.4.2 Comparison of Alternatives:

Biological benefits would be expected to be greater for the alternative that provides the most timely and realistic option chosen to trigger and implement an AM. Biological benefits to the snowy grouper stock would be greatest under **Alternative 1 (No Action)**, followed by **Alternative 2**, **Alternative 4**, and **Preferred Alternative 3**.

By curtailing harvest and fishing activity to prevent ACL overages, recreational AMs can indirectly negatively affect net revenues of for-hire operations and consumer surplus on recreational fishing trips. Over the long term, these measures help reduce the risk of overfishing a stock to the point of depletion, and can result in long-term economic benefits through sustained harvest and fishing activity as well as the foregone need for more stringent restrictive management measures needed to rebuild a depleted stock. In terms of potential short-term negative economic effects to the recreational sector, **Alternative 1 (No Action)** would have the highest potential negative economic effects, followed by **Alternative 2**, **Alternative 4**, and **Preferred Alternative 3**.

AMs can also have direct and indirect social effects because, when triggered, it can restrict harvest in the current or subsequent fishing 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. In terms of potential short-term social effects to fishing communities, **Alternative 1 (No Action)** would have the highest negative social effects, followed by **Alternative 2**, **Alternative 4**, and **Preferred Alternative 3**.

Administrative burdens such as data monitoring, rulemaking, outreach, and enforcement would be similar for **Alternative 1 (No Action)**, **Alternative 2**, **Preferred Alternative 3**, and **Alternative 4**.

Chapter 3. Affected Environment

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

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

3.1 Habitat Environment

Information on the 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 (FEP; SAFMC 2009) and the FEP II Dashboard (under revision) which are incorporated here by reference. South Atlantic Fishery Management Council (Council) designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPC) are presented in the SAFMC User Guide. Web Services and spatial representations of EFH and other habitat related layers are accessible through the Council's SAFMC Atlas, a platform for searching and visualizing GIS data relevant to the Council's mission and download of GIS layers and information on regional partners is available through the SAFMC Digital Dashboard.

3.1.1 Essential Fish Habitat

EFH is defined in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) as "those waters and substrates necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S. C. 1802(10)). EFH for species in the Snapper Grouper FMU includes coral reefs, live/hard bottom, submerged aquatic vegetation, artificial reefs and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 ft (but to at least 2000 ft for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional

[2] The FEP can be found at: http://safmc.net/ecosystem-management/fishery-ecosystem-plan/.

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

EFH-HAPCs for golden tilefish includes irregular bottom comprised of troughs and terraces inter-mingled with sand, mud, or shell hash bottom. Mud-clay bottoms in depths of 150-300 meters are HAPC. Golden tilefish are generally found in 80-540 meters, but most commonly found in 200-meter depths.

EFH-HAPC for blueline tilefish includes irregular bottom habitats along the shelf edge in 45-65 meters depth; shelf break; or upper slope along the 100-fathom contour (150-225 meters); hardbottom habitats characterized as rock overhangs, rock outcrops, manganese-phosphorite rock slab formations, or rocky reefs in the South Atlantic Bight; and the Georgetown Hole (Charleston Lumps) off Georgetown, SC.

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

The Council established the special management zone (SMZ) designation process in 1983 in the Snapper Grouper FMP, and SMZs have been designated in federal waters off North Carolina, South Carolina, Georgia, and Florida since that time. The purpose of the original SMZ designation process, and the subsequent specification of SMZs, was to protect snapper grouper populations at the relatively small, permitted artificial reef sites and “create fishing opportunities that would not otherwise exist.” Thus, the SMZ designation process was centered around protecting the relatively small habitats, which are known to attract desirable snapper grouper species.

Similarly, in the Comprehensive Ecosystem-Based Amendment 1 (CE-BA 1; SAFMC 2010), the Council designated EFH areas and EFH-HAPCs under the Snapper Grouper FMP. Under the Magnuson-Stevens Act, FMPs are required to describe and identify EFH and to minimize the adverse effects of fishing on such habitat to the extent practicable. An EFH-HAPC designation adds an additional layer to the EFH designation. Under the Snapper Grouper FMP, EFH-HAPCs are designated based upon ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of habitat type. The Council determined in CE-BA 1 that the Council-designated SMZs met the criteria to be EFH-HAPCs for species included in the Snapper Grouper FMP. Since CE-BA 1, the Council has designated additional SMZs in the Snapper Grouper FMP including Spawning SMZs. The SMZ and EFH-HAPC designations serve similar purposes in pursuit of identifying and protecting valuable and unique habitat for the benefit of fish populations, which are important to both fish and fishers. Therefore, the Council determined that a designated SMZ meets the criteria for an EFH-HAPC designation, and the Council intends that all SMZs designated under the Snapper Grouper FMP also be designated as EFH-HAPCs under the Snapper Grouper FMP.

3.2 Biological and Ecological Environment

3.2.1 Snowy Grouper

3.2.1.1 Life History

The snowy grouper, *Epinephelus niveatus*, is a commercially important deep-water species that occurs in the western Atlantic from Massachusetts to Brazil, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico (Carpenter 2002). Stray specimens have been collected in the Canadian Atlantic (Scott and Scott 1988). Along the coast of the southeast United States, adult snowy grouper are predominantly found on the upper continental slope (> 75 m; Lee et al. 1985) at depths of 116-259 m (Low and Ulrich 1983; Moore and Labisky 1984; Parker and Ross 1986), whereas juveniles are more common at shallower depths (Moore and Labisky 1984). Low and Ulrich (1983) and Wyanski et al. (2000) noted a positive correlation between total length (TL) and water depth off South Carolina. Snowy grouper feed on fish, crabs and other crustaceans, squid, and snails (Heemstra and Randall 1993). Information on predators of snowy grouper is limited.

Snowy grouper are protogynous; fish begin life as females and the older and larger fish in the population are males. Female snowy grouper reach sexual maturity between the ages of three and eight years (Wyanski et al. 2000), most by the age of five years (Moore and Labisky 1984) to seven years (Wyanski et al. 2000). Wyanski et al. (2000) found evidence that the number of males in the population decreased between the 1970s and the 1990s off North Carolina and South Carolina, which may have been a function of the removal of older and larger snowy grouper through fishing pressure. The maximum age of snowy grouper reported by Wyanski et al. (2013) is 35 years. The spawning season for snowy grouper is from April through September (Wyanski et al. 2000, 2013). Snowy grouper are slow growing, reaching a size of 1.2 m (4 ft) in length and 30 kg (66 lbs) in weight (Heemstra and Randall 1993).

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.

In 2004, the snowy grouper stock was assessed through the SEDAR process as a benchmark assessment (SEDAR 4). The assessment indicated that the stock was overfished and undergoing overfishing. The Council and NMFS implemented management measures to end overfishing in Amendment 13C to the Fishery Management Plan for the Snapper-Grouper Fishery of the South Atlantic Region (Snapper-Grouper FMP). In addition, Amendment 15A to the Snapper-Grouper FMP implemented a 34-year rebuilding plan that began in 2006.

In 2013, the snowy grouper stock was assessed through SEDAR 36 as a standard assessment. The assessment indicated that the snowy grouper stock was no longer undergoing overfishing, remained overfished, and was rebuilding. In response to SEDAR 36, the Council and NMFS modified the annual catch limits and management measures through Regulatory Amendment 20 to the Snapper-Grouper FMP. Also, two commercial fishing seasons were implemented through Regulatory Amendment 27 to the Snapper-Grouper FMP.

The most recent update assessment (SEDAR 36 Update) was finalized in 2021, using data through 2018. The Council's Scientific and Statistical Committee reviewed the SEDAR 36 Update and determined that the assessment is based on the best scientific information available. The 2021 stock assessment determined that South Atlantic snowy grouper remains overfished because SSB_{2018} (690 mt) is less than the minimum stock size threshold (MSST) (1,431 mt), and is subject to overfishing because $F_{2016\text{-}2018}$ (0.114) is greater than the maximum fishing mortality threshold (MFMT) (0.101) (Figure 1). Therefore, NMFS has determined management action is necessary for snowy grouper in the South Atlantic region as the stock is undergoing overfishing and remains overfished.

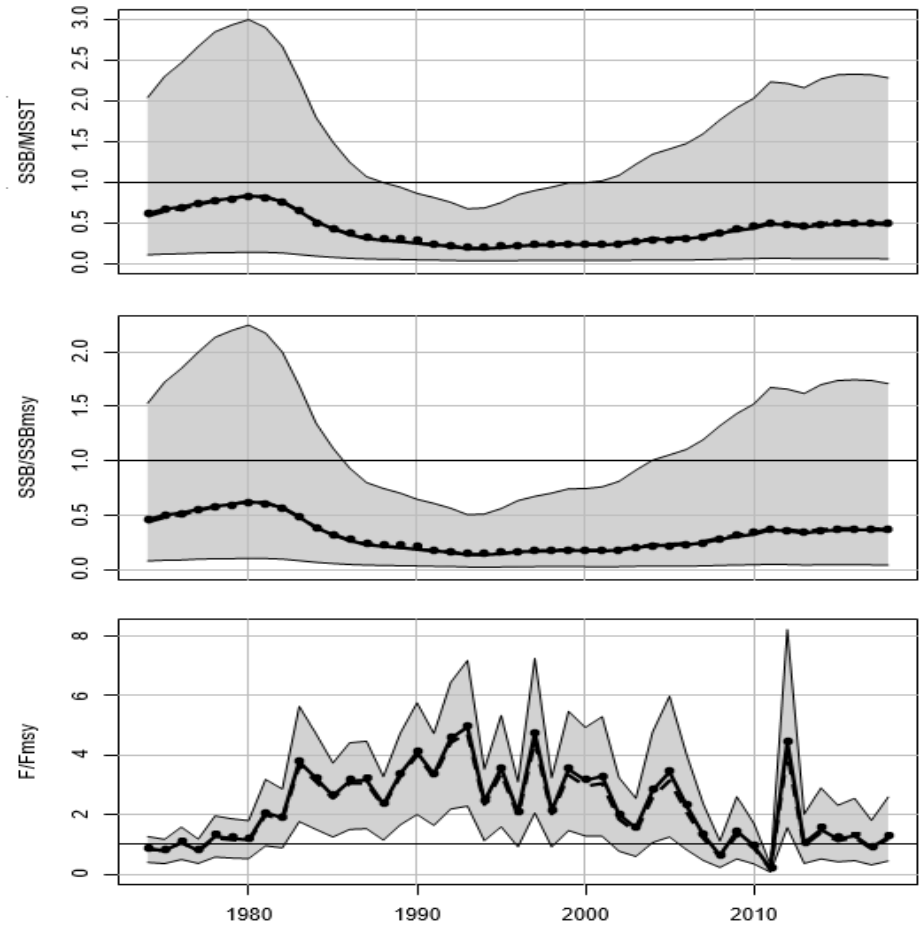

Figure 3.2.1.2. Estimated time series of spawning stock biomass (SSB) and fishing mortality (F) relative to benchmarks. Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5th and 95th percentiles of the ensemble modeling. Top panel: SSB relative to the minimum stock size threshold (MSST); if less than 1, stock is overfished. Middle panel: SSB relative to SSB_{MSY}; if less than 1, stock is overfished. Bottom panel: F relative to F_{MSY}; if > 1 stock is undergoing overfishing. *Source: SEDAR 36 Update (2020).*

As discussed in the stock assessment report, an updated estimate of natural mortality (M) at age is likely the primary driver of any differences between SEDAR 36 and the SEDAR 36 Update. The lower M is based on new information that was incorporated into the SEDAR 36 Update. The new information indicates that snowy grouper live longer than considered in SEDAR 36 based on recent bomb-radiocarbon validated estimates. The numerical estimates of the MSST and the MFMT have been revised through this assessment based on the lower M, even though the status determination criteria equations remained the same.

3.2.1.3 Landings

Commercial

Commercial landings have been increasing from 2015-2019. Commercial landings are tracked in pounds gutted weight. From 2015-2019 the commercial sector used on average 107.8% of the commercial ACL each fishing year (Table 3.2.1).

Table 3.2.1. South Atlantic snowy grouper commercial landings and ACLs in lbs gw, 2015-2019. Snowy grouper ACL and percent of the ACL landed are presented in lbs gw.

Year	Season	ACL Closure	Landings (lbs gw)	ACL (gw)	% ACL
2015	Jan 1 – June 31, July 1 - Dec 31	September 22, 2015	130,088	115,451	112.7
2016	Jan 1 – June 31, July 1 - Dec 31	June 14, 2016	149,385	125,760	118.8
2017	Jan 1 – June 31, July 1 - Dec 31	June 22, 2017	135,825	135,380	100.3
2018	Jan 1 – June 31, July 1 - Dec 31	July 24, 2018	146,874	144,315	101.8
2019	Jan 1 – June 31, July 1 - Dec 31	August 3, 2019	151,889	144,315	105.2

Source: SEFSC Commercial ACL Database [April 26, 2022]

Recreational

Recreational landings have been variable from 2015-2019. Recreational landings are tracked in numbers of fish. From 2015-2019. The recreational sector used on average 76.9% of the recreational ACL during the open season.

Table 3.2.2. South Atlantic snowy grouper recreational landings and ACLs in numbers of fish, 2015-2019. Snowy grouper ACL and percent of the ACL landed are presented in numbers of fish

Year	Season	ACL Closure	Landings (numbers of fish)	ACL (numbers of fish)	% ACL
2015	May 1 - Aug 35	September 1, 2015	1,621	4,152	39.0
2016	May 1 - Aug 34	none	9,746	4,483	214.4
2017	May 1 - Aug 33	none	1,834	4,819	38.1
2018	May 1 - Aug 32	none	2,766	4,983	56.0
2019	May 1 - Aug 31	none	1,946	5,315	37.0

Source: SEFSC Commercial ACL Database [April 26, 2022]
Note: Recreational landings are estimated using the MRIP CHTS method.

3.2.2 Bycatch

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

3.2.3 Other Species Affected

This amendment indirectly affects other species in the Snapper Grouper FMU (blueline and golden tilefish) that are caught while fishing for snowy grouper. For summary information on other snapper grouper species that may be affected by the actions in this plan amendment, refer to Section 3.2.5 in Vision Blueprint Regulatory Amendment 27 to the Snapper Grouper FMP (SAFMC 2019a).

3.2.4 Protected Species

NMFS manages marine protected species in the Southeast region under the Endangered Species Act (ESA) and the Marine Mammal Protection Act (MMPA). 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.

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

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 snowy grouper 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 2021 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 August 26, 2021, there were 579 valid or renewable[5] South Atlantic Snapper Grouper unlimited permits and 112 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 August 26, 2021, there were 379 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 snowy grouper was fairly stable from 2015 through 2019 (Table 3.3.1.1). Landings of snowy grouper increased substantially from 2015 through 2016, then leveled off through 2019. On average (2015 through 2019), vessels that landed snowy grouper did so on approximately 21% of their South Atlantic trips and snowy grouper accounted for approximately 6.1% of their annual all species revenue, including revenue from Gulf of Mexico trips (Table 3.3.1.1 and Table 3.3.1.2). Average revenues from all species per vessel from 2015 through 2019 by 18% overall (Table 3.3.1.2). The average annual price per pound gw of snowy grouper steadily increased from $5.33 (2021 dollars) in 2015 to $6.17 in 2019, with an annual average of $5.78. Although not shown in the table, the maximum annual revenue from all species reported by a single one of the vessels that harvested snowy grouper from 2015 through 2019 was approximately $638,709 (2021 dollars).

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 deepwater fishery in general. C. Liese (NMFS SEFSC, pers. comm. 2022) generated annual vessel-level estimates of costs (as a percentage of revenue) and net revenue from operations for vessels that harvested deepwater species in the South Atlantic. Estimates of producer surplus (PS) can be calculated from the cost information. PS is total annual revenue minus the costs for fuel, other supplies, hired crew, and the

[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.

opportunity cost of an owner's time as captain. Net revenue from operations, which most closely represents economic profits to the owner(s), is total annual revenue minus the costs for fuel, other supplies, hired crew, vessel repair and maintenance, insurance, overhead, and the opportunity cost of an owner's time as captain, as well as the vessel's depreciation. According to C. Liese (NMFS SEFSC, pers. comm. 2022), PS for commercial vessels that harvested South Atlantic deepwater species was approximately 33% of their annual gross revenue, on average, from 2014 through 2018. Net revenue from operations was 4% of their annual gross revenue, on average, during this period. Applying these percentages to the results provided in Table 3.3.1.2 would result in an estimated per vessel average annual PS of $27,217 (2021 dollars) and an average annual net revenue from operations of $3,299 per year.

Table 3.3.1.1. Number of vessels, number of trips, and landings (lbs gw) by year for South Atlantic snowy grouper.

Year	# of vessels that caught snowy grouper (> 0 lbs gw)	# of trips that caught snowy grouper	snowy grouper landings (lbs gw)	Other species' landings jointly caught w/ snowy grouper (lbs gw)	# of South Atlantic trips that only caught other species	Other species' landings on South Atlantic trips w/o snowy grouper (lbs gw)	All species landings on Gulf trips (lbs gw)
2015	170	1,357	121,619	970,632	4,591	3,365,564	390,840
2016	162	1,133	142,678	790,698	4,619	3,272,443	272,649
2017	152	1,042	135,217	684,037	4,393	2,912,407	82,439
2018	156	1,180	140,660	686,737	4,367	2,778,507	211,386
2019	163	1,224	142,631	651,792	4,367	2,529,455	196,036
Average	161	1,187	136,561	756,779	4,467	2,971,675	230,670

Source: SEFSC-SSRG Socioeconomic Panel (January 2022 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.

Table 3.3.1.2. Number of vessels and ex-vessel revenue by year (2021 dollars) for South Atlantic snowy grouper.

Year	# of vessels that caught snowy grouper (> 0 lbs gw)	Dockside revenue from snowy grouper	Dockside revenue from 'other species' jointly caught w/ snowy grouper	Dockside revenue from 'other species' caught on South Atlantic trips w/o snowy grouper	Dockside revenue from 'all species' caught on Gulf trips	Total dockside revenue	Average total dockside revenue per vessel
2015	170	$647,831	$3,532,034	$9,586,753	$1,234,085	$15,000,703	$88,239
2016	162	$789,232	$3,178,487	$9,401,785	$956,154	$14,325,658	$88,430

Year	# of vessels that caught snowy grouper (> 0 lbs gw)	Dockside revenue from snowy grouper	Dockside revenue from 'other species' jointly caught w/ snowy grouper	Dockside revenue from 'other species' caught on South Atlantic trips w/o snowy grouper	Dockside revenue from 'all species' caught on Gulf trips	Total dockside revenue	Average total dockside revenue per vessel
2017	152	$802,757	$2,783,097	$9,184,467	$212,430	$12,982,751	$85,413
2018	156	$833,498	$2,664,880	$7,963,620	$667,629	$12,129,626	$77,754
2019	163	$879,469	$2,422,528	$7,916,448	$605,752	$11,824,197	$72,541
Average	161	$790,558	$2,916,205	$8,810,615	$735,210	$13,252,587	$82,475

Source: SEFSC-SSRG Socioeconomic Panel (January 2022 version).

Dealers

The information in Table 3.3.1.3 illustrates the purchasing activities of dealers that bought South Atlantic snowy grouper landings from vessels during 2015 through 2019.[6] Like vessels, dealer participation in particular fisheries is fluid, and not all dealers purchased snowy grouper in each year during this time. On average, from 2015 through 2019, snowy grouper purchases comprised approximately 0.9% of all purchases made by these dealers. The average annual value of total purchases per snowy grouper dealer was fairly stable from 2015 through 2019, with a 5-year low in 2018 (Table 3.3.1.3). Although not shown in the table, the maximum annual value of all purchases made by a single snowy grouper dealer from 2015 through 2019 was $11 million (2021 dollars) in 2019.

Table 3.3.1.3. Purchase statistics for dealers that bought South Atlantic snowy grouper landings (2021 dollars).

Year	Number of Dealers	Snowy Grouper landed lbs gw	Snowy Grouper Purchases	Other South Atlantic Purchases	Gulf Purchases	Average purchases value per dealer
2015	86	140,764	$ 721,770	$ 84,384,105	$ 16,251,494	$ 1,178,574
2016	80	165,081	$ 861,276	$ 94,796,000	$ 16,418,675	$ 1,400,949
2017	76	136,400	$ 830,401	$ 92,895,602	$ 8,416,862	$ 1,343,985
2018	76	147,612	$ 902,925	$ 76,626,100	$ 7,586,151	$ 1,119,937
2019	76	152,516	$ 941,406	$ 82,048,983	$ 15,188,287	$ 1,291,825
Average	79	148,475	$ 851,556	$ 86,150,158	$ 12,772,294	$ 1,267,054

Source: SEFSC Fishing Communities Web Query Tool (Version May 29, 2022 Years: 2014-2021).

[6] The estimates in this table are based on Accumulated Landings System data, which tends to produce slightly different estimates of landings and ex-vessel value for greater amberjack than the SEFSC-SSRG socio-economic panel database.

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 grouper species, imports affect the returns to fishermen through the ex-vessel prices they receive for their landings. As substitutes to the domestic production of 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 grouper species. Imports data for snowy grouper, in particular, are not available.

Imports of fresh grouper ranged from 10.7 million lbs product weight (pw) to 12.5 million lbs pw from 2015 through 2019. During this time, total revenue from fresh grouper imports ranged from approximately $50.2 million (2021 dollars) to $57.5 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 $1.7 million (2021 dollars) to $6.2 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 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 snowy grouper in the South Atlantic were derived using the model developed for and applied in NMFS (2022) and are provided in Table 3.3.1.4.[7] 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

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

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 "reef fish" category, rather than just snowy grouper, and a harvester job is "generated" for approximately every $35,237 (2021 dollars) in ex-vessel revenue. These results contrast with the number of harvesters (vessels) with recorded landings of snowy grouper presented in Table 3.3.1.1.

Table 3.3.1.4. Average annual business activity (2015 through 2019) associated with the commercial harvest of snowy grouper in the South Atlantic. All monetary estimates are in 2021 dollars.*

Species	Average Ex-vessel Value ($ thousands)	Total Jobs	Harvester Jobs	Output (Sales) Impacts ($ thousands)	Income Impacts ($ thousands)	Value Added ($ thousands)
snowy grouper	$791	95	22	$7,840	$2,879	$4,068

Source: Calculated by NMFS SERO using the model developed for and applied in NMFS (2022).
*Converted to 2021 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 composed of the private and for-hire modes. The private mode includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire mode is composed of charter vessels and headboats. 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.

Permits

For anglers to fish for or possess snapper grouper species in or from the South Atlantic EEZ on for-hire vessels, those vessels are required to have an open access South Atlantic Snapper-Grouper Charter/Headboat permit (snapper grouper for-hire permit). As of August 26, 2021, there were 1,930 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).[8] Participation in the SRHS is based on determination by the Southeast Fisheries Science Center (SEFSC) that the vessel primarily operates as a headboat. As of February 22, 2022, 66 South Atlantic headboats were registered in the SRHS (K. Brennan, NMFS SEFSC, pers. comm. 2022). The majority of these headboats were located in Florida/Georgia (41), followed by North Carolina (14) and South Carolina (11). As a result, of the 1,930 vessels with snapper grouper for-hire permits, up to 66 may primarily operate as headboats.

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

Estimates of snowy grouper target and catch effort are provided in Table 3.3.2.1 and Table 3.3.2.2, respectively. It is important to note that in 2018, MRIP transitioned from the Coastal Household Telephone Survey (CHTS) to the mail-based fishing effort survey (FES). The estimates presented in Table 3.3.2.1 and Table 3.3.2.2 are calibrated to the MRIP FES and may be greater than estimates that are non-calibrated.[9] As shown in these tables, there were minimal

[8] 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

[9] 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

amounts of target or catch trips recorded for snowy grouper in Florida and North Carolina from 2015 through 2019 and none for Georgia and South Carolina. Because snowy grouper is a rare event species in MRIP, these estimates are imprecise and should be viewed accordingly.

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

	FL	GA	NC	SC	Total
	Charter Mode				
2015	0	0	0	0	0
2016	0	0	76	0	76
2017	146	0	0	0	146
2018	0	0	0	0	0
2019	0	0	0	0	0
Average	29	0	15	0	44
	Private/Rental Mode				
2015	0	0	0	0	0
2016	0	0	0	0	0
2017	2,203	0	0	0	2,203
2018	0	0	0	0	0
2019	0	0	0	0	0
Average	441	0	0	0	441
	All Modes				
2015	0	0	0	0	0
2016	0	0	76	0	76
2017	2,348	0	0	0	2,348
2018	0	0	0	0	0
2019	0	0	0	0	0
Average	470	0	15	0	485

Source: MRIP database, SERO, NMFS (May 2022).
*Headboat data are unavailable.
Note 1: These estimates are in MRIP FES units.
Note 2: There were no target trips recorded for the shore mode.
Note 3: Includes post-stratified effort estimates from Monroe County, FL to align with SEDAR estimates.

Table 3.3.2.2. South Atlantic snowy grouper recreational catch trips, by mode and state, 2015-2019.*

	FL	GA	NC	SC	Total
	Shore Mode				
2015	0	0	2,341	0	2,341
2016	0	0	0	0	0
2017	0	0	0	0	0
2018	0	0	0	0	0

	FL	GA	NC	SC	Total
2019	0	0	0	0	0
Average	0	0	468	0	468
	Charter Mode				
2015	1,301	0	1,162	0	2,463
2016	8,944	0	1,164	0	10,108
2017	1,208	0	2,171	0	3,379
2018	2,853	0	1,126	0	3,979
2019	4,260	0	1,249	0	5,509
Average	3,713	0	1,374	0	5,088
	Private/Rental Mode				
2015	3,801	0	847	0	4,648
2016	632	0	3,297	0	3,929
2017	0	0	0	0	0
2018	1,517	0	394	0	1,911
2019	0	0	0	0	0
Average	1,190	0	908	0	2,098
	All Modes				
2015	5,102	0	4,350	0	9,452
2016	9,576	0	4,462	0	14,037
2017	1,208	0	2,171	0	3,379
2018	4,370	0	1,520	0	5,890
2019	4,260	0	1,249	0	5,509
Average	4,903	0	2,750	0	7,653

Source: MRIP database, SERO, NMFS (May 2022).
*Headboat data are unavailable.
Note 1: These estimates are in MRIP FES units.
Note 2: 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.[10] 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 3.3.2.3). Headboat effort was the highest, on average, during the summer months of June through August (Table 3.3.2.4).

[10] 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 3.3.2.3. 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).

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).

Landings

Total recreational landings and the distribution of landings by mode for South Atlantic snowy grouper fluctuated from 2015 through 2019 (Figure 3.3.2.1). Although not shown in the figure, landings were most concentrated during MRIP waves 3 (May/June) and 4 (July/August).

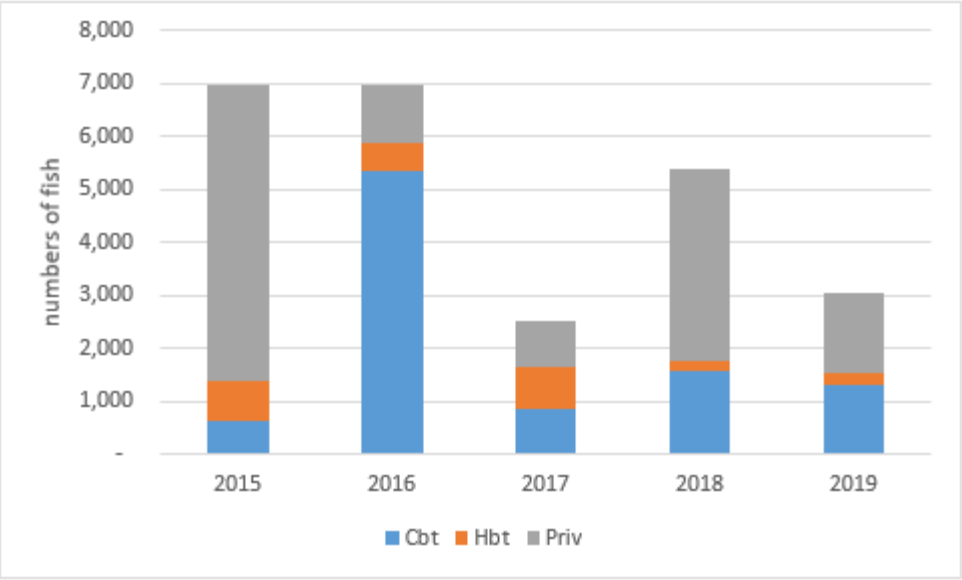

Figure 3.3.2.1. South Atlantic snowy grouper recreational landings (in numbers of fish), by mode.
Source: SEFSC MRIP FES ACL data set (March 2022).
Note: There were no shore mode landings.

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. The estimated values of the CS per fish for a second[11], third, fourth, and fifth grouper kept on a trip are approximately $115, $77, $57, and $45, respectively (Carter and Liese 2012; values updated to 2021 dollars). [12]

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.

Estimates of average annual gross revenue for charter vessels and headboats in 2009 are provided in Holland et al. (2012). In 2021 dollars, the average annual gross revenue for a South Atlantic headboat was approximately $234,000, while the average annual gross revenue for a

[11] The study only considered trips with at least one fish caught and kept in its experimental design; thus, an estimated value for the first caught and kept fish is not available.
[12] Converted to 2021 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis.

South Atlantic charter vessel was approximately $132,000. However, a more recent estimate of average annual gross revenue for South Atlantic headboats is available from D. Carter (pers. comm., March 15, 2018). D. Carter (pers. comm., March 15, 2018) recently estimated that average annual gross revenue for South Atlantic headboats was approximately $320,560 (2021 dollars) in 2017. This estimate is likely the best current estimate of annual gross revenue for South Atlantic headboats, as it is based on a relatively large sample and is more recent. The difference in the Holland et al. (2012) and Carter (pers. comm., March 15, 2018) estimates for headboats suggests that the estimate for charter vessels based on Holland et al. (2012) is likely an underestimate of current average annual revenue for charter vessels in the South Atlantic. Estimates of annual producer surplus (PS) and economic profit for South Atlantic charter vessels and headboats are not available.

With regard to for-hire trips, economic value can be measured by PS per angler trip, which represents the amount of money that a vessel owner earns in excess of the cost of providing the trip. Estimates of revenue, costs, and trip net revenue for trips taken by charter vessels and headboats in 2017 are available from Souza and Liese (2019). They also provide estimates of trip net cash flow per angler trip, which are an approximation of PS per angler trip. According to Table 3.3.2.5, after accounting for transactions fees, supply costs, and labor costs, net revenue per trip was 40% of revenue for South Atlantic charter vessels and 54% of revenue for Southeast headboats or $583 and $1,912 (2021 dollars), respectively. Given the average number of anglers per trip for each fleet, PS per trip is estimated to be $124 for South Atlantic charter vessels and $72 for Southeast headboats (Table 3.3.2.5).

Table 3.3.2.5. Trip-level economics for offshore trips by South Atlantic charter vessels and Southeast headboats in 2017 (2021 dollars).

	South Atlantic Charter Vessels	Southeast Headboats*
Revenue	100%	100%
Transaction Fees (% of revenue)	3%	6%
Supply Costs (% of revenue)	29%	19%
Labor Costs (% of revenue)	28%	22%
Net Revenue per trip including Labor costs (% of revenue)	40%	54%
Net Revenue per Trip	$583	$1,912
Average # of Anglers per Trip	4.7	26.6
Trip Net Cash Flow per Angler Trip	$124	$72

Source: Souza and Liese (2019).
*Although Souza and Liese (2019) break headboats out by sub-region, the South Atlantic sample size is small and thus estimates for Southeast headboats in general (Gulf and South Atlantic combined) are presented here.

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 snowy grouper were calculated using average trip-level impact coefficients derived from the 2019 Fisheries Economics of the U.S. report (NMFS 2022) and underlying data provided by the National Oceanic and Atmospheric Administration (NOAA) Office of Science and Technology. Economic impact estimates in 2019 dollars were adjusted to 2021 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 value-added impacts (contribution to the GDP in a state or region), output impacts (gross business sales), income impacts (wages, salaries, and self-employed income), and jobs (full- and part-time). Estimates of the average annual economic impacts (2015-2019) resulting from South Atlantic recreational snowy grouper target trips are provided in Table 3.3.2.6. As shown in the table, these economic impacts are small given the low level of target effort for snowy grouper. 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 snowy grouper catch trips. To calculate the multipliers from Table 3.3.2.6, 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 3.3.2.6 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 3.3.2.6 may be considered a lower bound on the economic activity associated with those trips that targeted snowy grouper.

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 3.3.2.6. Estimated annual average economic impacts (2015-2019) from South Atlantic recreational snowy grouper target trips, by state and mode, using state-level multipliers. All monetary estimates are in 2021 dollars (in thousands).

	NC	SC	GA	FL
	Charter Mode			
Target Trips	15	0	0	29

	NC	SC	GA	FL
Value Added Impacts	$7	$0	$0	$7
Sales Impacts	$12	$0	$0	$12
Income Impacts	$4	$0	$0	$4
Employment (Jobs)	0	0	0	0
	Private/Rental Mode			
Target Trips	0	0	0	441
Value Added Impacts	$0	$0	$0	$13
Sales Impacts	$0	$0	$0	$19
Income Impacts	$0	$0	$0	$6
Employment (Jobs)	0	0	0	0
	All Modes			
Target Trips	15	0	0	470
Value Added Impacts	$7	$0	$0	$20
Sales Impacts	$12	$0	$0	$31
Income Impacts	$4	$0	$0	$11
Employment (Jobs)	0	0	0	0

Source: Effort data from MRIP; economic impact results calculated by NMFS SERO using NMFS (2022) and underlying data provided by the NOAA Office of Science and Technology.
Note: There were no shore mode target trips recorded for snowy grouper.

3.4 Social Environment

This section describes select social, demographic, and geographic aspects of the snowy grouper fishery sectors addressed by the amendment, providing essential background for social effects analysis in Chapter 4. Quantitative description is limited to the five-year time-series (2015 through 2019) preceding the start of the COVID-19 pandemic in the U.S. Trends in commercial and recreational landings and permit issuance are provided to aid in describing the geographic distribution of fishing effort, with emphasis on identifying communities where fleets are most deeply engaged in the pursuit of snowy grouper, also known as chocolate grouper. Description of community-level involvement in the fishery sectors of interest is provided to meet the requirements of National Standard 8 of the Magnuson-Stevens Act, which calls for examination of linkages between fishery resources and human communities when regulatory changes are under consideration. Finally, the section identifies vulnerabilities to prospective social change in communities where snapper grouper resources are of known importance to local fleets and businesses.

3.4.1 Snowy Grouper Commercial Sector

Kolmos et al. (2019:308) describe snowy grouper in relation to habitat, asserting that mature individuals tend to inhabit rocky ridges and terraces on the upper continental slope of the South Atlantic states, typically at depths between ~500 and 850 feet. Using observational data from a variety of sources, the recent work of Paxton et al. (2021) confirms such habitat affinities and supports findings that snowy grouper aggregate around hard-bottom features such as deep-water wrecks and reefs (Johnson et al. 2020).

The deep-water affinities of snowy grouper bear implications for both commercial harvesters and recreational fishing enthusiasts in the South Atlantic. Considerable depth, rugged bathymetry, and often-challenging offshore current and surface conditions combine to influence the nature and extent of fishing effort, time at sea, gear requirements, and costs associated with ocean travel. Safety-at-sea considerations take on added importance in deep-water zones along the Continental Shelf where assistance can be relatively more difficult and time-consuming to attain than in nearshore areas. Notably, such factors vary across the management region and its sub-regions. For example, captains and crew departing north of Cape Hatteras and along the South Florida coastline and Florida Keys can reach deep-water snowy grouper grounds relatively quickly, while vessels leaving from ports where the shelf is much wider must travel considerably greater distances to reach waters of sufficient depth and suitable bathymetry. As such, commercial snapper grouper trips typically last between two to three days for vessels departing from ports in North Carolina, northeast South Carolina, and Florida, and up to five days on average for vessels departing from southern South Carolina and Georgia (Buck 2018:16-22). Based on survey work undertaken by Buck (2018:47), commercial vessels involved in South Atlantic snapper grouper fisheries are on average just over 31 feet in length overall, utilize some 375 horsepower in total, and have an average fuel capacity of 292 gallons.

Snowy grouper behavior is an important consideration among commercial harvesters, particularly behavior related to aggregation. Knowledge of preferred prey, feeding patterns at depth, and ecological attributes of areas where the fish are known or thought likely to aggregate are often carefully guarded forms of information among individual captains and/or social networks of captains involved in the fishery. Given the depths and hard-bottom habitats involved, entanglement of "deep-drop" gear is a threat to operational efficiency and is therefore stringently avoided. Heavy mainline and leader are considered indispensable when multiple fish are on the line.

Captains in Southeast North Carolina report that deep-water wintertime trips for snowy grouper often also yield other deepwater species in the snapper grouper complex. This is in keeping with the logbook-derived findings of Buck (2018:63), who describes snowy grouper as a driving element of deep-water trips that often also involve harvest of yellowedge grouper and blueline and golden tilefish. The author asserts that snowy grouper is a principal deep-water target species during regulatory Season One (January through April) north of Florida, with electric reels and some longline gear used, and also during Season Two (May through August), with electric reels gears the principal gear type used in that region. Snowy grouper is also described as a principal target species during Seasons One and Two in the Florida Keys, with electric reels the principal gear used during both seasons. Snowy grouper is harvested in other Florida waters, but typically incidental to other deepwater species in the snapper grouper complex (Buck (2018:60-73). For the purpose of harvesting snowy grouper, bottom longlines may legally be deployed only north of St. Lucie Inlet in Florida, and only at depths of 300 feet or greater. Such gear is often used north of Cape Hatteras. Spearfishing is allowable in the absence of rebreathers, although the depths involved and the need for suitable ocean conditions limit use of this approach. Dehooking and descending devices are required on vessels pursuing snowy grouper and other deep-water species in the snapper grouper complex. Commercial captains may harvest no more than 200 lbs of snowy grouper (gutted weight) per trip (South Atlantic Fishery Management Council 2022).

Commercial Landings by State

Based on 2019 data, nearly 44.7% of the snowy grouper resource was landed at ports in Florida during 2019, followed by 43.5% at ports in North Carolina, and 11.8% at ports in South Carolina. No commercial landings of snowy grouper were received at ports along the Georgia coastline during 2019 or during the remainder of the 2015 through 2019 time-series. Florida landings exceed those in North Carolina during each year the time-series, with the exception of 2018 when the North Carolina commercial fleet landed 39.1% of the regional total. Just over 37.5% of the total volume of landings was harvested by Florida-based commercial vessels that year (SEFSC Community ALS File, May 2022). Reasons for this departure from the typical pattern of landings distribution between Florida and North Carolina are not readily apparent.

South Atlantic Commercial Snapper Grouper Permits by State and Community

Commercial captains must posses an unlimited or trip-limited snapper grouper permit in order to legally participate in the snowy grouper fishery. The distribution of such permits therefore indicates states and ports from which participants in the fishery typically operate. A total of 543 unlimited snapper grouper permits were issued during 2019. At 67.2%, most unlimited permits were issued to residents or persons with mailing addresses in Florida that year, followed by 20.9% in North Carolina, 8.8% in South Carolina, and 1.4% in Georgia. Two or fewer unlimited permits were issued to persons in Delaware, New Jersey, New York, and Virginia during 2019. As was the case throughout the time-series, most 225-lb. trip-limited permits were held for use by persons operating from coastal communities in Florida. A high percentage of both permit types are held by fishery participants active in the Florida Keys (Table 3.4.1).

Table 3.4.1 Distribution of commercial snapper grouper unlimited and 225-lb trip-limited permits among the top permit-holding communities in the South Atlantic during 2019**.**

Leading Communities: Unlimited Permits	Permits	Leading Communities: 225-lb Trip-Limited Permits	Permits
Key West, Florida	95	Key West, Florida	12
Key Largo, Florida	28	Marathon, Florida	10
Miami, Florida	23	Miami, Florida	9
Marathon, Florida	21	Jupiter, Florida	6
Murrells Inlet, South Carolina	16	Big Pine Key, Florida	5
Southport, North Carolina	14	Key Largo, Florida	4
Little River, South Carolina	14	Hatteras, North Carolina	3
Jacksonville, Florida	14	Wilmington, North Carolina	3
Port Canaveral, Florida	13	West Palm Beach, Florida	3
Jupiter, Florida	13	Middle Torch Key, Florida	2
Beaufort/Morehead City, North Carolina	12	Fort Pierce, Florida	2
Sebastian, Florida	12	St. Augustine, Florida	2
Sneads Ferry, North Carolina	11	Boca Raton, Florida	2
Fort Pierce, Florida	10	Cudjoe Key, Florida	2
Ponce Inlet, Florida	10	Summerland Key, Florida	2
Mayport, Florida	10	Little Torch Key, Florida	2
Fort Pierce, Florida	10	Fort Lauderdale, Florida	2
Holden Beach, North Carolina	9	Sebastian, Florida	2
Islamorada, Florida	9	--	--
Big Pine Key, Florida	9	--	--

Source: NMFS SERO Sustainable Fisheries (SF) Access permits database.

Community Quotients of Snowy Grouper Commercial Landing in the South Atlantic

Figures 3.4.1 and 3.4.2 below depict the distribution of commercial landings and associated ex-vessel value of landings among the fifteen communities in the South Atlantic with the greatest share of snowy grouper landings during the time-series. Each distribution is expressed here as a regional quotient, or the share of community landings and ex-vessel values divided by landings and values for the overall region. Communities are presented in the graphic based on a ranking of average landings and average values over the period of interest. Data derive from the SEFSC Community ALS File (accessed May 2022).

As can be discerned from Figure 3.4.1, commercial vessels operating from Key West collectively account for the greatest proportion of community-specific snowy grouper landings during the time-series. However, commercial vessels operating from the town of Supply in southeastern North Carolina vie closely with Key West during the time-series and account for the bulk of landings in 2019. Of note, captains and crew operating from ports in southeast North Carolina and northeast South Carolina travel many scores of ocean miles to reach suitable snowy grouper fishing grounds, whereas those operating from the Keys reach suitable grounds after relatively little travel time at sea.

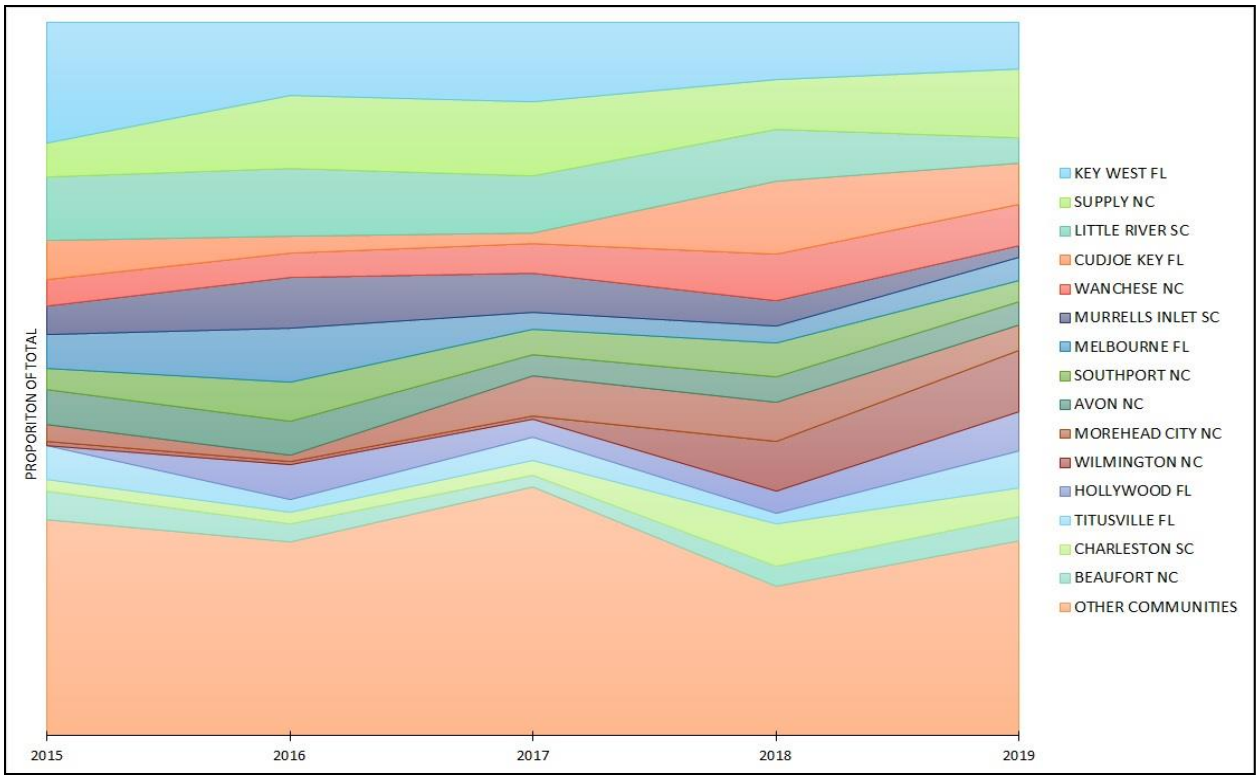

Figure 3.4.1. Distribution of regional *landings* among the leading S. Atlantic commercial snowy grouper landings communities: 2015-2019. Source: SEFSC Community ALS File (May 2022).

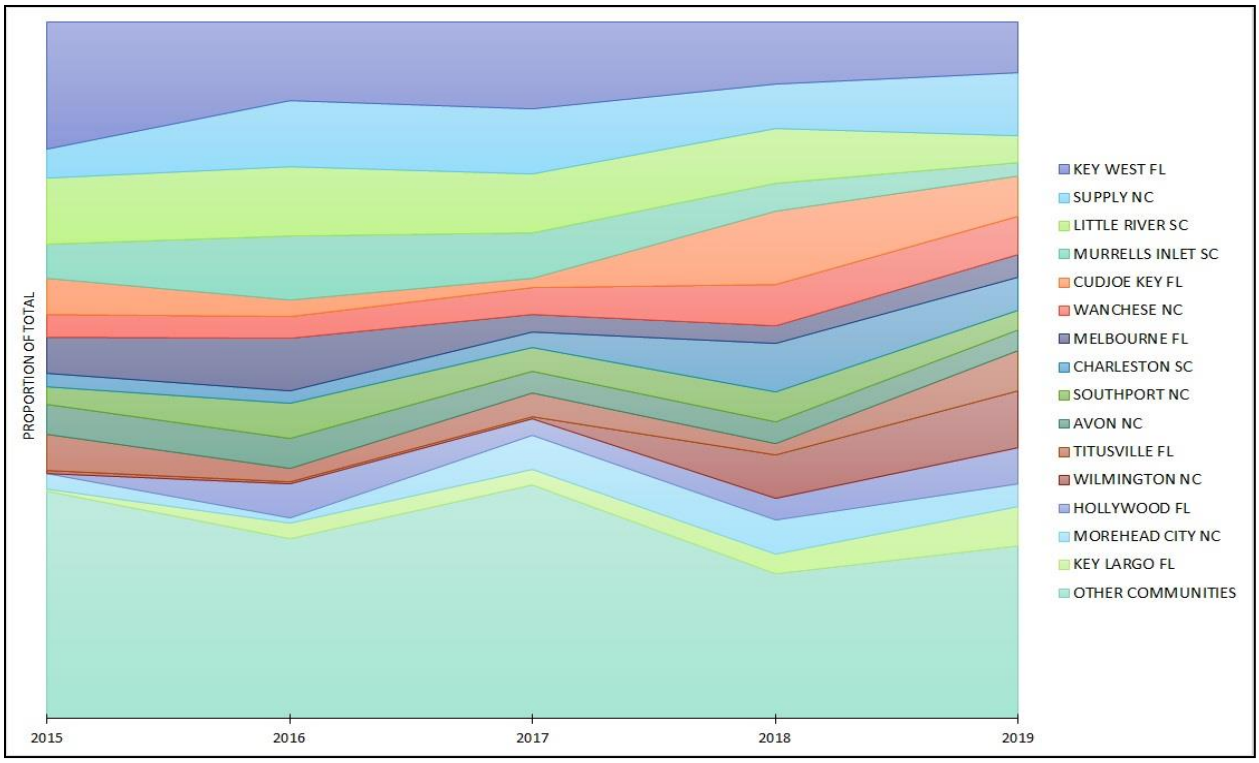

Figure 3.4.2. Distribution of regional landings *value* among the leading S. Atlantic commercial snowy grouper landings communities: 2015-2019. Source: SEFSC Community ALS File (May 2022).

Finally, Figure 3.4.3 depicts the local quotient (LQ) of snowy grouper landings among communities depicted in the figures above. The LQ metric specifies the proportion of community-specific commercial landings for a given species relative to commercial landings of all species by persons affiliated with that community (y-axis) during a given year or years—in this case for snowy grouper during 2019. In certain instances, the LQ value for gag grouper is too low to enable effective visual representation in the graphic.

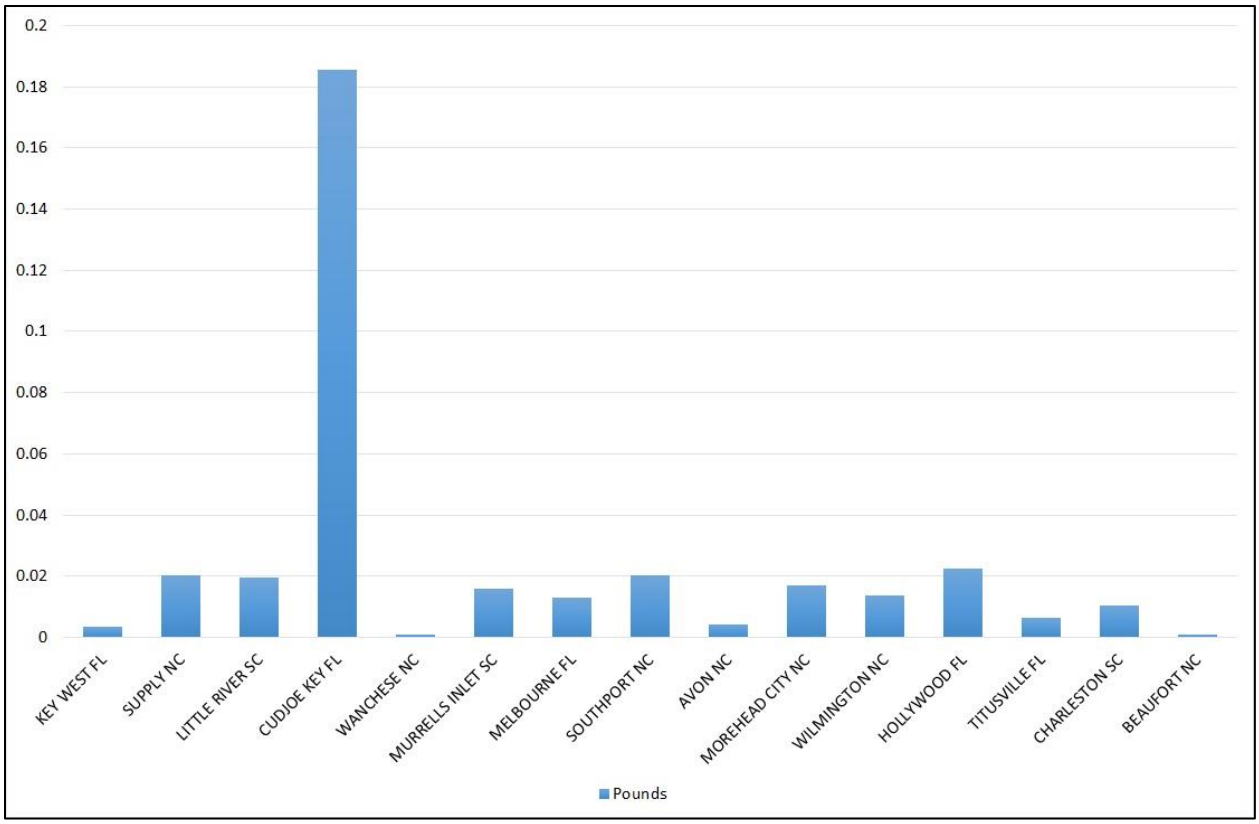

Figure 3.4.3. Local quotient of commercial snowy grouper landings among communities with the highest percentage of such landings in 2019. Source: SEFSC Community ALS Data File, Sept. 2022.

Community Engagement & Reliance: South Atlantic Commercial Snowy Grouper Fishery

As depicted in Figure 3.4.4, the Florida community of Key West, along with the North Carolina communities of Beaufort, Morehead City, Wanchese, and Wilmington score highly in terms of relative extent of engagement in the South Atlantic snowy grouper fishery. The measure of engagement provided here is a generalizable composite indicator based on: (a) pounds of fish landed by the local commercial fleets—in this case, pounds averaged over the time series, (b) associated ex-vessel revenue (as presented above), and (c) the number of commercial fishery participants and seafood dealers present in a given community. Readers may consult Jacob et al. (2013), Jepson and Colburn (2013), and Hospital and Leong 2021 for discussion of the underlying rationale and approach for using indicators to assess local engagement in and reliance on regional marine fisheries. The measure of reliance used here incorporates the same variables noted above, divided by the total local population figure. Both measures are useful means for indicating where any prospective effects of snowy grouper management actions are likely to be experienced. Notably, the Florida community of Key West far exceeds the one standard deviation threshold for *engagement* in South Atlantic commercial fisheries, and the North Carolina community of Wanchese scores above the threshold for local *reliance* on regional commercial fisheries. The latter measure suggests limited local economic alternatives to the fishing and seafood industry in Wanchese, a rural waterfront town of some 1,522 residents (U.S. Census Bureau 2020a). Five unlimited commercial snapper grouper permits were held by Wanchese residents during 2019.

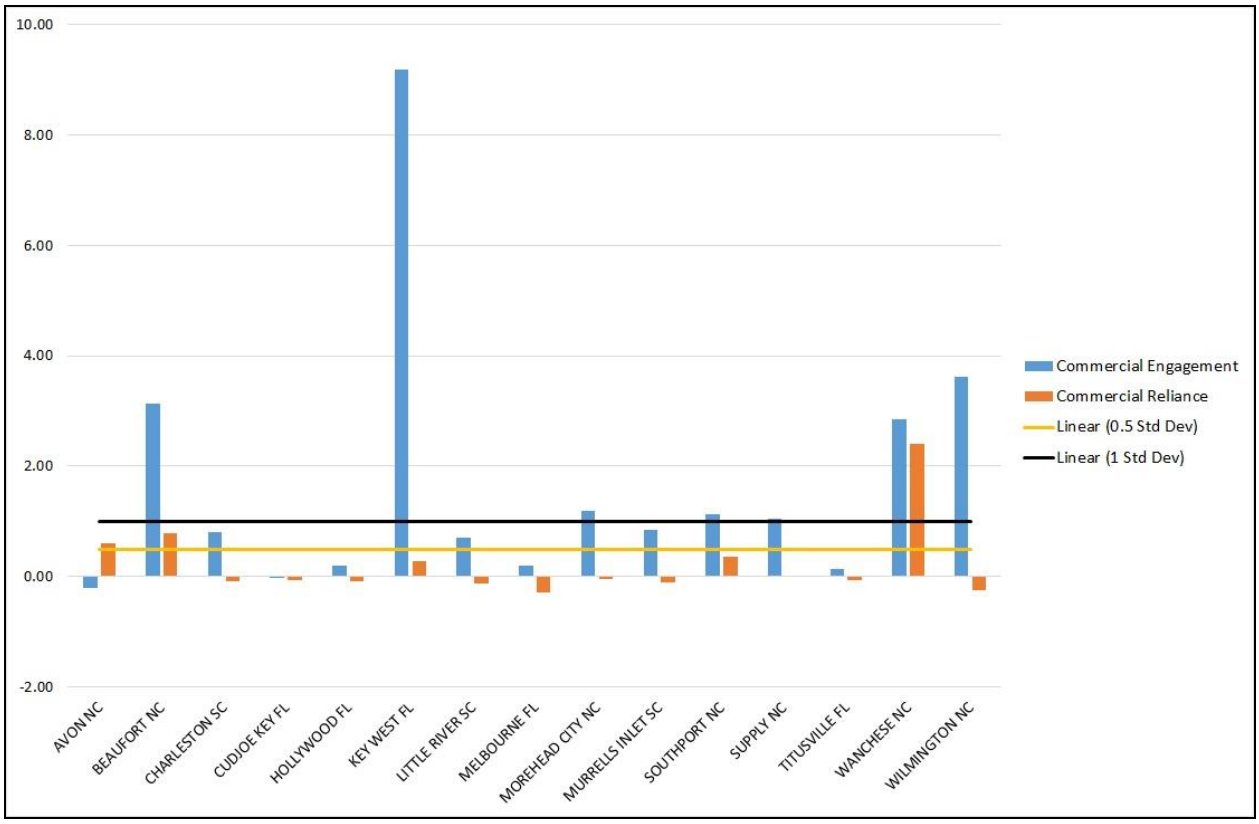

Figure 3.4.4. Measures of engagement and reliance among the leading commercial snowy grouper landings communities in the South Atlantic during 2019. Source: SERO, Community Social Vulnerability Indicators Database.

3.4.2 Snowy Grouper Recreational Sector

Experienced participants in the for-hire and private vessel South Atlantic recreational fishing sectors generally pursue snowy grouper using deep-drop gear and techniques suited to the considerable depths and hard-bottom habitats involved. As is the case for the commercial harvest sector, allowable gears include vertical hook-and-line gear, including handlines and bandit gear. Again, use of electric reels is common. A functional dehooking tool and descending device are required onboard. The daily bag limit is one (1) fish per recreational vessel.

Many for-hire captains travel to deep-water snowy grouper grounds with readiness to pursue additional (or other) deep-water adapted species in the snapper grouper complex. Depending on area and season, these may include yellowedge grouper, queen snapper, blackfin snapper, golden and blueline tilefish, and others. Also depending on area, season, and the nature of the bite (or lack thereof), for-hire and private vessel captains may pursue other snapper grouper species in relatively shallow water as a component of deep-water trips, particularly if fishing in the deeper zones is unsuccessful. Certain captains also pursue pelagic species using troll gear prior to and/or following focused pursuit of snowy grouper and/or other snapper grouper species in their respective habitats.

Environmental knowledge and positioning technology are core dimensions of success and safety-at-sea in the deep-water snowy grouper for-hire fishery, with most captains also striving to provide an enjoyable experience to their patrons regardless of catch. All safe and effective offshore fishing excursions, recreational or commercial, involve adequate preparation at harbor and coordination of social interaction at sea. Acquisition, maintenance, and trip-specific preparation of vessel, engine, gear, bait, ice or other means for refrigeration, fishing rigs, fuel and oil, redundant communications and weather/sea state prediction and reporting technologies, along with U.S. Coast Guard-required safety equipment, are among the basic requisites. Challenges and capacity to respond to problems at sea can be magnified in the offshore zone. Deep-water ocean experience increases only over time and fishing experience in this zone expands only with lines in the water – a commitment of time, money, and energy. In the case of for-hire captains, such experience and any associated success can generate benefits beyond the clearly economic, including enhanced social status. Efficiency of access to deep-water fishing grounds has heightened among recreational fishing vessels in recent years, as facilitated by increasingly proficient fish-finding and geo-positioning technologies, and by ever-evolving vessel and engine technologies (see Cooke et al. 2021).

Recreational Snowy Grouper Landings by State

Based on annual landings data generated through the NMFS Marine Recreational Information Program Fishing Effort Survey (MRIP-FES), the greatest proportion of estimated snowy grouper recreational landings occurred along the east coast of Florida during the 2015 through 2019 time-series. Florida participants caught 51.8% of the total count of snowy grouper estimated for 2017, 80.6% for 2018, and 79.5% for 2019. Nearly 55% of landings were attributable to recreational fishery participants active in North Carolina during 2016—the sole year in which North Carolina landings exceeded those reported by recreational participants in Florida. Reasons for this departure from the norm are not readily apparent. Distance to snowy grouper grounds apparently limits recreational landings by participants in Georgia and South Carolina (SERO MRIP-FES File, accessed May 2022).

For-Hire Permits

For-hire vessels pursuing snowy grouper must be assigned a South Atlantic snapper grouper charter/headboat permit. A total of 2,183 such permits were issued during 2019, the vast majority to residents or persons with mailing addresses in the South Atlantic states. The total number of permits issued increased steadily during the 2015 through 2019 time-series, with 1,779 permits issued in 2015, 1,867 in 2016, 1,982 in 2017, and 2,126 in 2018.

Table 3.4.3 below depicts the distribution of South Atlantic snapper grouper charter/headboat permits among the leading permit-holding communities during 2019. Of note in the table, the greatest proportion of such permits were held by residents or persons with postal addresses in Key West, with 198 held in the community during 2019, down from a high of 206 in 2018. As such, for-hire captains and crew are predominate in terms of level of participation in South Atlantic snapper grouper fisheries. This calls for additional social description of place. As of April 1, 2020, Key West was home to 24,649 permanent residents (U.S. Census Bureau 2020b), but with a characteristically large expansion of the local population as seasonal residents and tourists arrive during the winter months. Key West is the southernmost city in the mainland U.S., with a consistently mild tropical-maritime climate (NOAA 2021). The combination of favorable winter climate, close proximity to deep-water fishing grounds, and increasing rates of

seasonal residence and visitation following a period of gentrification initiated in decades past (Shivlani 2014), help explain the disproportionate extent of for-hire fishing opportunities and services available in the community.

Table 3.4.3. Distribution of South Atlantic for-hire/headboat snapper grouper permits among the top 20 permit-holding communities in the region: 2019 (SERO Access Permit Database)

State	Leading Communities	Permits in 2019
Florida	Key West	198
Florida	Islamorada	97
Florida	Marathon	82
Florida	Port Canaveral	76
South Carolina	Charleston	60
Florida	Miami	45
North Carolina	Hatteras	44
Florida	St. Augustine	40
Florida	Ponce Inlet	36
North Carolina	Beaufort/Morehead City	36
South Carolina	Murrells Inlet	33
Florida	Key Largo	32
Florida	Jupiter	32
Florida	Jacksonville	30
Florida	Naples	29
Florida	Cape Canaveral	28
North Carolina	Manteo	26
Florida	Port Orange	25
South Carolina	Hilton Head island	24
South Carolina	Little River	21

Community Engagement & Reliance: South Atlantic Recreational Snowy Grouper Fishery

The full range of data indicative of involvement in the South Atlantic snowy grouper recreational sector is not readily available at the level of the community. As such, it is not possible with available information to identify communities that are specifically engaged in, and/or reliant on recreational fishing for this deep-water species in particular. Given that information regarding community-specific interaction with any given species is limited, NOAA Fisheries social scientists developed indices of utility for identifying communities where recreational fishing is an important component of the local economy in general (see Jacob et al. 2013; Jepson and Colburn 2013; Hospital and Leong 2021). Based on these indices, the communities depicted in Figure 3.4.5 are those in the South Atlantic region where residents are most clearly engaged in the recreational fishing industry in general. In this case, additional specificity is provided in that the communities depicted are those most extensively involved in the snapper grouper for-hire sectors, of which the snowy grouper fishery is an important component.

The measure of engagement depicted in Figure 3.4.5 derives from the number of recreational fishing permits and vessels actively used by residents in a given community, while the measure of reliance derives from the same variables divided by the total local population figure. Particularly high levels of involvement in South Atlantic recreational fisheries are characteristic of Jacksonville, Key West, Melbourne Beach, and Islamorada in Florida, and Hatteras and Nags

Head in North Carolina. Of note, Nags Head is the only municipality that meets the one standard deviation threshold for reliance on the recreational fishing industry, indicating the importance of for-hire and private recreational fishing and related services and opportunities in this small Outer Banks community.

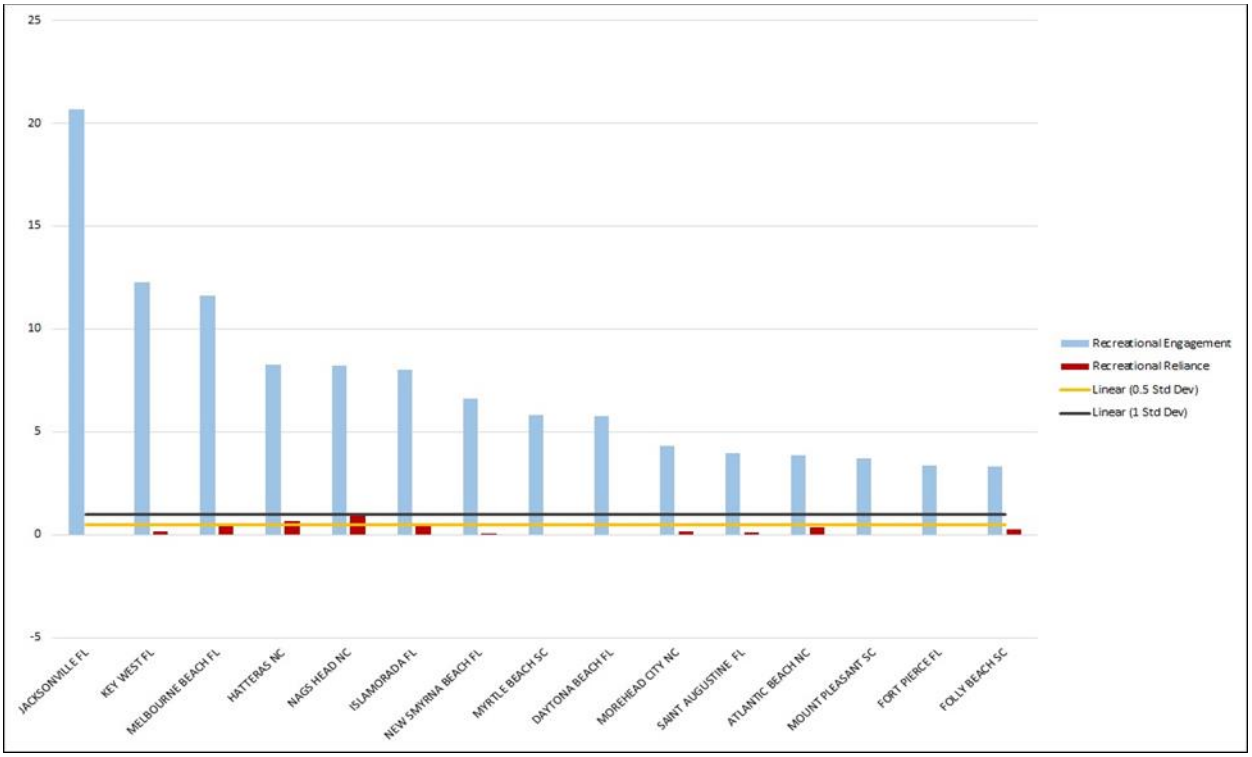

Figure 3.4.5. Measures of community involvement in the South Atlantic recreational fishing industry during 2019. Source: SERO, Community Social Vulnerability Indicators Database.

3.4.3 Environmental Justice

Established in 1994, Executive Order 12898 requires federal agencies to examine the human health and socioeconomic implications of federal actions among low-income and minority groups and populations around the nation. The order specifies that such agencies conduct programs, policies, and activities in a manner that ensures no individuals or populations are excluded, denied the benefits of, or subjected to discrimination due to race, color, or nation of origin. Of particular relevance in the context of marine fisheries, federal agencies are further required to collect, maintain, and analyze data regarding patterns of consumption of fish and wildlife among persons who rely on such foods for purposes of subsistence. In sum, the principal intent of the order is to require assessment and due consideration of any "disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the United States and its territories." Established in 2021, Executive Order 13985 also calls for social equity in the context of federal decision-making and policy actions. Titled "Advancing Racial Equity and Support for Underserved Communities through the Federal Government," this order requires that federal policies and programs are designed and undertaken in a manner that delivers resources and benefits equitably to all citizens, including those who are members of historically underserved communities. Here, the phrase "underserved communities" refers to populations

and persons that have been systematically denied full and equitable opportunity to participate in economic, social, and civic aspects of life in the nation.

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

As provided in the following figures, three composite indices—termed here as poverty, population composition, and personal disruption—are applied to indicate relative degrees of vulnerability among communities most thoroughly engaged in the South Atlantic commercial snapper grouper fisheries of which the commercial snowy grouper fishery is an important element. Mean standardized scores for each community are provided along the y-axis, with means for the vulnerability measures and threshold standard deviations depicted along the x-axis. Scores exceeding the .5 standard deviation level indicate local social vulnerability to regulatory and other sources of change. As can be discerned from Figure 3.4.6 below, five of the top snapper grouper commercial landings communities—Hollywood in Florida, and Avon, Beaufort, Morehead City, and Wilmington in North Carolina—exceed the designated vulnerability threshold for one or more indices. Finally, Figure 3.4.7 depicts social vulnerability measures for communities most extensively involved in the for-hire snapper grouper sectors in the South Atlantic. The data presented here indicate social vulnerability especially in Miami and Jupiter in Florida; Hatteras, Morehead City, and Beaufort in North Carolina, and Little River in South Carolina. Both figures derive from data available in the SERO Community Social Vulnerability Indicators (CSVI) Database.

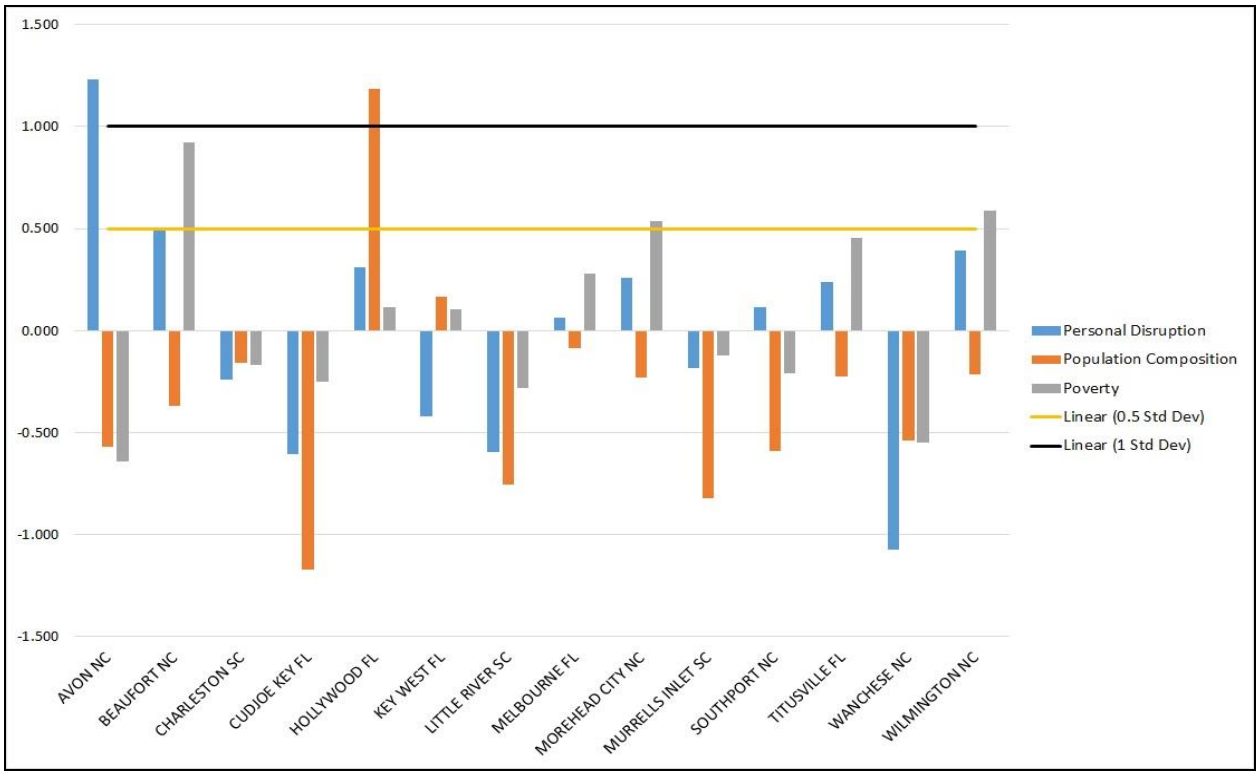

Figure 3.4.6. Social vulnerability measures for communities extensively involved in South Atlantic commercial snapper grouper fishing operations. Source: SERO CSVI Database.

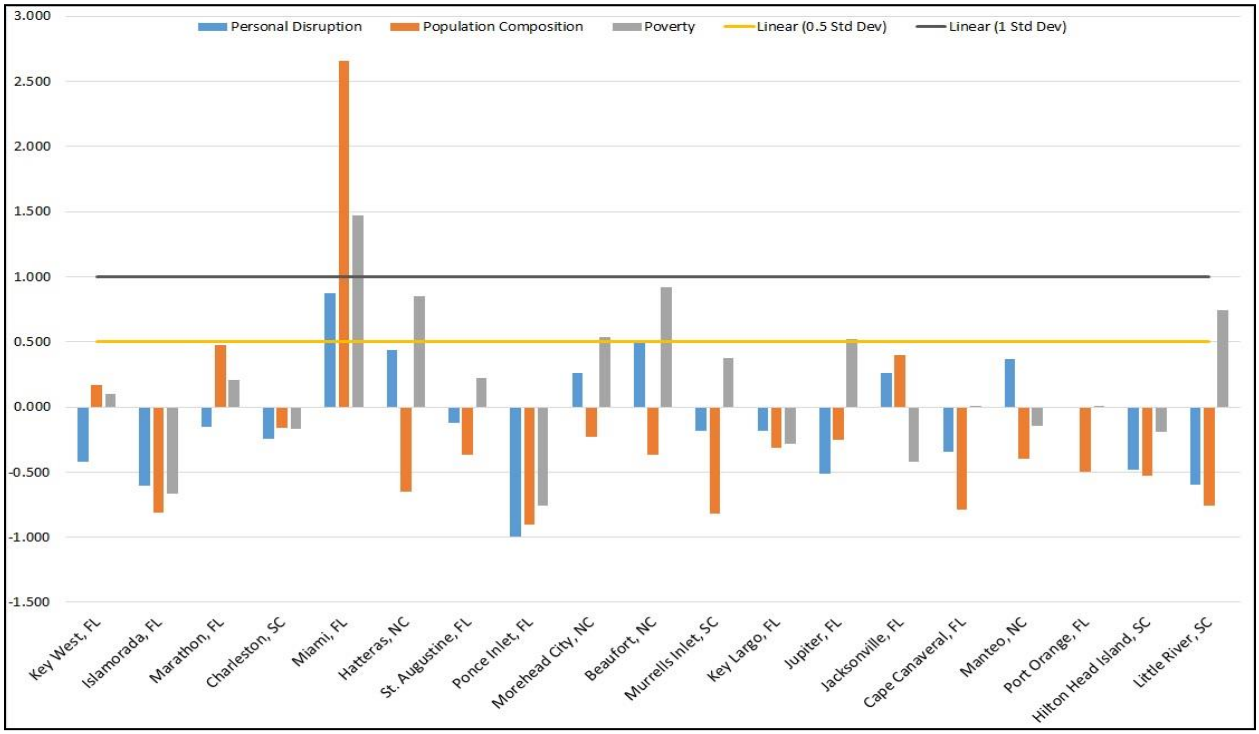

Figure 3.4.7. Social vulnerability measures for South Atlantic communities most extensively involved in the region's recreational fishing sectors. Source: SERO CSVI Database.

3.5 Administrative Environment

3.5.1 Federal Fishery Management

Federal fishery management is conducted under the authority of the Magnuson-Stevens Act (16 U.S.C. 1801 et seq.), originally enacted in 1976 as the Fishery Conservation and Management Act. The Magnuson-Stevens Act claims sovereign rights and exclusive fishery management authority over most fishery resources within the EEZ, an area extending 200 nm from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

Responsibility for federal fishery management decision-making is divided between the U.S. Secretary of Commerce (Secretary) and eight regional fishery management councils that represent the expertise and interests of constituent states. Regional councils are responsible for preparing, monitoring, and revising management plans for fisheries needing management within their jurisdiction. The Secretary is responsible for collecting and providing the data necessary for the councils to prepare fishery management plans and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

The 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.

3.5.2 State Fishery Management

The state governments of North Carolina, South Carolina, Georgia, and Florida have the authority to manage fisheries that occur in waters extending three nautical miles from their respective shorelines. North Carolina's marine fisheries are managed by the Marine Fisheries

Division of the North Carolina Department of Environmental Quality. The Marine Resources Division of the South Carolina Department of Natural Resources manages South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Division of Marine Fisheries Management of the Florida Fish and Wildlife Conservation Commission is responsible for managing Florida's marine fisheries. Each state fishery management agency has a designated seat on the South Atlantic 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.

3.5.3 Enforcement

Both the NMFS Office for Law Enforcement (NOAA/OLE) and the USCG have the authority and the responsibility to enforce Council regulations. NOAA/OLE agents, who specialize in living marine resource violations, provide fisheries expertise and investigative support for the overall fisheries mission. The USCG is a multi-mission agency, which provides at sea patrol services for the fisheries mission.

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

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

Chapter 4. Environmental Effects and Comparison of Alternatives

4.1 Action 1. Revise the acceptable biological catch, annual catch limit and annual optimum yield for snowy grouper

Alternatives*

1. (No Action). Current ACL and annual OY are equal to the ABC.

2. Revise the ACL and annual OY to EQUAL the updated ABC. The 2026 ACL and annual OY would remain in place until modified.

3. Revise the ACL and annual OY to 95% of the updated ABC. The 2026 ACL and annual OY would remain in place until modified.

4. Revise the ACL and annual OY to 90% of the updated ABC. The 2026 ACL and annual OY would remain in place until modified.

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

4.1.1 Biological Effects

Expected effects to snowy grouper and co-occurring species

Alternative 1 (No Action) would retain a total ACL that exceeds the most recent acceptable biological catch (ABC) and overfishing limit (OFL) recommendations of the Scientific and Statistical Committee (SSC) and would not end overfishing of snowy grouper (Table 4.1.1). **Alternative 1 (No Action)** would no longer be based on best scientific information available (BSIA) and, therefore, is not a viable alternative. **Alternative 1 (No Action)** would be expected to result in adverse biological effects to the snowy grouper stock as it would not end overfishing. Potential adverse impacts from overfishing (fishing mortality too high) include a decrease in the average age and size structure, decline in recruitment, and reduced stock resilience to environmental perturbations.

Table 4.1.1.1 The total ACL for snowy grouper under Alternatives 1 (No Action) – 5 in pounds gutted weight and number of fish.

Alternative (lbs gw)	2023	2024	2025	2026*	Numbers of Fish 2023-2026*
Alternative 1 (No Action)**	185,464	185,464	185,464	185,464	NA
Preferred Alternative 2* **	**119,654**	**121,272**	**122,889**	**122,889**	**15,264**
Alternative 3***	113,671	115,208	116,745	116,745	14,501
Alternative 4***	107,689	109,145	110,600	110,600	13,738

Note: Given the timing of amendment development, new catch levels would likely be effective during 2023 fishing year. Number of fish remain the same throughout the time period because it is assumed that fish moving through age classes gain weight therefore increasing the available poundage, however this does not increase the number of fish.
*The 2026 ACL will remain in place until modified
**Current ABC=ACL and this represents CHTS estimates for recreational data.
***Represents FES estimates for recreational data.

Relative to **Alternative 1 (No Action)**, **Preferred Alternative 2** through **Alternative 4** would be expected to end overfishing as they do not exceed the SSC recommended ABCs and would be expected to result in positive biological effects to the snowy grouper stock. Over the long term, reducing harvest of snowy grouper to help improve the age structure of the population would be expected to allow the stock to be less susceptible to adverse environmental conditions that might affect recruitment success. **Preferred Alternative 2** would result in the least biological benefit to the snowy grouper stock as there would be no buffer between the ABCs and the total ACLs. Biological benefits resulting from **Alternatives 3** and **4** would increase as the buffer increases. Although **Preferred Alternative 2** would allow the greatest amount of harvest of the action alternatives considered, it is based on the SSC's ABC recommendation and BSIA and represents a catch level that does not result in overfishing.

Lower ACLs from **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** could also result in earlier closures of snowy grouper for both the commercial and recreational sectors because there are currently in-season accountability measures for both sectors. Early closures could increase regulatory discards. As release mortality for snowy grouper is estimated to be 100% (SEDAR 36 Update), fishing mortality would increase with the increase in regulatory discards. Early closures could result in bycatch of snowy grouper if fishermen target co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) after the closure occurs. However, adverse effects are expected to be relatively minor as discards comprise a relatively minor component of the over total mortality. During the SEDAR 36 Update, total removals were estimated to comprise on average 95.4% landings and 4.6% dead discards. This could indicate that snowy grouper can be effectively targeted, which would make noteworthy increases in bycatch due to fishery closures less likely to occur. Substantial changes in fishing effort or behavior are not expected as a result of this action, thus the proposed ACLs under this action would not be expected to result in any biological effects, positive or negative, on co-occurring species (refer to BPA in Appendix G).

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 effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised ACLs being considered in **Preferred Alternative 2** through **Alternative 4** would be constraining on harvest and are projected to reduce landings of snowy grouper for both the commercial and recreational sectors.

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 be expected to be constraining on harvest when compared to recent 5-year average landings (2015-2019). 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 CHTS measurements to account for private recreational and charter landings while the updated ABC would be inclusive of FES measurements for these landings. Projections that allow for conversion between both units for the recreational sector 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 measurements. As a proxy for the status quo (**Alternative 1 (No Action)**), the five-year (2015-2019) average landings of snowy grouper are compared to **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** to estimate the economic effects of each alternative.

The potential revised total ACLs for snowy grouper when implemented in **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** would be constraining on harvest (Table 4.1.2.1; Table 4.1.2.2). **Alternative 4** would provide the lowest total ACL, and thus would be expected to most severely limit harvest. Greater negative economic effects are anticipated from this alternative. **Alternative 3** offers a comparatively higher ACL and **Preferred Alternative 2** would provide the highest ACL. From a net economic benefits perspective, **Preferred Alternative 2** would provide the highest potential net economic benefits of the viable alternatives being considered followed by **Alternative 3** and **Alternative 4** (Table 4.1.2.2).

Table 4.1.2.1. South Atlantic snowy grouper landings for fishing years 2015 to 2019.

Fishing Year	Commercial landings[a] (lbs gw)	Recreational landings[a] (lbs gw)	Total landings (lbs gw)
2015	130,088	56,932	187,021
2016	149,385	77,053	226,438
2017	135,825	14,297	150,122
2018	146,874	28,903	175,777
2019	151,889	21,849	173,737
5-year average	142,812	39,807	182,619

[a]Assumes a conversion ratio of 1.18 to convert pounds whole weight to pounds gutted weight (SEDAR 36).
Source: SEFSC MRIP FES ACL data set (March 2022) for recreational landings and SEFSC Commercial ACL data set (October 2020) for commercial landings.

Table 4.1.2.2. Percent difference between the total ACLs in **Action 1** compared to 5-year average landings from fishing years 2015 to 2019[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	**-34%**	-38%	-41%
2024	**-34%**	-37%	-40%
2025	**-33%**	-36%	-39%
2026+	**-33%**	-36%	-39%

[a]**Alternative 1 (No Action)** is tracked in part using CHTS measurements for charter and private recreational landings while **Alternatives 2 (Preferred)** through **4** would be tracked in part using FES measurements for charter and private recreational landings. As such, the economic effects of **Alternative 1 (No Action)** cannot be directly compared in a quantitative manner to the other alternatives since the accounting methods used to track the CHTS and FES are vastly different and are not forward projecting. Thus, **Alternative 1 (No Action)** cannot be considered in this analysis.

The estimated change in potential landings by sector under **Preferred Alternative 2** through **Alternative 4** are provided in Table 4.1.2.3 and Table 4.1.2.5. Table 4.1.2.4 and Table 4.1.2.6 show the resulting estimated change in net economic benefits by sector and Table 4.1.2.7 shows the estimated change in net economic benefits for **Action 1** in aggregate for both sectors combined. In the 2023 fishing year, **Preferred Alternative 2** is estimated to result in a decrease in potential net economic benefits of $315,716 for the commercial sector, a decrease in potential net economic benefits of $309,994 for the recreational sector, and a decrease in potential net economic benefits of $625,710 for both sectors combined (2021 dollars). By the 2026 fishing year and beyond, **Preferred Alternative 2** is estimated to result in a decrease in potential net economic benefits of $300,197 for the commercial sector, a decrease in potential net economic benefits of $302,979 for the recreational sector, and a decrease in potential net economic benefits of $603,176 for both sectors combined (2021 dollars).

Table 4.1.2.3. Estimated change in potential landings (lbs gw) to the commercial sector from **Action 1**.

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023	**-54,622**	-59,588	-64,553
2024	**-53,279**	-58,312	-63,345
2025	**-51,937**	-57,037	-62,137
2026+	**-51,937**	-57,037	-62,137

Table 4.1.2.4. Estimated change in potential net economic benefits to the commercial sector (PS) from **Action 1** (2021 dollars).

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023	**-$315,716**	-$344,419	-$373,117
2024	**-$307,954**	-$337,045	-$366,132
2025	**-$300,197**	-$329,672	-$359,152
2026+	**-$300,197**	-$329,672	-$359,152

Table 4.1.2.5. Estimated change in potential landings (numbers of fish) to the recreational sector from **Action 1**.

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023	**-2,696**	-2,810	-2,923
2024	**-2,665**	-2,780	-2,896
2025	**-2,635**	-2,752	-2,869
2026+	**-2,635**	-2,752	-2,869

Table 4.1.2.6. Estimated change in potential net economic benefits to the recreational sector (CS) from **Action 1** (2021 dollars).

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023	**-$309,994**	-$323,093	-$336,191
2024	**-$306,429**	-$319,706	-$332,983
2025	**-$302,979**	-$316,428	-$329,878
2026+	**-$302,979**	-$316,428	-$329,878

Table 4.1.2.7. Estimated change in potential net economic benefits (recreation and commercial combined) from **Action 1** (2021 dollars).[a]

Fishing Year	Preferred Alternative 2	Alternative 3	Alternative 4
2023	**-$625,710**	-$667,512	-$709,308
2024	**-$614,383**	-$656,751	-$699,115
2025	**-$603,176**	-$646,100	-$689,029
2026+	**-$603,176**	-$646,100	-$689,029

[a]**Alternative 1 (No Action)** is tracked in part using CHTS 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. As such, the economic effects of **Alternative 1 (No Action)** cannot be directly compared in a quantitative manner to the other alternatives since the accounting methods used to track the CHTS and FES are vastly different and are not forward projecting. 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 (83% commercial, 17% recreational) to the new ACL for each alternative to estimate economic benefits. This allocation is then compared to the baseline scenario (i.e. a proxy for **Alternative 1 (No Action))** to determine the gap between the baseline scenario and the ACL by sector under the assumption that both sectors would fully harvest their respective ACLs. For the commercial sector, the current sector ACL of 153,935 lbs gw is used as the baseline scenario since the units measuring this portion of the total ACL are not changing due to this action. For the recreational sector, 5-year average landings (2015-2019; 4,974 fish) in FES terms are used as the baseline scenario since a forward looking conversion of CHTS and FES measurements is not available that would allow direct comparison of the current recreational sector ACL under **Alternative 1 (No Action)**, which is in CHTS terms, to the resulting new recreational sector ACL under **Alternatives 2 (Preferred)** through **4**.

To estimate the change in potential net economic benefits for the commercial sector, the difference in the current and potential future commercial portion of the total ACL applied to the appropriate price ($5.78/lbs gw; Tables 3.3.1.2 and 3.3.1.3) to estimate PS for the commercial sector (Section 3.3.1; NMFS SEFSC, pers. comm. 2022). A further scaling factor is not applied to gross revenue in this circumstance to estimate PS since snowy grouper makes up a relatively small portion of total revenue for vessels that land the species, thus any incremental change in gross revenue occurring due to a change in landings of snowy grouper would equate to an equal change in net benefits. It is also assumed that the ex-vessel price will not change due to the change in commercial landings. Although there are no currently available estimates of the demand elasticity for snowy grouper, 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 snowy grouper for other species. Estimates of net revenues or economic profit are not available for snapper grouper dealers. Therefore, it is not possible to quantitatively estimate the effect of changes in purchases on their profits. However, in general, dealers are indirectly affected whenever gross revenues to commercial fishing vessels are expected to change (e.g., increases in gross revenues are expected to indirectly benefit dealers and vice versa). Thus, economic benefits to dealers would be the same as stated above for commercial vessels.

To estimate net economic benefits for the recreational sector, a consumer surplus (CS) estimate of $115 for the second grouper kept on a recreational trip is used (2021 $; Section 3.3.2). This

marginal value estimate is used as it is closest to the current retention limit of one fish per vessel. A weight of 8.93 lbs gw per snowy grouper and a conversion rate of 1.18 is used to convert the recreational portion of the buffer from lbs gw to lbs ww and then to numbers of fish. 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 due to the low retention limit for snowy grouper, a large number of potential substitute target species, and relatively few target trips (Table 3.3.2.1). 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.

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 altogether 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.

Communities that would be most affected by changes to the OFL, ABC, and ACL for snowy grouper are detailed in Section 3.4. Fishing communities in Florida, followed closely by those in North Carolina, see the highest landings of snowy grouper. Specifically, Key West, Florida; Supply, North Carolina; and Little River, South Carolina see the highest commercial snowy grouper landings and are highly engaged in commercial fishing efforts. Recreationally, the communities of Key West, Florida; and Hatteras, North Carolina have a large number for for-hire permits and are highly engaged in the recreational fishing industry, with the Hatteras being more reliant on snowy grouper than other communities.

Under **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** the ACL for snowy grouper would be based on the most recent stock assessment and updated MRIP estimates. Adjustments in an ACL based on updated information are necessary to ensure continuous social benefits over time. Specifically, updated information ensures the sustainability of fishing activities which can stabilize business operations and planning for the future. **Alternative 1 (No Action)** would not update the snowy grouper ACL based on current information and would not provide the social benefits associated with up-to-date scientific information.

In general, a higher ACL would lower the chance of triggering a recreational or commercial AM and result in the lowest level of negative effects on the recreational and commercial sectors. 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**.

4.1.4 Administrative Effects

Reducing the total ACL and annual OY for snowy grouper through **Preferred Alternative 2** through **4** would not have effects on the administrative environment, outside of the requisite public notices. However, in general, the lower the ACL, the more likely it is to be met (if no additional harvest restrictions are implemented), and the more likely an AM would be triggered. Since it is expected that both the commercial and recreational ACL would be met and an in-season closure is expected to occur (in accordance with current accountability measures) under each of the alternatives, the administrative effects are likely going to be minimal and the same across the viable alternatives.

4.2 Action 2. Revise the snowy grouper sector allocations and sector annual catch limits

4.2.1 Biological Effects

Alternatives*

1. (No Action). Apply the current allocation percentages to the revised total ACL. Total ACL is allocated 83% to the commercial sector and 17% to the recreational sector and.

2. Based on average landings from 1986 to 2005, the total ACL is allocated 87.55% to the commercial and 12.45% to the recreational sector.

3. Using the Allocations Formula, 73.36% of the total ACL is allocated to the commercial sector and 26.64% to the recreational sector.

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

Expected effects to snowy grouper and co-occurring species

Biological effects are not expected to be substantially different between **Alternative 1 (No Action)**, **Preferred Alternative 2**, and **Alternative 3** since the allocation percentages would be similar and do not affect the total ACL specified in Action 1 **(Table 4.2.1.1)**. Because of the reductions in catch levels in **Action 1,** all alternatives are constraining on harvest regardless of an increase in sector allocation. **Preferred Alternative 2** would allocate a higher percentage to the commercial sector than the current allocation. When considering discards, any sector that receives a lower sector ACL could have increased discards as an in-season closure may occur earlier and snowy grouper may be discarded when fishing for co-occurring species, such as blueline tilefish, in some areas. Under **Preferred Alternative 2** the recreational sector allocation is decreased from the current allocation, therefore increased recreational discards could occur (Table 4.2.1.2). The opposite would result from **Alternative 3** as the commercial sector allocation would be lower than the current allocation, therefore an increase in commercial discards is possible. Discards are not expected to change under **Alternative 1 (No Action)**. According to the SEDAR 36 Update assessment, snowy grouper discard mortality is 100% for both sectors; therefore, no significant difference in discard mortality is expected. In addition, substantial changes in fishing effort or behavior are not expected as a result of this action, thus the proposed sector ACLs under this action would not be expected to result in any biological effects, positive or negative, on co-occurring species (refer to BPA in Appendix G).

Table 4.2.1.1. The commercial sector allocations for snowy grouper based on the revised total ACL from Preferred Alternative 2 in Action 1. The commercial season is split into two seasons. Season 1 is from January 1 – June 31 and it receives 70% of the total commercial ACL. Season 2 is from July 1 – December 31 and it receives 30% of the total commercial ACL.

Alternative	Year	Total ACL (lbs gw)	Total Commercial ACL (lbs gw)	Season 1 (70%) (lbs gw)	Season 2 (30%) (lbs gw)
Alternative 1 (No Action) 83%	2023	119,654	99,313	69,518	29,794
	2024	121,272	100,656	70,459	30,197
	2025	122,889	101,998	71,399	30,599
	2026*	122,889	101,998	71,399	30,599
Preferred Alternative 2, 87.55%	2023	119,654	104,757	73,330	31,427

	2024	121,272	106,174	74,322	31,852
	2025	122,889	107,589	75,312	32,277
	2026*	122,889	107,589	75,312	32,277
Alternative 3, 73.36%	2023	119,654	87,778	61,445	26,333
	2024	121,272	88,965	62,276	26,689
	2025	122,889	90,151	63,106	27,045
	2026*	122,889	90,151	63,106	27,045

*The 2026 ACL will remain in place until modified.

Table 4.2.1.2. The recreational sector allocations for snowy grouper based on the revised total ACL from Preferred Alternative 2 in Action 1. Recreational allocations were determined using an average weight from SEDAR 36 Update (8.93 lbs gw).

Alternative	Year	Total ACL (numbers of fish)	Total Recreational ACL (numbers of fish)
Alternative 1 (No Action) 83%	2023	15,264	2,278
	2024	15,264	2,309
	2025	15,264	2,339
	2026*	15,264	2,339
Preferred Alternative 2, 87.55%	2023	15,264	1,668
	2024	15,264	1,691
	2025	15,264	1,713
	2026*	15,264	1,713
Alternative 3, 73.36%	2023	15,264	3,570
	2024	15,264	3,618
	2025	15,264	3,666
	2026*	15,264	3,666

*The 2026 ACL will remain in place until modified.

Alternative 3 would allocate a higher percentage to the recreational sector than under **Alternative 1 (No Action)** but would result in a decrease of 1,289 fish in 2023. Between 2015-2020, less than 40% of the recreational ACL was caught each year with the exception of two years during that time period. However, as a result of the reduced catch levels of **Action 1**, the recreational ACL proposed under **Alternative 3** may still be constraining and could result in the ACL being fully harvested.

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 effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised sector allocations and resulting ACLs being considered in **Alternatives 1 (No Action)** through **Alternative 3** would be constraining on harvest for both sectors and shifts between sectors would create distributional economic effects by sector, depending on the allocation.

Commercial Sector

Alternative 1 (No Action) would maintain the current commercial allocation of 83% of the total ACL. **Preferred Alternative 2** would result in a comparatively higher commercial sector allocation and sector ACLs (87.55% of the total ACL). **Alternative 3** would result in a comparatively lower commercial sector allocation and sector ACL (73.36% of the total ACL). All of the commercial ACL alternatives in **Action 2** are estimated to be constraining based on the average annual landings over the last five years of available data (Table 4.1.2.1) and are all lower than the current sector ACL of 153,935 lbs gw, therefore it is assumed that the commercial sector could fully harvest its ACL, if conditions allowed, and there would be more potential landings of snowy grouper under **Preferred Alternative 2** relative to **Alternative 1 (No Action)**. These relatively increased landings would be expected to comparatively increase total potential PS for the commercial sector. Conversely, **Alternative 3** would allow lower potential commercial landings which would comparatively decrease total potential PS for the commercial sector. When compared to **Alternative 1 (No Action)**, **Preferred Alternative 2** would result in an estimated increase in PS of $31,466 in fishing year 2023 and an increase in PS of $32,316 by fishing year 2026. Comparatively, **Alternative 3** would result in an estimated decrease in PS of $66,672 in fishing year 2023 and a decrease in PS of $68,476 by fishing year 2026 (2021 dollars) (Table 4.2.2.2). Estimates of net revenues or economic profit are not available for snapper grouper dealers. Therefore, it is not possible to estimate the effect of changes in purchases on their profits. However, in general, dealers are indirectly affected whenever gross revenues to commercial fishing vessels are expected to change (e.g., increases in gross revenues are expected to indirectly benefit dealers and vice versa). Thus, the ranking of net economic benefits to dealers would be the same as stated above.

Table 4.2.2.1. Percent difference between the commercial sector ACLs in **Action 2** compared to 5-year average landings of snowy grouper from 2015-2019 and comparison of sector ACLs.

Fishing Year	Commercial sector ACL (lbs gw)	Percent difference between 5-year average landings and the sector ACL	Difference from Alternative 1 (No Action) sector ACL (lbs gw)
Alternative 1 (No Action)			
2023	99,313	-30%	-
2024	100,656	-30%	-
2025	101,998	-29%	-
2026+	101,998	-29%	-
Preferred Alternative 2			
2023	**104,757**	**-27%**	**5,444**
2024	**106,174**	**-26%**	**5,518**
2025	**107,589**	**-25%**	**5,591**
2026+	**107,589**	**-25%**	**5,591**
Alternative 3			
2023	87,778	-39%	-11,535
2024	88,965	-38%	-11,691
2025	90,151	-37%	-11,847
2026+	90,151	-37%	-11,847

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

Table 4.2.2.2. Estimated change in potential net economic benefits for the commercial sector (PS) from the alternatives in Action 2 compared to Alternative 1 (No Action)(2021 dollars).

Fishing Year	Preferred Alternative 2	Alternative 3
2023	**$31,466**	-$66,672
2024	**$31,894**	-$67,574
2025	**$32,316**	-$68,476
2026+	**$32,316**	-$68,476

Assumptions used in calculating the estimates in Table 4.2.2.2 include a comparison of the sector ACL in **Alternative 1 (No Action)** to the appropriate sector ACL resulting from the other alternatives. To estimate the change in potential net economic benefits, the difference in lbs gw is applied to the appropriate price ($5.78/lbs gw; Tables 3.3.1.2 and 3.3.1.3) to estimate PS for the commercial sector (Section 3.3.1; NMFS SEFSC, pers. comm. 2022). A further scaling factor is not applied to gross revenue in this circumstance to estimate PS since snowy grouper makes up a relatively small portion of total revenue for vessels that land the species, thus any incremental change in gross revenue occurring due to a change in landings of snowy grouper would equate to an equal change in net benefits. It is also assumed that the ex-vessel price will not change due to the change in commercial landings. Although there are no currently available estimates of the demand elasticity for snowy grouper, it is assumed that there would be no expected change to CS from the commercial perspective since there is likely a high degree of substitutability of snowy grouper for other species. The total ACL for which the sector ACLs are based upon is derived from Preferred Alternative 2 in Action 1.

Recreational Sector

Alternative 1 (No Action) would maintain the current recreational allocation of 17% of the total ACL. **Preferred Alternative 2** would result in a comparatively lower recreational sector allocation and sector ACLs (12.45% of the total ACL). **Alternative 3** would result in a comparatively higher recreational sector allocation and sector ACL (26.64% of the total ACL). 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 lower potential landings of snowy grouper under **Preferred Alternative 2** relative to **Alternative 1 (No Action)**. These relatively decreased landings would be expected to comparatively decrease total CS for the recreational sector. Conversely, **Alternative 3** would result in a comparatively greater potential recreational landings which would comparatively increase total potential CS for the recreational sector. When compared to **Alternative 1 (No Action)**, **Preferred Alternative 2** would result in an estimated decrease in CS of $70,150 in fishing year 2023 and a decrease in CS of $71,990 by fishing year 2026. **Preferred Alternative 3** would result in an estimated increase in CS of $148,580 in fishing year 2023 and an increase in CS of $152,605 by fishing year 2026 (2021 dollars)(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 snowy grouper from 2015-2019 and comparison of sector ACLs.

Fishing Year	Recreational sector ACL (numbers of fish)	Percent difference between 5-year average landings and the sector ACL	Difference from Alternative 1 (No Action) (numbers of fish)
Alternative 1 (No Action)			
2023	2,278	-54%	-
2024	2,309	-54%	-
2025	2,339	-53%	-
2026+	2,339	-53%	-
Preferred Alternative 2			
2023	**1,668**	**-66%**	**-610**
2024	**1,691**	**-66%**	**-618**
2025	**1,713**	**-66%**	**-626**
2026+	**1,713**	**-66%**	**-626**
Alternative 3			
2023	3,570	-28%	1,292
2024	3,618	-27%	1,309
2025	3,666	-26%	1,327
2026+	3,666	-26%	1,327

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

Table 4.2.2.4. Estimated change in potential net economic benefits for the recreational sector (CS) from the alternatives in Action 2 compared to Alternative 1 (No Action) (2021 dollars).

Fishing Year	Preferred Alternative 2	Alternative 3
2023	**-$70,150**	$148,580
2024	**-$71,070**	$150,535
2025	**-$71,990**	$152,605
2026+	**-$71,990**	$152,605

Assumptions used in calculating the estimates in Table 4.2.2.4 include a comparison of the sector ACL in **Alternative 1 (No Action)** to the appropriate sector ACL resulting from the other alternatives in numbers of fish. To estimate the change in potential net economic benefits, a consumer surplus (CS) estimates of $115 for the second grouper kept on a recreational trip is used (2021 $; Section 3.3.2). This marginal value estimate is used as it is closest to the current retention limit of one fish per vessel. 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 due to the low retention limit for snowy grouper, a large number of potential substitute target species, and relatively few target trips (Table 3.3.2.1). 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. The total ACL for which the sector ACLs are based upon is derived from Preferred Alternative 2 in Action 1.

Total

In general, higher ACLs allow for increased harvest when fishery conditions allow, thereby increasing 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 2** resulting in the highest potential benefits followed by **Alternative 1 (No Action)**, and **Alternative 3**. For the recreational sector, the ranking would be the opposite with **Alternative 3** resulting in the highest potential benefits followed by **Alternative 1 (No Action)** and **Preferred Alternative 2**. In terms of total estimated net economic benefits for the action, the same ranking would apply as stated for the recreational sector. In comparison to **Alternative 1 (No Action)**, **Preferred Alternative 2** would decrease net economic benefits by $38,684 and **Alternative 3** would increase net economic benefits by $81,908 in the 2023 fishing year (Table 4.2.2.5)(2021 dollars).

Table 4.2.2.5. Estimated change in potential net economic benefits from the alternatives in Action 2 compared to Alternative 1 (No Action) (2021 dollars).

Fishing Year	Preferred Alternative 2	Alternative 3
2023	**-$38,684**	$81,908
2024	**-$39,176**	$82,961
2025	**-$39,674**	$84,129
2026+	**-$39,674**	$84,129

4.2.3 Social Effects

Sector allocations exist for the recreational and commercial sectors already, **Alternative 1 (No Action)** would maintain the current allocation percentages. Under **Preferred Alternative 2** there would be an increase in the commercial percentage and under **Alternative 3** there would be a decrease in the commercial percentage compared to **Alternative 1 (No Action)**. Both alternatives could have some negative social effects if recreational and commercial fishermen, respectively, have a negative perception of this change due to the decrease in fishing opportunity and concerns about long-term social effects, especially if other actions further decreased harvest opportunities.

As mentioned above, there can be many different social effects that result as allocations are discussed further, 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**) and may have further effects that could be either negative or positive depending upon the combination of management actions. 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.

Based on **Action 1-Preferred Alternative 2** and recent commercial and recreational landings, all of the proposed commercial or recreational ACLs are expected to be met, resulting in triggering of the AMs (**Action 4**). Modifications to recreational management measures (**Actions**

3 and **4**) are anticipated to decrease landings and lengthen the season, but not to the extent that would prevent a recreational closure.

4.2.4 Administrative Effects

Administrative effects would not vary between **Alternative 1 (No Action)**, **Preferred Alternative 2**, and **Alternative 3** because the sector allocations are similar and an in-season closure is predicted for both sectors. Administrative burdens depending on the recreational AM (Action 5) would relate to data monitoring, outreach, and enforcement of a short fishing season. Other administrative burdens that may result would take the form of development and dissemination of outreach and education materials for fishery participants and law enforcement.

4.3 Action 3. Modify snowy grouper recreational season

4.3.1 Biological Effects

Alternatives*

1 (No Action). The snowy grouper recreational season is May 1 through August 31.

2. Modify the recreational snowy grouper season to begin on May 1 and end on June 30

3. Modify the recreational snowy grouper season to begin on July 1 and end on August 31

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

Expected effects to snowy grouper and co-occurring species

Alternative 1 (No Action) would keep the recreational season as four months. **Preferred Alternatives 2** and **Alternative 3** would reduce the season to two months. These two alternatives would be expected to result in beneficial impacts to the stock as the season would be shorter and the fishing mortality would be lower compared to **Alternative 1 (No Action)**. However, regulatory discards could increase fishing mortality with **Alternatives 2** and **3** as discussed below. A shorter recreational season would reduce recreational landings and potentially prevent overages of the recreational ACL. However, the discards could increase with **Alternatives 2** and **3** as the closed seasons are longer compared to **Alternative 1 (No Action)**. In 3 of the last 5 years, the landings were highest during May and June (Figure 4.3.1.1 and Table 4.3.1.1). Therefore, the biological benefits could be greater with **Preferred Alternative 3** compared to **Alternative 2** as it would be closing the months when catches tend to be the highest. But the effects may be similar between the two alternatives if fishermen shift effort to other months. Under updated catch levels and allocations, based on 5 years of recent landings, the recreational season is predicted to close around mid-June. Under the same conditions for **Preferred Alternative 2,** the season is expected to close approximately mid-June whereas under **Alternative 3** is not expected to experience a closure before the season would close August 30 (Table 4.3.1.2).

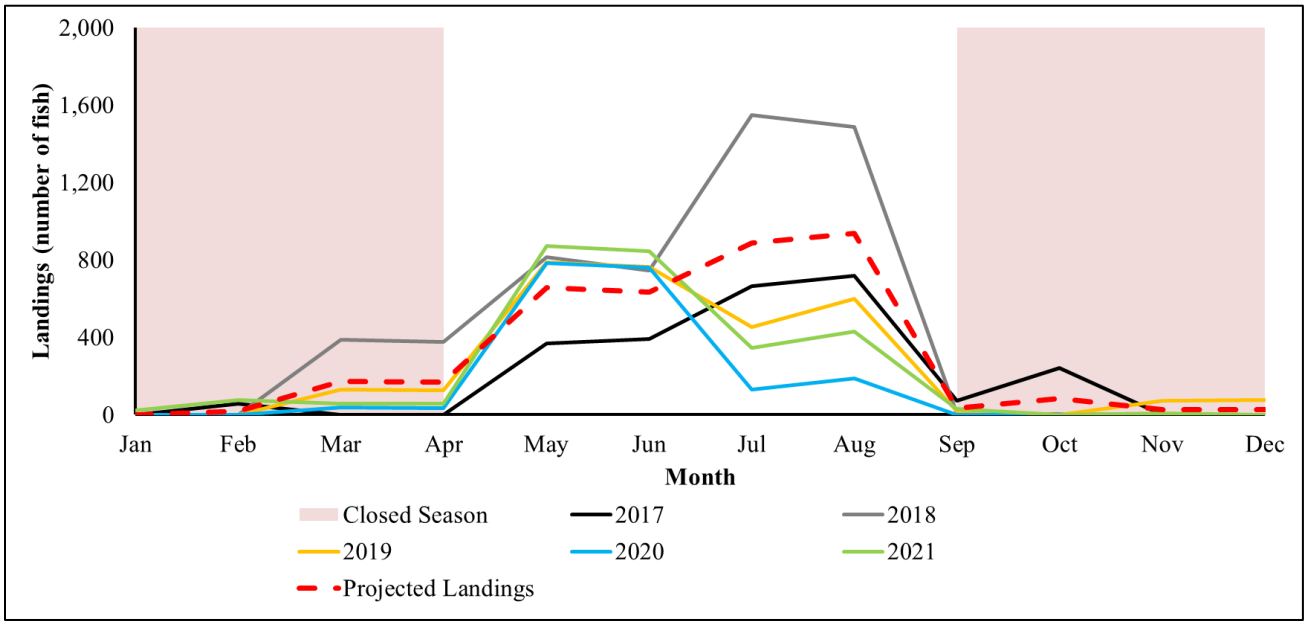

Figure 4.3.1.1. South Atlantic snowy grouper recreational landings by month from 2017-2019 and projected landings. All of the landing projections assume no landings between January 1 - April 30 and September 1 – December 31 for the season closure. Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Table 4.3.1.1. Average number of snowy grouper landed by the recreational sector by wave from the South Atlantic based on a three-year average (2017 to 2019) and a five-year average (2015 to 2019). Landings include trips reported from Monroe County, FL. The confidence interval was developed based on the standard deviation for the three years of data.

Wave	Three Year Average (2017-2019)	Confidence Interval	Average Number Per Month
Jan-Feb	20	0 - 598	10
Mar-Apr	342	0 - 806	11
May-Jun	**1,290**	**0 - 3,120**	**645**
Jul-Aug	**1,824**	**938 - 2,710**	**912**
Sep-Oct	116	0 - 270	58
Nov-Dec	0	0 - 126	0
Wave	**Five Year Average (2015-2019)**	**Confidence Interval**	**Average Number Per Month**
Jan-Feb	351	0 – 1,372	176
Mar-Apr	395	0 – 1,256	198
May-Jun	**2,354**	**0 – 5,520**	**1,177**
Jul-Aug	**1,674**	**138 – 3,210**	**837**
Sep-Oct	45	0 - 230	23
Nov-Dec	30	0 - 163	15

Table 4.3.1.2. The projected South Atlantic snowy grouper recreational landings (number of fish) and closure dates expected for each Alternative of Action 3 using a three-year (2017-2019) and five-year (2015-2019) average. **The recreational ACL options considered here assume sector allocations of 87.55% commercial and 12.45% recreational (Preferred Alternative 2 of Action 2).** Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Alternative 1 (No Action): May 1 – August 31	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	14-Jul	74	13-Jun	43
2024	1,691	14-Jul	74	13-Jun	43
2025	1,713	15-Jul	75	14-Jun	44
2026	1,713	15-Jul	75	14-Jun	44
Preferred Alternative 2: Wave 3 Option (May 1 – June 30)	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	**1,668**	**No Closure (1,290 fish)**	**61**	**13-Jun**	**43**
2024	**1,691**	**No Closure (1,290 fish)**	**61**	**13-Jun**	**43**

2025	**1,713**	**No Closure (1,290 fish)**	**61**	**14-Jun**	**44**
2026	**1,713**	**No Closure (1,290 fish)**	**61**	**14-Jun**	**44**
Alternative 3: Wave 4 Option (July 1 – Aug 31)	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	26-Aug	56	31-Aug	60
2024	1,691	27-Aug	57	No Closure (1,674 fish)	61
2025	1,713	28-Aug	58	No Closure (1,674 fish)	61
2026	1,713	28-Aug	58	No Closure (1,674 fish)	61

Preferred Alternative 2 and **Alternative 3** would likely result in beneficial effects to the stock by reducing the mortality on spawning snowy grouper if fishing effort is reduced by the shorten seasons. Kolmos et al. (2019) noted that spawning across sizes and ages increased May through August (Figure 4.3.1.2).

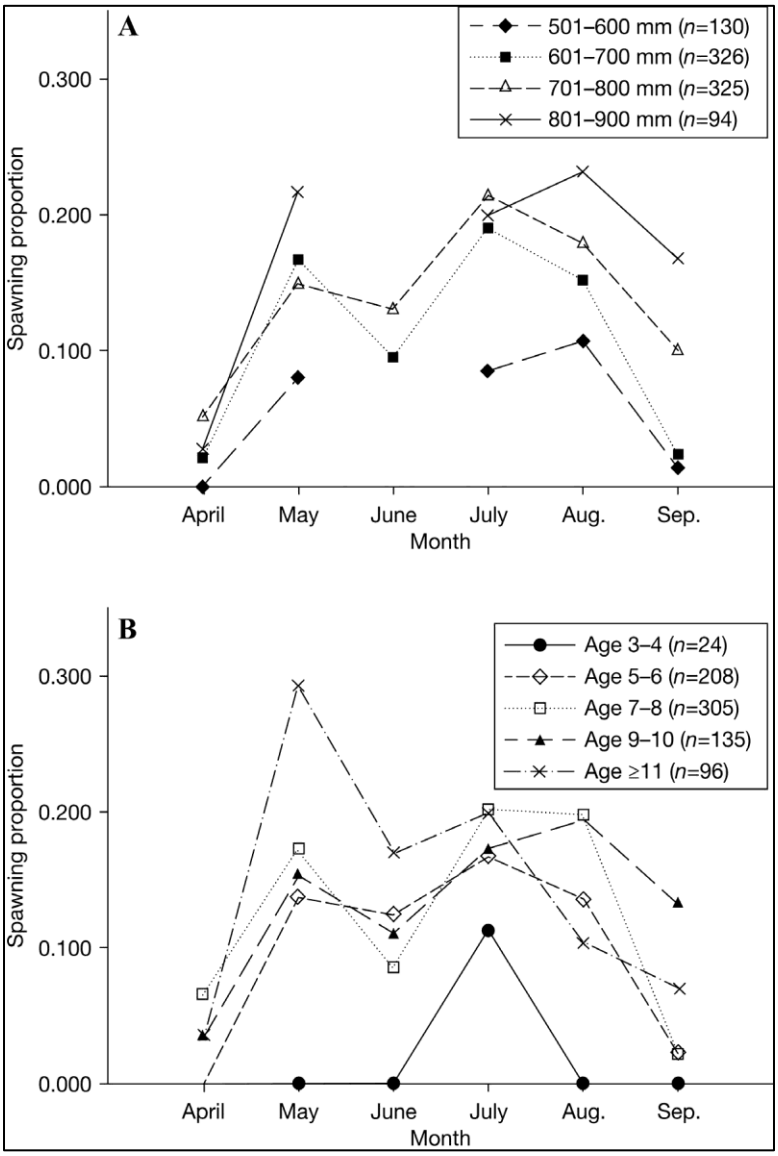

Figure 4.3.1.2. Spawning proportion by month. Source: Kolmos et al. (2019).

Preferred Alternative 2 and **Alternative 3** could result in more discards when compared with **Alternative 1 (No Action)**. These alternatives would each close two more months, and snowy grouper would need to be returned to the water during the closure if caught when targeting other species such as blueline tilefish. Currently, the snowy grouper recreational season occurs during the same months as the recreational blueline tilefish season, and snowy grouper and blueline tilefish are often caught during the same trip. Snowy grouper discards are not expected to change north of Cape Hatteras North Carolina, as co-occurrence of snowy grouper and blueline tilefish north of Cape Hatteras is not common. The Council is also considering changes to the fishing season for the recreational sector for blueline tilefish. Discards of snowy grouper would likely increase if the blueline tilefish season is four months and the snowy grouper season is shortened.

Golden tilefish is another deepwater species that is targeted recreationally in the South Atlantic that is found in habitats adjacent to that of snowy grouper in some areas. In areas where mud bottom is adjacent to rubble bottom, fishermen may catch golden tilefish with snowy grouper and blueline tilefish. Fishery independent surveys report catches of snowy grouper, blueline tilefish, and golden tilefish on the same gear set when short bottom longline gear went across rubble and mud. An example of these areas are pinnacles in 100 fathoms off South Carolina (J. McGovern, Southeast Regional Office, pers. comm. 2022).

4.3.2 Economic Effects

Generally, prolonged time periods when recreational harvest is allowed can result in increased economic benefits. Allowing the recreational harvest to be open for longer periods of time can help ensure that the ACL is harvested each year and all associated economic benefits from that harvest to recreational anglers are received. Conversely, this also creates unpredictability in season length and when harvest will close if the accountability measure is triggered.

If the ACL is not fully harvested during the established season, it can lead to fewer short-term economic benefits, thus there is the potential for **Preferred Alternative 2** and **Alternative 3** to have lower economic benefits than **Alternative 1 (No Action)**. **Alternative 1 (No Action)** provides the longest fishing season (4 months), thus the greatest opportunity to fully harvest the ACL and the highest potential short-term economic benefits, followed by **Preferred Alternative 2** and **Alternative 3** (two months).

When using 5-year average landings as a baseline (Table 4.3.1.1), removing the months of July and August (**Preferred Alternative 2**) from the recreational fishing season for snowy grouper would result in an estimated reduction in landings of 1,674 fish and removing the months of June and July (**Alternative 3**) would result in an estimated reduction in landings of 2,354 fish. Applying a CS estimate of $115 per snowy grouper (2021 dollars; Section 3.3.2) to these reductions in harvest provides an estimated reduction of $192,510 in net economic benefits under **Preferred Alternative 2** and $270,710 in net economic benefits under **Alternative 3** (Table 4.3.2.1)**.** These quantitative economic effects may be at least partially captured in the economic effects described in Action 1 and Action 2 for the recreational sector, since prohibiting harvest for the recreational sector would contribute to the reduction in recreational landings noted for those two actions. Thus, the quantitative effects in Table 4.3.2.1are not necessarily additive to the effects shown in Action 1 and 2, but rather show the estimated economic effects of **Action 3** with all other conditions remaining the same. The underlying analysis also assumes no effort shifting from the months that will now be closed to those that are open.

Table 4.3.2.1. Estimated reduction in landings and CS from the Alternatives in Action 3.

Alternative	Estimated reduction in landings (#s of fish)	Estimated reduction in CS (2021 dollars)
Alternative 1 (No Action)	0	$0
Preferred Alternative 2	**-1,674**	**-$192,510**
Alternative 3	-2,354	-$270,710

4.3.3 Social Effects

Shortening the recreational season could change the level of access to snowy grouper during periods when they are available and when participation in the snowy grouper portion of the snapper grouper fishery is highest. However, long-term biological benefits of maintaining a healthy stock would contribute to future fishing opportunities for both the commercial and recreational sectors.

The social effects of **Preferred Alternative 2**, and **Alternative 3** compared to **Alternative 1 (No Action)** would depend on when recreational effort is the highest for snowy grouper. Generally, access to snowy grouper for recreational participants will depend on the season length specified. **Preferred Alternative 2** and **Alternative 3** propose two-month seasons. Participation in the snowy grouper portion of the snapper grouper fishery has historically been highest during wave three (May and June) followed by wave four (July and August) (Figure 4.4.1.1). **Preferred Alternative 2** and **Alternative 3**, would allow recreational anglers and for-hire businesses access to snowy grouper when participation has been highest. Additionally, **Preferred Alternative 2** and **Alternative 3** would reduce harvest during the snowy grouper spawning season when compared to the four-month season in **Alternative 1 (No Action)**. Contributing to rebuilding goals for snowy grouper would be expected to contribute to the sustainability of harvest and the health of the snowy grouper stock and provide for long-term social benefits.

Considering the proposed recreational allocation (**Preferred Alternative 2**, Action 3) and peak harvest of snowy grouper, **Alternative 2** and **Alternative 3** are anticipated to result in similar season lengths (less than one wave) and thus similar social benefits for South Atlantic fishing communities. However, social benefits for individual communities highly engaged in the recreational harvest of snowy grouper (Section 3.4) will vary based on when participation in the fishery is the highest in that community.

4.3.4 Administrative Effects

Administrative effects may be greater with a shorter season, as overages and thus the actions needed to prevent or correct for them would be more likely for either single wave alternative (**Preferred Alternative 2** and **Alternative 3**). There is currently an in-season accountability measure for the recreational snowy grouper fishery that closes the current season if the recreational ACL is met or expected to be met. If this closure instituted, then the closure would need to be announced and NMFS would need to determine if the current post-season accountability measure was also triggered.

4.4 Action 4. Modify snowy grouper recreational accountability measures

4.4.1 Biological Effects

Alternatives*

1 (No Action). In-season closure if landings reach or are projected to reach the recreational ACL. If landings exceed the ACL, then monitor landings the following year. If the total ACL is exceeded and snowy grouper are overfished, reduce the length of the recreational fishing season and the recreational ACL by the amount of the overage.

2. NMFS will annually announce the recreational fishing season start and end dates. The fishing season will start on May 1 and end on the date NMFS projects the recreational ACL will be met.

3. Remove the recreational in-season closure. If the recreational ACL is exceeded and the total ACL is exceeded, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational ACL from being exceeded in the following year.

4. Retain the recreational in-season closure. If the recreational ACL is exceeded and the total ACL is exceeded, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational ACL from being exceeded in the following year.

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

Expected effects to snowy grouper and co-occurring species

Biological benefits would be expected to be greater for the alternative that provides the most timely and realistic option chosen to trigger and implement an AM. Action 4 would revise the recreational AMs for snowy grouper. The proposed AMs range from implementing an in-season closure to announcing the length of the season. If a recreational fishing season is shortened as a result of a triggered AM, this action could increase regulatory discards in the fishery.

Under **Alternative 1 (No Action)**, an in-season closure would likely be triggered due to the proposed reduction in the recreational ACL. In addition, because snowy grouper are overfished, an overage of the total ACL would trigger a reduction in the length of the recreational season and a payback of the overage in the subsequent fishing year.

A similar AM to that proposed under **Alternative 2** is currently in place in the South Atlantic for black sea bass. **Alternative 2**could reduce the length of the current recreational season is an overage of the recreational ACL were to occur. Analyses show the recreational ACL would likely be met before the end of the season (Table 4.3.1.2). Therefore, the timeframes in **Alternative 2** would be the "book-ends" within which recreational harvest of snowy grouper would be allowed based on how long NMFS determines the season can last. Under this scenario, if the recreational ACL was not met within that timeframe, a reopening would not occur since recreational landings estimates would not be available in-season to conduct additional projections for a reopening. **Alternative 2** would result in biological benefit to the stock in that it is likely to prevent overages of the recreational ACL. However, this alternative would not correct for an overage if it were to occur due to an unforeseen increase in recreational effort.

Preferred Alternative 3 would remove the recreational in-season AM and would eliminate two triggers from the post-season AM (overfished status and total exceeded). Removing the in-season AM would likely result in adverse effects to the stock compared to **Alternative 1 (No Action)** since the mechanism to prevent the ACL from being exceeded would be removed. However, **Preferred Alternative 3** could result in beneficial effects to the snowy grouper stock compared to **Alternative 1 (No Action)**, since the post-season AMs would be effective regardless of the stock status and whether the total ACL was exceeded. It is not possible to determine the overall directional effect of **Preferred Alterative 3** compared to **Alternative 1 (No Action)**.

Alternative 4 is the same as **Alternative 3**, but it would retain the in-season closure. Compared to **Alternative 1 (No Action)**, **Alternative 4** would likely result in beneficial effects to the snowy grouper stock since it retains the in-season AM and would reduce some of the criteria to determine whether the post-season AM is triggered. However, **Alternative 1 (No Action)** would reduce the recreational ACL following an overage whereas that is not the case with **Alternative 4.** Biological benefits to the snowy grouper stock would be similar amongst the alternatives. It is difficult to rank the alternatives according to the expected adverse effects to the biological stock as each alternative contains attributes that could lead to both beneficial and adverse effects when compared to the other alternatives.

If a recreational fishing season is shortened as a result of a triggered AM, this action could increase regulatory discards in the fishery. However, substantial changes to fishing activity or behavior are not expected; thus, no changes in bycatch are expected for Action 4.

4.4.2 Economic Effects

Alternative 1 (No Action) would retain an in-season closure and a potential payback provision for an overage of the sector ACL that would reduce the sector ACL by the amount of the overage while snowy grouper are overfished. This alternative is the most stringent of the AMs being considered, thus it would likely result in the greatest potential for short-term negative economic effects but long-term economic benefits.

Alternative 2 would result in a fishing season that is announced annually with set start and end dates. This AM would limit overall long-term harvest of snowy grouper but could result in economic benefits that mitigate the short-term cost of the AM itself by allowing more time to adjust to the changing harvest regulations. There would also be no safeguard in place to prevent the total ACL from being exceeded with the removal of an in-season closure. This could result in short-term economic benefits for the recreational sector due to increased harvest and long-term potential economic costs to fishery participants. If a reduced fishing season is implemented in Action 4, these potential economic effects would be largely mitigated. Additionally, this alternative does not have a payback provision for an overage of the sector ACL, making the potential for short-term negative economic effects lower in comparison to **Alternative 1 (No Action)**.

The economic effects of **Preferred Alternative 3** would likely be similar to those of **Alternative 2**, but the AM for this alternative would be triggered with a single year of landings rather than automatically be in place every year. There would be no safeguard in place to prevent the total

ACL from being exceeded with the removal of an in-season closure. Additionally, there would be no further restricted fishing season annually, outside of what is set in Action 3, thus potential harvest is likely higher under **Preferred Alternative 3** in comparison to **Alternative 1 (No Action)** and **Alternative 2**. This could result in short-term economic benefits for the recreational sector due to increased harvest and long-term potential economic costs to fishery participants. If a reduced fishing season is implemented in Action 3, these potential economic effects would be largely mitigated. The economic effects of **Alternative 4** would likely be similar to those of **Preferred Alternative 3**, but there would be lower potential short-term benefits and long-term costs since the in-season closure to harvest would still remain.

In terms of potential short-term negative economic effects to the recreational sector, **Alternative 1 (No Action)** would have the highest potential negative economic effects since there is a payback provision, followed by **Alternative 4**, **Alternative 2,** and **Preferred Alternative 3**.

4.4.3 Social Effects

AMs can have 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. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Those restrictions usually translate into reduced opportunity for harvest, which in turn can change fishing behaviors. Those behaviors can increase pressure on other stocks or amplify conflict.

Alternative 1 (No Action) would not modify the current recreational AMs for snowy grouper (in-season closure, post-season season length reduction if overfished and stock ACL is exceeded). Inconsistent closure dates may make it challenging for for-hire businesses to plan their fishing activities. Overall, longer seasons result in increased fishing opportunities for the recreational sector and increased revenue opportunities for the for-hire sector. Reducing the season length is anticipated to result in direct negative social effects associated with loss of access to the resource.

Alternatively, **Alternative 2** would have NMFS announce the length of the recreational season for snowy grouper in the *Federal Register* prior to the start date each year, with an end date corresponding to when the recreational ACL is projected to be met for that year. While the end date for snowy grouper may shift each year, announcing at the beginning of the season would allow private anglers and for-hire businesses to plan their activities around the closure in advance. Alternatively, this process does not provide for a reopening should landings fall below the recreational ACL which may result in foregone fishing opportunities if landings occur at a slower rate than projected.

Preferred Alternative 3 would remove the in-season closure as well as the two triggers for reducing the following fishing season (total ACL exceeded and stock overfished status). Removing the in-season closure would prevent the direct and in-direct negative social effects associated with restricted harvest during a current season. However, removal of the two triggers for season reduction in subsequent years may result in the fishing season varying significantly from year to year due to changes in fishing behavior or environmental conditions affecting

current year harvest. Inconsistent fishing seasons can make it challenging for private anglers and for-hire business to plan their fishing activities through the long-term.

Similar to **Preferred Alternative 3**, **Alternative 4** would remove the two triggers for reducing the following fishing season (total ACL exceeded and stock overfished status) but would retain the in-season closure. Retaining the in-season closure would result in direct and in-direct negative social effects associated with restricted harvest during a current season. Additionally, removal of the two triggers for season reduction in subsequent years in combination with the in-season closure may result in the fishing season may vary significantly from year to year.

4.4.4 Administrative Effects

Administrative burdens such as data monitoring, rulemaking, outreach, and enforcement would be similar for **Alternative 1 (No Action)**, and **Alternatives 2-4**. **Alternative 2** would require a season announcement notice in the *Federal Register* annually prior to the season start date. If the post-season AM is triggered, **Preferred Alternatives 3** and **4**, would also require a season announcement notice for a reduced season length. **Alternative 1 (No Action)** and **Alternative 4** would both require announcements for the in-season AMs are triggered.

Chapter 5. DRAFT Council's Rationale for the Preferred Alternatives

5.1 Action 1. Revise the acceptable biological catch, annual catch limit and annual optimum yield for snowy grouper

5.1.1. Snapper Grouper Advisory Panel (AP) Comments and Recommendations

The South Atlantic Fishery Management Council (Council) Snapper Grouper Advisory Panel (AP) met October 2021 and April 2022. In October 2021, the AP noted concerns over the reduction in harvest levels and the ability to reach snowy grouper depths.

In April 2022 the AP was given an update on the amendment and selected preferred alternative. The AP did not have additional comments specific to revising the ABC, total ACL and annual OY.

5.1.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement AP convened on February 10, 2022. The AP received a briefing on the amendment and had no comments or recommendations pertaining to revising the acceptable biological catch (ABC), total annual catch limit (ACL) and annual optimum yield (OY).

5.1.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

The SSC convened October 25 through 27, 2022. The SSC received a briefing on the amendment and had no comments or recommendations pertaining to revising the ABC, total ACL and annual OY.

5.1.4 Public Comments and Recommendations

A joint scoping hearing including Amendments 52 and 53 was held on February 1, 2, and 3, 2022 via webinar. One commenter expressed concerns over increasing discards with the new reduced catch levels, especially as fishermen continue to target blueline tilefish.

5.1.5 South Atlantic Council's Draft Rationale

The South Atlantic Council has been frequently setting optimum yield equal to the acceptable biological catch and below the maximum sustainable yield to provide greater assurance that overfishing is prevented, the long-term average biomass is near or above the biomass that would produce the maximum sustainable yield (B_{MSY}), and overfished stocks are rebuilt within the allotted timeframe for the species in question. While snowy grouper is overfished and experiencing overfishing, the Council decided to forego a precautionary buffer between the ACL (and OY) and the ABC and instead rely on the rebuilding plan established in Amendment 15A (2008) as well as management measure modifications to prevent overfishing and ensure the stock is rebuilt within the rebuilding timeframe.

In general, an ACL cannot exceed the ABC and may be set annually or on a multiyear plan basis. ACLs, in coordination with accountability measures (AM) must prevent overfishing. The National Standard 1 guidelines specify that Councils can choose to account for management uncertainty by setting the ACL below the ABC but states that annual catch limits may typically be set very close to the ABC. However, the Commercial Landings Monitoring System and actions implemented through the Joint Generic Dealer and Generic For-Hire Reporting amendments provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

The Council concluded that **Preferred Alternative 2**, best meets the purpose to update the ABC and ACL for the snowy grouper component of the snapper grouper fishery based on the results of the most recent stock assessment. The preferred alternative also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

5.1.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

This action addresses objectives under Strategy 3.1: *Consider development of management approaches that assist fishery-dependent businesses to operate efficiently and profitably* under Objective 3 - *Ensure that management decisions help maximize social and economic opportunity for all sectors.*

5.2 Action 2. Revise the snowy grouper sector allocations and sector annual catch limits

5.2.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Fishery Management Council (Council) Snapper Grouper Advisory Panel (AP) met October 2021 and April 2022. During both the October 2021 and April 2022 meetings The AP did not have additional comments specific to revising the snowy grouper allocations.

5.2.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement AP convened on February 10, 2022. The AP received a briefing on the amendment and had no comments or recommendations pertaining to revising allocations.

5.2.3 SSC Comments and Recommendations

The SSC convened October 25 through 27, 2022. The SSC received a briefing on the amendment and had no comments or recommendations pertaining to revising the snowy grouper allocations.

5.2.4 Public Comments and Recommendations

A joint scoping hearing including Amendments 52 and 53 was held on February 1, 2, and 3, 2022, via webinar. During the webinar some commenters expressed that they were opposed to any revision of allocations which resulted in a higher allocation to the recreational sector.

5.2.5 South Atlantic Council's Draft Rationale

Snowy grouper landings in the South Atlantic predominantly come from the commercial sector. From 1986-2020 commercial landings have exceeded recreational landings all years with the exception of two years (2007 and 2012). Because the fishery operates primarily in deeper water and is therefore harder to access, the allocations between sectors have historically been higher for the commercial sector. In 2015, through Regulatory Amendment 20, the current allocations of 83% commercial and 17% recreational were established. These allocations were determined using average commercial and recreational landings from 1986 to 2005. The recreational landings stream used to determine these allocations were the Marine Recreational Information Program's (MRIP) Coastal Household Telephone Survey (CHTS).

Through this amendment the Council has updated the total allowable catch limit based on the updated ABC and OFL. The updated ABC includes recreational landings estimates from the MRIP Fishing Effort Survey (FES) method. Allocations are being modified to incorporate this updated landing stream. The Council chose to use landings during various time periods to help them determine allocations, discussing the time period which they felt most appropriately represented the fishery when determining allocations. Ultimately, they decided that the method used to determine the current allocations (average landings from 1986-2005) was the most appropriate and chose **Preferred Alternative 2,** which recalculated allocations based on this method, using recreational landings from the MRIP FES. This results in an allocation of 87.55% to the commercial sector and 12.45% to the recreational sector.

The Council selected **Preferred Alternative 2** in accordance with their intent to revise sector allocations and ACLs to reflect the revised reduced total ACL for snowy grouper and needs of

both the commercial and recreational sectors while acknowledging that the commercial sector historically comprises most of the landings in the snowy grouper fishery. The Council determined that the allocation in **Preferred Alternative 2** would strike a balance between the needs of both sectors. The Council considers this allocation to be fair and equitable to fishery participants in both the recreational and commercial sectors and would be carried out in such a manner that no particular individual, corporation, or other entity would acquire excessive share. The Council determined that this allocation is also reasonably calculated to promote conservation since it remains within the boundaries of a total ACL that is based upon an ABC recommendation that incorporates BSIA.

The Council concluded **Preferred Alternative 2** best meets the purpose and need, the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

5.2.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

This action addresses objectives under Strategy 6.1: *Support management approaches that consider the mechanics of designing allocation strategies* under *Objective 6 – Develop management measures that support optimal sector allocations for the Snapper Grouper Fishery*

5.3 Action 3. Modify the snowy grouper recreational season

5.3.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Fishery Management Council (Council) Snapper Grouper Advisory Panel (AP) met October 2021 and April 2022. During the October 2021 meeting the AP discussed the need for a private recreational stamp or endorsement, especially for deepwater species such as snowy grouper.

During the April 2022 meeting the AP continued to discuss recreational season alternatives. They noted recreational geographic differences which should be considered when altering the recreational season in addition to a possible depth closure. The AP noted concerns over the 100% discard mortality used in the assessment as fishermen have experienced successful descending of snowy grouper.

5.3.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement AP convened on February 10, 2022. The AP received a briefing on the amendment and had no comments or recommendations pertaining to modifying the recreational season

5.3.3 SSC Comments and Recommendations

The SSC convened October 25 through 27, 2022. The SSC received a briefing on the amendment and had no comments or recommendations pertaining to modifying the recreational season. allocations.

5.3.4 Public Comments and Recommendations

A joint scoping hearing including Amendments 52 and 53 was held on February 1, 2, and 3, 2022, via webinar. Two comments were received that suggested gear restrictions for the recreational sector, which could reduce dead discards. Another commenter noted that recreational fishermen often catch more than one snowy at a time, suggesting that the recreational bag limit be increased to reduce dead discards. Two commenters noted that there needs to be more recreational oversight, suggesting that a recreational permit be established.

5.3.5 South Atlantic Council's Draft Rationale

Substantial reductions in harvest are needed to end overfishing and increase the likelihood of rebuilding the snowy grouper stock. Shortening the time recreational fishing is allowed for snowy grouper in the South Atlantic region contributes to ensuring recreational catches do not exceed the adjusted ACL. The Council selected the May through June (**Preferred Alternative 2**) season because it would help constrain recreational harvest to the revised catch levels by shortening the season, but also allowing for retention of snowy grouper when recreational fishermen target co-occurring species; such as blueline tilefish, in some areas.

The Council decided that with a longer the open season, the higher the likelihood that the recreational ACL could be exceeded. Therefore, the Council chose **Preferred Alternative 2**, which would implement a 2-month season in May and June, as the best choice to ensure landings remain below the ACL and overfishing is prevented. Additionally, under **Preferred Alternative**

2, recreational fishing would not be occurring during late summer, when weather events tend to be more disruptive of fishing activity.

The Council determined that **Preferred Alternative 2** would best meet the purpose of ending overfishing of the snowy grouper stock and achieving OY, while minimizing adverse social and economic effects. **Preferred Alternative 2** best meets the goals and objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

5.3.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

This action addresses Strategy 4.1: *Consider management approaches that consider catch limits, seasons, and the biology of the fishery in order to minimize bycatch of snapper grouper species*. under Objective 4 - *Develop management measures that reduce and mitigate discards*.

5.4 Action 4. Modify the snowy grouper recreational accountability measures

5.4.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Fishery Management Council (Council) Snapper Grouper Advisory Panel (AP) met October 2021 and April 2022. During the October 2021 meeting the AP recommended the current accountability measure (AM) triggers remain in place due to the small number of recreational landings.

During the April 2022 meeting the AP recommended, through a motion that the Council add an alternative that would retain the in-season AM while removing the stock status trigger from the post-season AM.

5.4.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement AP convened on February 10, 2022. The AP received a briefing on the amendment and had no comments or recommendations pertaining to modifying the recreational accountability measures.

5.4.3 SSC Comments and Recommendations

The SSC convened October 25 through 27, 2022. The SSC received a briefing on the amendment and had no comments or recommendations pertaining to modifying the recreational accountability measures.

5.4.4 Public Comments and Recommendations

A joint scoping hearing including Amendments 52 and 53 was held on February 1, 2, and 3, 2022, via webinar. One comment was received that stressed the importance of a functioning recreational AM for the snowy grouper fishery.

5.4.5 South Atlantic Council's Draft Rationale

Given the modification to the recreational season being proposed in this amendment, the Council is proposing to modify the recreational accountability measures accordingly. **Preferred Alternative 3** is the most suitable among the alternatives considered for a short, two-month recreational season. Eliminating the in-season closure when the recreational ACL is met or is projected to be met makes the most sense as data are not available in time to implement in-season management under the proposed two-month season using landings from the current fishing year. The Council reasoned that it would also be appropriate to uncouple the post-season recreational accountability measure (payback of the overage if the ACL is exceeded) from the total ACL to prevent potential disruptions to the commercial sector because of post-season paybacks. **Preferred Alternative 3** also maintains the Council's intent to reduce the season length the following year in the event of an ACL overage.

The Council determined that **Preferred Alternative 3** would best meets the purpose of preventing overfishing of the snowy grouper stock. **Preferred Alternative 3** best meets the goals and objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

5.4.6 How is this Action Addressing the Vision Blueprint for the Snapper Grouper Fishery?

This action addresses Strategy 3.2: *Consider development of management approaches that support recreational fishing and allow increased opportunity for trip satisfaction* under Objective 3 – Ensure that management decisions help maximize social and economic opportunities for all sectors.

Chapter 6. Cumulative Effects

While this environmental assessment (EA) is being prepared using the 2020 Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Regulations, the cumulative effects discussed in this section meet the two-part standard for "reasonable foreseeability" and "reasonably close causal connection" required by the new definition of effects or impacts. Below is the five-step cumulative effects analysis that identifies criteria that must be considered in an EA.

6.1 Affected Area

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council's (Council) area of jurisdiction. In light of the available information, the extent of the boundaries would depend upon the degree of fish immigration/emigration and larval transport, whichever has the greatest geographical range. The ranges of affected species are described in Volume II of the Fishery Ecosystem Plan. [13] For the proposed actions found in Amendment 51 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP), the cumulative effects analysis includes an analysis of data from 2017 through the present.

6.2 Past, Present, and Reasonably Foreseeable Actions Impacting the Affected Area

Past Actions

Amendment 36 to the Snapper Grouper FMP, effective on July 31, 2017, was implemented to establish new spawning special management zones (SMZ) to protect spawning areas for snapper grouper species.

Amendment 37 to the Snapper Grouper FMP, effective on August 24, 2017, modified the hogfish fishery management unit in response to genetically different stocks along the South Atlantic, specified fishing levels for the two stocks, established a rebuilding plan for the Florida Keys/East Florida stock, and established or revised management measures for both hogfish stocks such as size limits, recreational bag limits, and commercial trip limits.

Amendment 43 to the Snapper Grouper FMP, effective on July 26, 2017, specified recreational and commercial annual catch limits (ACL) for red snapper beginning in 2018.

Abbreviated Framework 1 to the Snapper Grouper FMP, effective on August 27, 2018, was implemented to address overfishing of red grouper, and reduced the commercial and recreational ACLs for red grouper in the South Atlantic exclusive economic zone (EEZ).

[13] http://safmc.net/ecosystem-management/fishery-ecosystem-plan/

Abbreviated Framework 2 to the Snapper Grouper FMP, effective on May 9, 2019, revised fishing levels for black sea bass and vermilion snapper in response to the latest stock assessments for those species in the South Atlantic.

Amendment 42 to the Snapper Grouper FMP, effective on January 8, 2020, added three newly approved sea turtle release devices and updated the regulations to simplify and clarify the specifications for other release gear requirements. The new devices and updates provide more options to fulfill the requirements for sea turtle release gear on board vessels with commercial and charter/for-hire snapper grouper permits in the South Atlantic. The amendment also streamlines the procedure to implement newly approved devices and handling procedures in the future.

Regulatory Amendment 27 (Vision Blueprint Regulatory Amendment 27) to the Snapper Grouper FMP, effective on February 26, 2020, addresses specific action items in the 2016-2020 Vision Blueprint for the commercial sector of the snapper grouper fishery. The framework amendment revised commercial regulations for blueline tilefish, snowy grouper, greater amberjack, red porgy, vermilion snapper, almaco jack, Other Jacks Complex (lesser amberjack, almaco jack, and banded rudderfish), queen snapper, silk snapper, blackfin snapper, and gray triggerfish. Actions include modifying fishing seasons, trip limits, and minimum size limits.

Regulatory Amendment 30 to the Snapper Grouper FMP, effective on March 9, 2020, revised the rebuilding plan for red grouper, extended the annual spawning closure for that species off North and South Carolina, and established a commercial trip limit.

Regulatory Amendment 26 (Vision Blueprint Regulatory Amendment 26) to the Snapper Grouper FMP, effective on March 30, 2020, addresses specific action items in the 2016-2020 Vision Blueprint for the recreational sector of the snapper grouper fishery. The framework amendment modified the 20-fish aggregate bag limits, and minimum size limits for certain species.

Regulatory Amendment 29 to the Snapper Grouper FMP, effective July 15, 2020, modified gear requirements for South Atlantic snapper grouper species. Actions included requirements for descending and venting devices, and modifications to requirements for circle hooks and powerheads.

Abbreviated Framework 3 to the Snapper Grouper FMP, effective August 17, 2020, revised fishing levels for blueline tilefish in the South Atlantic region.

Regulatory Amendment 33 to the Snapper Grouper FMP, effective August 17, 2020, removed the requirement that if projections indicate the South Atlantic red snapper season (commercial or recreational) would be three days or fewer, the commercial and/or recreational seasons would not open for that fishing year. If this requirement is removed, red snapper harvest could be open for either recreational or commercial harvest for fewer than four days.

Regulatory Amendment 34 to the Snapper Grouper FMP, effective May 3, 2021, created 34 special management zones around artificial reefs off North Carolina and South Carolina.

Present Actions

Amendment 44 to the Snapper Grouper FMP will address the results of the latest stock assessment for the yellowtail snapper stock in the southeast.

Comprehensive Acceptable Biological Catch (ABC) Control Rule Amendment (Amendment 45 to the Snapper Grouper FMP) would modify the ABC control rule, specify an approach for determining the acceptable risk of overfishing and the probability of rebuilding success for overfished stocks, allow phase-in of ABC changes, and allow carry-over of unharvested catch. This amendment will continue being developed in 2021.

Amendment 46 to the Snapper Grouper FMP proposes actions to focus on private recreational permit requirements and reporting.

Amendment 49 to the Snapper Grouper FMP addresses the results of the latest stock assessment for the greater amberjack stock in the South Atlantic region.

Amendment 50 to the Snapper Grouper FMP addresses the results of the latest stock assessment for the red porgy stock in the South Atlantic region. Red porgy was determined to be overfished and experiencing overfishing.

Amendment 52 to the Snapper Grouper FMP addresses the results of the latest stock assessment for the golden tilefish stock in the South Atlantic region as well as modifications to management measures for blueline tilefish. It was determined that golden tilefish are no longer experiencing overfishing.

Amendment 53 to the Snapper Grouper FMP addresses the results of the latest stock assessment for the gag stock in the South Atlantic region. Gag was determined to be overfished and undergoing overfishing.

Regulatory Amendment 35 to the Snapper Grouper addresses the results of the latest stock assessment for the red snapper stock in the South Atlantic as well as management measures to reduce release mortality within the snapper grouper fishery. Red snapper was determined to be overfished and experiencing overfishing.

Expected Impacts from Past, Present, and Future Actions

The intent of Amendment 51 is to modify management of South Atlantic snowy grouper. Actions include revising annual catch limits (ACL) and overfishing limits (OFL), sector allocations, recreational accountability measures (AM), and management measures for the recreational sector. Development of Amendment 51 is a response to the most recent stock assessment for South Atlantic snowy grouper (SEDAR 36 Update 2021). The proposed actions in Amendment 51 are not expected to result in significant cumulative adverse biological or socio-economic effects (see Chapter 4). In recent years, participants in the snapper grouper fishery and associated businesses have experienced some negative economic and social impacts due to changes in ACLs and early closures during the fishing years. Factors such as distance to fishing grounds, weather, and water temperature affect availability of species to the recreational fleets in different parts of the Council's jurisdiction. The proposed actions could result in

increased regulatory discards of snowy grouper. However, the proposed actions would end overfishing and support the current rebuilding plan in place.

When combined with the impacts of past, present, and future actions affecting the snapper grouper fishery, minor cumulative impacts are likely to accrue. For example, there could be beneficial cumulative effects from the actions in this amendment, in addition to future proposed actions to reduce overfishing of snapper grouper species, require the use of descending devices, and reducing bycatch. Also, there may be cumulative socio-economic effects by promoting access to the fishery which would improve recreational fishing opportunities and benefits to associated businesses and communities; however, the actions in this amendment are not expected to result in significant cumulative adverse biological or socio-economic effects to the snapper grouper fishery when combined with the impacts of past, present, and future actions (see Chapter 4).

6.3 Consideration of Climate Change and Other Non-Fishery Related Issues

Climate Change

Global climate changes could have significant effects on Atlantic fisheries, though the extent of these effects on the dolphin and wahoo, snapper grouper, and golden crab fisheries is not known at this time. The Environmental Protection Agency's climate change webpage (https://www.epa.gov/climate-indicators/marine-species-distribution), and NOAA's Office of Science and Technology climate webpage (https://www.fisheries.noaa.gov/topic/climate), provides background information on climate change, including indicators which measure or anticipate effects on oceans, weather and climate, ecosystems, health and society, and greenhouse gases. The United Nations Intergovernmental Panel on Climate Change's Sixth Assessment Report (February 28, 2022), U.S. Global Change Research Program (USGCRP)'s Fourth Climate Assessment (2018), and the Ecosystem Status Report for the U.S. South Atlantic Region (Craig et al. 2021) also provide a compilation of scientific information on climate change. Those findings are summarized below.

Ocean acidification, or a decrease in surface ocean pH due to absorption of anthropogenic carbon dioxide emissions, affects the chemistry and temperature of the water. Increased thermal stratification alters ocean circulation patterns, and causes a loss of sea ice, sea level rise, increased wave height and frequency, reduced upwelling, and changes in precipitation and wind patterns. Changes in coastal and marine ecosystems can influence organism metabolism and alter ecological processes such as productivity, species interactions, migration, range and distribution, larval and juvenile survival, prey availability, and susceptibility to predators. The "center of biomass," a geographical representation of each species' weight distribution, is being used to identify the shifting of fish populations. Warming sea temperature trends in the southeast have been documented, and animals must migrate to cooler waters, if possible, if water temperatures exceed survivable ranges (Needham et al. 2012). Rising water temperatures, ocean acidification, retreating arctic sea ice, sea level rise, high-tide flooding, coastal erosion, higher storm surge, and heavier precipitation events are projected to continue, putting ocean and marine species at risk, decreasing the productivity of certain fisheries, and threatening communities that rely on marine ecosystems for livelihoods and recreation (USGCRP 2018). Harvesting and habitat changes also cause geographic population shifts. Changes in water temperatures may

also affect the distribution of native and exotic species, allowing invasive species to establish communities in areas they may not have been able to survive previously. The numerous changes to the marine ecosystem may cause an increased risk of disease in marine biota. An increase in the occurrence and intensity of toxic algae blooms will negatively influence the productivity of keystone animals, such as corals, and critical coastal ecosystems such as wetlands, estuaries, and coral reefs (Kennedy et al. 2002; IPCC 2022). Free et al. (2019) investigated the impacts of historical warming on marine fisheries production and found that climate change is altering habitats for marine fishes and invertebrates, but the net effect of these changes on potential food production is unknown.

Climate driven movement of fish stocks is causing commercial, small-scale, artisanal, and recreational fishing activities to shift poleward and diversify harvests (IPCC 2022).
In the South Atlantic Region, species richness and abundance of offshore hard bottom reef fishes have generally declined over time while richness and abundance of demersal fishes in soft sediment habitats on the nearshore shelf have increased. Potential explanations for these patterns include changes in harvest (directed and bycatch), trophic interactions, and environment effects on recruitment (Craig et al. 2021). Climate change may impact dolphin and wahoo, snapper grouper species, and golden crab in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur. Public comments stating the lack of large dolphin in the Florida Keys may have to do with the fish moving out of the area in search of suitable temperature and food availability. Studies have shown that seasonal abundance of dolphin along the east coast of the U.S. and Gulf of Mexico is heavily influenced by sea surface temperature and distance to temperature fronts, chlorophyll-*a* concentration, and *Sargassum* mats (Kleisner 2009; Farrell et al. 2014; Merten et al. 2014).
Patterns from stock assessments in the South Atlantic Region indicate biomass of most assessed species generally show declines from the 1970s through the 1990s with some species showing signs of recovery beginning in the early to mid-2000s. Recruitment of a number of snapper-grouper species has declined since the early 2010s whereas recruitment of Red Snapper and some pelagic species has increased in recent years (Craig et al. 2021). In the near term, it is unlikely that the actions in Amendment 51 would compound or exacerbate the ongoing effects of climate change on dolphin and wahoo, snapper grouper species, and golden crab.

Weather Variables
Hurricane season is from June 1 to November 30, and accounts for 97% of all tropical activity affecting the Atlantic basin. These storms, although unpredictable in their annual occurrence, can devastate areas when they occur. Although these effects may be temporary, those fishing-related businesses whose profitability is marginal may go out of business if a hurricane strikes.

6.4 Overall Impacts Expected from Past, Present, and Future Actions

The proposed management actions are summarized in Chapter 2 of this document. Detailed discussions of the magnitude and significance of the impacts of the alternatives on the human environment appear in Chapter 4 of this document. None of the impacts of the actions in this amendment, in combination with past, present, and future actions have been determined to be significant. Although several other management actions, in addition to this amendment, are expected

to affect snapper grouper species, any additive effects, beneficial and adverse, are not expected to result in a significant level of cumulative impacts.

The proposed actions would not adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places as these are not in the South Atlantic EEZ. These actions are not likely to result in direct, indirect, or cumulative effects to unique areas, such as significant scientific, cultural, or historical resources, park land, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas as the proposed action is not expected to substantially increase fishing effort or the spatial and/or temporal distribution of current fishing effort within the South Atlantic region. The U.S. Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries are within the boundaries of the South Atlantic EEZ. The proposed actions are not likely to cause loss or destruction of these national marine sanctuaries because the actions are not expected to result in appreciable changes to current fishing practices. Additionally, the proposed actions are not likely to change the way in which the snapper grouper fishery is prosecuted; therefore, the actions are not expected to result in adverse impacts on health or human safety beyond the status quo.

6.5 Monitoring and Mitigation

Fishery-independent and fishery-dependent data comprise a significant portion of information used in stock assessments. Fishery-independent data are being collected through the Southeast Fishery Information Survey and the Marine Resources Monitoring Assessment and Prediction Program. The effects of the proposed actions are, and would continue to be, monitored through collection of recreational landings data by all the four states in the South Atlantic Region (Florida, Georgia, South Carolina, and North Carolina). The National Marine Fisheries Service would continue to monitor and collect information on snapper grouper species for stock assessments and stock assessment updates, life history studies, economic and social analyses, and other scientific observations. The proposed actions relate to the harvest of indigenous species in the Atlantic, and the activities/regulations being altered do not introduce non-indigenous species and are not reasonably expected to facilitate the spread of such species through depressing the populations of native species. Additionally, these alternatives do not propose any activity, such as increased ballast water discharge from foreign vessels, which is associated with the introduction or spread on non-indigenous species.

Chapter 7. List of Interdisciplinary Plan Team (IPT) Members

Name	Agency/Division	Title
Rick DeVictor	SERO/SF	South Atlantic Branch Chief/IPT Lead
Allie Iberle	SAFMC	Fishery Scientist/IPT Lead
Chip Collier	SAFMC	Deputy Director for Science and Statistics
Myra Brouwer	SAFMC	Deputy Director for Management
David Records	SERO/SF	Economist
Shepherd Grimes	NOAA GC	General Counsel
John Hadley	SAFMC	Economist
Ed Glazier	SERO/SF	Social Scientist
Alisha Gray	SERO/SF	Data Analyst
Jenny Lee	SERO/PR	Fishery Biologist
Akbar Marvasti	SEFSC	Economist
Roger Pugliese	SAFMC	Senior Fishery Biologist
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NOAA=National Oceanic and Atmospheric Administration, NMFS = National Marine Fisheries Service, SERO = Southeast Regional Office, SF = Sustainable Fisheries Division, PR = Protected Resources Division, HC = Habitat Conservation Division, SEFSC=Southeast Fisheries Science Center, GC = General Counsel

Chapter 8. Agencies and Persons Consulted

Responsible Agencies

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NMFS, Southeast Region
263 13th Avenue South
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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

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Appendix A. Other Applicable Laws

1.1 Administrative Procedure Act (APA)

All federal rulemaking is governed under the provisions of the APA (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. Among other things under the APA, the National Marine Fisheries Service (NMFS) is required to publish notification of proposed rules in the *Federal Register* and to solicit, consider and respond to public comment on those rules before they are finalized. The APA also establishes a 30-day wait period from the time a final rule is published until it takes effect, with some exceptions. Amendment 50 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 50) complies with the provisions of the APA through the South Atlantic Fishery Management Council's (Council) extensive use of public meetings, requests for comments and consideration of comments. The proposed rule associated with this plan amendment will have a request for public comments, which complies with the APA, and upon publication of the final rule, unless the rule falls within an APA exception, there will be a 30-day wait period before the regulations are effective.

1.2 Information Quality Act (IQA)

The IQA (Section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Public Law 106-443)) which took effect October 1, 2002, directed the Office of Management and Budget (OMB) to issue government-wide guidelines that "provide policy and procedural guidelines to federal agencies for ensuring and maximizing the quality, objectivity, utility, and integrity of information disseminated by federal agencies." OMB directed each federal agency to issue its own guidelines, establish administrative mechanisms allowing affected persons to seek and obtain correction of information that does not comply with OMB guidelines, and report periodically to OMB on the number and nature of complaints. The NOAA Section 515 Information Quality Guidelines require a series of actions for each new information product subject to the IQA. Amendment 50 uses the best available information and made a broad presentation thereof. The information contained in this document was developed using best available scientific information. Therefore, this document is in compliance with the IQA.

1.3 Coastal Zone Management Act (CZMA)

Section 307(c)(1) of the federal CZMA of 1972 requires that all federal activities that directly affect the coastal zone be consistent with approved state coastal zone management programs to the maximum extent practicable. While it is the goal of the Council to have management measures that complement those of the states, federal and state administrative procedures vary

and regulatory changes are unlikely to be fully instituted at the same time. The Council believes the actions in this plan amendment are consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. Pursuant to Section 307 of the CZMA, this determination will be submitted to the responsible state agencies who administer the approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina.

1.4 Executive Order 12612: Federalism

Executive Order (E.O.) 12612 requires agencies to be guided by the fundamental federalism principles when formulating and implementing policies that have federalism implications. The purpose of the Order is to guarantee the division of governmental responsibilities between the federal government and the states, as intended by the framers of the Constitution. No federalism issues have been identified relative to the actions proposed in this document and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 12612 is not necessary.

1.5 Executive Order 12962: Recreational Fisheries

E.O. 12962 requires federal agencies, in cooperation with states and tribes, to improve the quantity, function, sustainable productivity, and distribution of U.S. aquatic resources for increased recreational fishing opportunities through a variety of methods. Additionally, the Order establishes a seven-member National Recreational Fisheries Coordination Council responsible for, among other things, ensuring that social and economic values of healthy aquatic systems that support recreational fisheries are considered by federal agencies in the course of their actions, sharing the latest resource information and management technologies, and reducing duplicative and cost-inefficient programs among federal agencies involved in conserving or managing recreational fisheries. The National Recreational Fisheries Coordination Council also is responsible for developing, in cooperation with federal agencies, states and tribes, a Recreational Fishery Resource Conservation Plan to include a five-year agenda. Finally, the Order requires NMFS and the U.S. Fish and Wildlife Service to develop a joint agency policy for administering the ESA.

The alternatives considered in this document are consistent with the directives of E.O. 12962.

1.6 Executive Order 13089: Coral Reef Protection

E.O. 13089, signed by President William Clinton on June 11, 1998, recognizes the ecological, social, and economic values provided by the Nation's coral reefs and ensures that federal agencies are protecting these ecosystems. More specifically, the Order requires federal agencies to identify actions that may harm U.S. coral reef ecosystems, to utilize their program and

authorities to protect and enhance the conditions of such ecosystems, and to ensure that their actions do not degrade the condition of the coral reef ecosystem.

The alternatives considered in this document are consistent with the directives of E.O. 13089.

1.7 Executive Order 13158: Marine Protected Areas (MPAs)

E.O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of MPAs. The E.O. defined MPAs as "any area of the marine environment that has been reserved by federal, state, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein." It directs federal agencies to work closely with state, local and non-governmental partners to create a comprehensive network of MPAs "representing diverse U.S. marine ecosystems, and the Nation's natural and cultural resources."

The alternatives considered in this document are consistent with the directives of E.O. 13158.

1.8 National Marine Sanctuaries Act (NMSA)

Under the NMSA (also known as Title III of the Marine Protection, Research and Sanctuaries Act of 1972), as amended, the U.S. Secretary of Commerce is authorized to designate National Marine Sanctuaries to protect distinctive natural and cultural resources whose protection and beneficial use requires comprehensive planning and management. The National Marine Sanctuary Program is administered by the Sanctuaries and Reserves Division of NOAA. The NMSA provides authority for comprehensive and coordinated conservation and management of these marine areas. The National Marine Sanctuary Program currently comprises 13 sanctuaries around the country, including sites in American Samoa and Hawaii. These sites include significant coral reef and kelp forest habitats, and breeding and feeding grounds of whales, sea lions, sharks, and sea turtles. The three sanctuaries in the South Atlantic exclusive economic zone are the USS Monitor, Gray's Reef, and Florida Keys National Marine Sanctuaries.

The alternatives considered in this document are not expected to have any adverse impacts on the resources managed by the National Marine Sanctuaries.

1.9 Paperwork Reduction Act (PRA)

The purpose of the PRA is to minimize the burden on the public. The PRA is intended to ensure that the information collected under the proposed action is needed and is collected in an efficient manner (44 U.S.C. 3501 (1)). The authority to manage information collection and record keeping requirements is vested with the Director of the Office of Management and Budget (OMB). This authority encompasses establishment of guidelines and policies, approval of information collection requests, and reduction of paperwork burdens and duplications. The PRA

requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public. Actions in this document are not expected to affect PRA.

1.10 Small Business Act (SBA)

Enacted in 1953, the SBA requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the SBA are to foster business ownership by individuals who are both socially and economically disadvantaged; and to promote the competitive viability of such firms by providing business development assistance including, but not limited to, management and technical assistance, access to capital and other forms of financial assistance, business training, and counseling, and access to sole source and limited competition federal contract opportunities, to help firms achieve competitive viability. Because most businesses associated with fishing are considered small businesses, NMFS, in implementing regulations, must make an assessment of how those regulations will affect small businesses.

1.11 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a FMP or FMP amendment must consider, and may provide for, temporary adjustments (after consultation with the U.S. Coast Guard and persons utilizing the fishery) regarding access to a fishery for vessels that would be otherwise prevented from participating in the fishery because of safety concerns related to weather or to other ocean conditions. No vessel would be forced to participate in South Atlantic fisheries under adverse weather or ocean conditions as a result of the imposition of management regulations proposed in this amendment. No concerns have been raised by South Atlantic fishermen or by the U.S. Coast Guard that the proposed management measures directly or indirectly pose a hazard to crew or vessel safety under adverse weather or ocean conditions.

Appendix B. Initial Regulatory Impact Review

Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest to satisfy the obligations under Executive Order (E.O.) 12866, as amended. In conjunction with the analysis of direct and indirect effects in the "Environmental Consequences" section of this Amendment, the RIR: 1) provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; 2) provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and 3) ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way. The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order (E.O.) 12866. In addition, the RIR provides some information that may be used in conducting an analysis of the effects on small entities pursuant to the Regulatory Flexibility Act (RFA). This RIR analyzes the effects this regulatory action would be expected to have on the recreational and commercial sectors of the snowy grouper fishery.

Problems and Objectives

The problems and objectives for the proposed actions are presented in Section 1.4 of this amendment and are incorporated herein by reference.

Description of Fisheries

A description of the commercial and recreational sectors of the snowy grouper fishery is provided in Section 3.3 of this amendment and is incorporated herein by reference.

Effects of Management Measures

Action 1. Revise the acceptable biological catch, annual catch limit and annual optimum yield for snowy grouper

A detailed analysis and discussion of the expected economic effects of the proposed action is included in Section 4.1.2. The following discussion summarizes the expected economic effects of the Council preferred alternative relative to the No Action alternative (i.e., the status quo).

In general, total ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised ACL being considered in **Preferred Alternative 2** would be constraining on harvest and is projected to reduce landings of snowy grouper for both the commercial and recreational sectors.

In the 2023 fishing year, **Preferred Alternative 2** is estimated to result in a decrease in potential net economic benefits of $315,716 for the commercial sector, a decrease in potential net economic benefits of $309,994 for the recreational sector, and a decrease in potential net economic benefits of $625,710 for both sectors combined (2021 dollars). By the 2026 fishing year and beyond, **Preferred Alternative 2** is estimated to result in a decrease in potential net economic benefits of $300,197 for the commercial sector, a decrease in potential net economic benefits of $302,979 for the recreational sector, and a decrease in potential net economic benefits of $603,176 for both sectors combined (2021 dollars).

Action 2. Revise the snowy grouper sector allocations and sector annual catch limits

A detailed analysis and discussion of the expected economic effects of the proposed action are included in Section 4.2.2. The following discussion summarizes the expected economic effects of the Council preferred alternative relative to the No Action alternative (i.e., the status quo).

In general, sector ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised sector allocations and resulting ACLs being considered in **Preferred Alternative 2** would be constraining on harvest for both sectors and shifts between sectors would create distributional economic effects by sector.

Commercial Sector

Preferred Alternative 2 would result in a comparatively higher commercial sector allocation and sector ACL (87.55% of the total ACL). Thus, there would be more potential landings of snowy grouper under **Preferred Alternative 2** relative to **Alternative 1 (No Action)**. These relatively increased landings would be expected to comparatively increase total potential PS for the commercial sector. When compared to **Alternative 1 (No Action)**, **Preferred Alternative 2** would result in an estimated increase in PS of $31,466 in fishing year 2023 and an increase in PS of $32,316 by fishing year 2026 (2021 dollars). Estimates of net revenues or economic profit are not available for snapper grouper dealers. Therefore, it is not possible to estimate the effect of changes in purchases on their profits. However, in general, dealers are indirectly affected whenever gross revenues to commercial fishing vessels are expected to change (e.g., increases in gross revenues are expected to indirectly benefit dealers and vice versa). Thus, the ranking of economic benefits to dealers would be the same as stated above.

Recreational Sector

Preferred Alternative 2 would result in a comparatively lower recreational sector allocation and sector ACLs (12.45% of the total ACL). Thus, there would be lower potential landings of snowy grouper under **Preferred Alternative 2** relative to **Alternative 1 (No Action)**. These relatively decreased landings would be expected to comparatively decrease total consumer surplus (CS) for the recreational sector. When compared to **Alternative 1 (No Action)**, **Preferred Alternative 2** would result in an estimated decrease in CS of $70,150 in fishing year 2023 and a decrease in CS of $71,990 by fishing year 2026 (2021 dollars).

Total

Preferred Alternative 2 would result in comparatively higher potential benefits for the commercial sector and lower potential benefits for the recreational sector. In terms of total estimated net economic benefits for the action, net benefits are expected to decrease. In comparison to **Alternative 1 (No Action)**, **Preferred Alternative 2** would decrease net economic benefits by $38,684 in the 2023 fishing year (2021 dollars).

Action 3. Modify snowy grouper recreational season

A detailed analysis and discussion of the expected economic effects of the proposed action are included in Section 4.3.2. The following discussion summarizes the expected economic effects of the Council preferred alternative relative to the No Action alternative (i.e., the status quo).

Generally, prolonged time periods when recreational harvest is allowed can result in increased economic benefits. Allowing the recreational harvest to be open for longer periods of time can help ensure that the ACL is harvested each year and all associated economic benefits from that harvest to recreational anglers are received. Conversely, this also creates unpredictability in season length and when harvest will close if the accountability measure is triggered.

If the ACL is not fully harvested during the established season, it can lead to fewer short-term economic benefits, thus there is the potential for **Preferred Alternative 2** to have lower economic benefits than **Alternative 1 (No Action)**. When using 5-year average landings as a baseline, removing the months of July and August (**Preferred Alternative 2**) from the recreational fishing season for snowy grouper would result in an estimated reduction in landings of 1,674 fish. Applying a CS estimate of $115 per snowy grouper (2021 $) to these reductions in harvest provides an estimated reduction of $192,510 in net economic benefits under **Preferred Alternative 2.** These quantitative economic effects may be at least partially captured in the economic effects described in Action 1 and Action 2 for the recreational sector, since prohibiting harvest for the recreational sector would contribute to the reduction in recreational landings noted for those two actions. Thus, these quantitative effects are not necessarily additive to the effects shown in Action 1 and 2, but rather show the estimated economic effects of **Action 3** with all other conditions remaining the same.

Action 4. Modify snowy grouper recreational accountability measures

A detailed analysis and discussion of the expected economic effects of the proposed action are included in Section 4.4.2. The following discussion summarizes the expected economic effects of the Council preferred alternative relative to the No Action alternative (i.e., the status quo).

Preferred Alternative 3 would result in a reduced fishing season if triggered. This AM would limit overall long-term harvest of snowy grouper but could result in economic benefits that mitigate the short-term cost of the AM itself by allowing more time to adjust to the changing harvest regulations. There would also be no safeguard in place to prevent the total ACL from being exceeded with the removal of an in-season closure. This could result in short-term economic benefits for the recreational sector due to increased harvest and long-term potential economic costs to fishery participants. If a reduced fishing season is implemented in Action 3, these potential economic effects would be largely mitigated. Additionally, this alternative does not have a payback provision for an overage of the sector ACL, making the potential for short-term negative economic effects lower in comparison to **Alternative 1 (No Action)**.

Public Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs to the private sector are discussed in the effects of management measures. Estimated public costs associated with this action are in 2021 dollars and include:

South Atlantic Council costs of document preparation, meetings, public hearings, and information dissemination	$22,927
NMFS administrative costs of document preparation, meetings, and review	$31,084
TOTAL	$54,010

The estimate provided above does not include any law enforcement costs. Any enforcement duties associated with this action would be expected to be covered under routine enforcement costs rather than an expenditure of new funds. The South Atlantic Council and NMFS administrative costs directly attributable to this amendment and the rulemaking process would be incurred prior to the effective date of the final rule implementing this amendment.

Net Benefits of Regulatory Action

It is important to specify the time period being considered when evaluating benefits and costs. According to OMB's FAQs regarding Circular A-4,[14] "When choosing the appropriate time horizon for estimating costs and benefits, agencies should consider how long the regulation being analyzed is likely to have resulting effects. The time horizon begins when the regulatory action is implemented and ends when those effects are expected to cease. Ideally, analysis should include all future costs and benefits. Here as elsewhere, however, a 'rule of reason' is appropriate, and the agency should consider for how long it can reasonably predict the future and limit its analysis to this time period. Thus, if a regulation has no predetermined sunset provision,

[14] See p. 4 at https://obamawhitehouse.archives.gov/sites/default/files/omb/assets/OMB/circulars/a004/a-4_FAQ.pdf

the agency will need to choose the endpoint of its analysis on the basis of a judgment about the foreseeable future."

For current purposes, the reasonably "foreseeable future" is considered to be the next 5 years. There are two primary reasons for considering the next 5 years the appropriate time period for evaluating the benefits and costs of this regulatory action rather than a longer (or shorter) time period. First, this regulatory action does not include a predetermined sunset provision. Second, based on the history of management in the snapper grouper fishery in the South Atlantic, regulations such as those considered in this amendment are often revisited within 5 years or so.

The analyses of the changes in economic benefits indicates a decrease of $380,144 in net economic benefits to the recreational sector, a decrease of $284,250 in net economic benefits to the commercial sector, and a decrease in total net economic benefits of $664,394 (2021 dollars) in the first year of implementation. These net benefits change in subsequent years largely due to the increasing annual catch limit for snowy grouper. In discounted terms and over a 5-year time period using the analyses provided in this amendment, the total net present value of the change in net economic benefits is -$2,665,299 using a 7% discount rate and -$2,975,074 using a 3% discount rate (2021 dollars).

The estimated non-discounted public costs resulting from the regulation are $54,010 (2021 dollars). The costs resulting from the amendment and the associated rulemaking process should not be discounted as they will be incurred prior to the effective date of the final rule. Based on the quantified economic effects, this regulatory action is expected to decrease net economic benefits to the Nation. Over a 5-year time period, the quantified change in net economic benefits is expected to be -$2,719,309 using a 7% discount rate and -$3,029,085 using a 3% discount rate (2021 dollars).

Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is likely to result in: 1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; 2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; 3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or 4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order. Based on the information provided above, these actions have been determined to not be economically significant for the purposes of E.O. 12866. In absolute terms, the expected total costs and benefits of this amendment are $718,404 in the first year of implementation (2021 dollars).

Appendix C. Initial Regulatory Flexibility Analysis

1. Introduction

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

With certain exceptions, the RFA requires agencies to conduct an initial regulatory flexibility analysis (IRFA) for each proposed rule. The IRFA is designed to assess the impacts various regulatory alternatives would have on small entities, including small businesses, and to determine ways to minimize those impacts. An IRFA is primarily conducted to determine whether the proposed action would have a significant economic impact on a substantial number of small entities. The IRFA provides: 1) a description of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for, the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practicable, of all relevant federal rules, which may duplicate, overlap, or conflict with the proposed rule; 6) a description and estimate of the expected economic impacts on small entities; and 7) a description of the significant alternatives to the proposed rule and discussion of how the alternatives attempt to minimize economic impacts on small entities.

2. Statement of the need for, objective of, and legal basis for the proposed action

The need for and objective of this proposed action are provided in Chapter 1. In summary, there is a need to end overfishing of South Atlantic snowy grouper, continue to rebuild the stock, and achieve optimum yield (OY) while minimizing, to the extent practicable, adverse social and economic effects. The objective of this proposed action is to revise the overfishing limit (OFL), acceptable biological catch (ABC), annual catch limits (ACL), and sector allocations for South Atlantic snowy grouper based on the results of the most recent stock assessment and modify

management and accountability measures. The Magnuson-Stevens Fishery Conservation and Management Act (MSA) provides the statutory basis for this proposed action.

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

This proposed action, if implemented, would 1) revise the snowy grouper ABC, ACL, and annual OY, 2) revise the snowy grouper sector allocations and sub-ACLs, 3) modify the snowy grouper recreational season, and 4) revise the snowy grouper recreational accountability measures (AM) for snowy grouper. The proposed changes to the ABC, ACL, and annual OY, as well as the sector allocations, would apply to all federally-permitted commercial vessels, federally-permitted charter vessels and headboats (for-hire vessels), and recreational anglers that fish for or harvest snowy grouper in Federal waters of the South Atlantic. The proposed changes to the recreational season and AMs would only apply to for-hire vessels and recreational anglers. This proposed action would not directly apply to federally-permitted dealers. Any change in the supply of snowy grouper available for purchase by dealers as a result of the proposed action, and associated economic effects, would be an indirect effect of the proposed action and would therefore fall outside the scope of the RFA.

Although all components of this proposed action would apply to for-hire vessels, they would not be expected to have any direct effects on these entities. For-hire vessels sell fishing services to recreational anglers. The proposed changes to the snowy grouper management measures would not directly alter the services sold by these vessels. Any change in demand for these fishing services, and associated economic effects, as a result of this proposed action would be a consequence of a change in anglers' behavior, secondary to any direct effect on anglers and, therefore, an indirect effect of the proposed action. Based on the historically-minimal level of charter mode target effort for snowy grouper in the South Atlantic, the National Marine Fisheries Service does not expect any change in for-hire trip demand to result from this proposed action; however, should it occur, the associated indirect effects would fall outside the scope of the RFA. For-hire captains and crew are permitted to retain snowy grouper under the recreational bag limit; however, they are not permitted to sell these fish. As such, for-hire captains and crew are only affected as recreational anglers. The RFA does not consider recreational anglers to be small entities, so they are also outside the scope of this analysis (5 U.S.C. 603). Small entities include small businesses, small organizations, and small governmental jurisdictions (5 U.S.C. 601(6) and 601(3)-(5)). Recreational anglers are not businesses, organizations, or governmental jurisdictions. In summary, only the impacts on commercial vessels will be discussed.

As of August 26, 2021, there were 579 valid or renewable[15] South Atlantic Snapper Grouper unlimited permits and 112 valid or renewable 225-lb trip-limited permits. On average from 2015 through 2019, there were 161 federally-permitted commercial vessels with reported landings of snowy grouper in the South Atlantic. Their average annual vessel-level gross revenue from all

[15] 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.

species for 2015 through 2019 was $82,475 (2021 dollars) and snowy grouper accounted for approximately 6.1% of this revenue. For commercial vessels that harvest snowy grouper in the South Atlantic, NMFS estimates that economic profits are approximately 4% of annual gross revenue, on average. The maximum annual revenue from all species reported by a single one of the vessels that harvested snowy grouper from 2015 through 2019 was approximately $638,709 (2021 dollars).

For RFA purposes only, NMFS has established a small business size standard for businesses, including their affiliates, whose primary industry is commercial fishing (see 50 CFR § 200.2). A business primarily engaged in commercial fishing (NAICS code 11411) is classified as a small business if it is independently owned and operated, is not dominant in its field of operation (including its affiliates), and has combined annual receipts not in excess of $11 million for all its affiliated operations worldwide. All of the commercial fishing businesses directly regulated by this proposed action are believed to be small entities based on the NMFS size standard. No other small entities that would be directly affected by this proposed action have been identified.

4. Description of the projected reporting, record-keeping and other compliance requirements of the proposed action, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for the preparation of the report or records

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

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

No duplicative, overlapping, or conflicting federal rules have been identified.

6. Significance of economic impacts on a substantial number of small entities

Substantial number criterion

There are 691 federally permitted vessels eligible to commercially fish for or harvest snowy grouper in the South Atlantic. However, it is expected that those vessels that historically landed snowy grouper would be the most likely to be affected. From 2015 through 2019, there were 161 federally permitted commercial vessels, on average, that harvested and sold snowy grouper each

year. Because all of these vessels are believed to be small entities, it is assumed that this action would affect a substantial number of small entities.

Significant economic impacts

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

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

All entities likely to be affected by this action are believed to be small entities and thus the issue of disproportionality does not arise.

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

A detailed analysis of the economic effects associated with this proposed action can be found in Chapter 4. The following information summarizes the expected effects of this proposed action.

This proposed action would revise the ABC, ACL, and annual OY for snowy grouper, based on the most recent recommendation from the Scientific and Statistical Committee (SSC) in response to the SEDAR 36 Update 2020 snowy grouper stock assessment. These catch limits would reflect a shift in recreational reporting units from the Marine Recreational Information Program (MRIP) Coastal Household Telephone Survey (CHTS) to the MRIP Fishing Effort Survey (FES). The ACL and annual OY would be set equal to the ABC or 119,654 lbs gw in 2023, 121,272 lbs gw 2024, and 122,889 lbs gw in 2025 and subsequent years. The ACL and annual OY for 2023 and subsequent years, in numbers of fish, would remain constant at 15,264 fish. Based on the current sector allocation percentages, the proposed changes to the catch limits would represent a decrease in the commercial sub-ACL for snowy grouper of 54,622 lbs gw in 2023, 53,279 lbs gw in 2024, and 51,937 lbs gw in 2025 and subsequent years. However, as discussed below, this proposed action would also modify the percentage of the total ACL that is allocated to the commercial sector and therefore economic effects to small entities are quantified as part of that discussion.

This proposed action would increase the commercial sector allocation from 83% of the total snowy grouper ACL to 87.55%. This, in conjunction with the proposed changes to the ACL schedule, would result in a commercial sub-ACL for snowy grouper of 104,757 lbs gw (73,330 lbs gw in Season 1 and 31,427 lbs gw in Season 2) in 2023, 106,174 lbs gw (74,322 lbs gw in Season 1 and 31,852 lbs gw in Season 2) in 2024, and 107,589 lbs gw (75,313 lbs gw in Season 1 and 32,277 lbs gw in Season 2) in 2025 and subsequent years. Relative to the status quo commercial ACL of 153,935 lbs gw, this would be a decrease of 49,178 lbs gw in 2023, 47,761 lbs gw in 2024, and 46,346 lbs gw in 2025 and subsequent years. These decreases in the commercial sub-ACL would be expected to result in corresponding decreases in aggregate ex-vessel revenue of $284,249 (2021 dollars) in 2023, $276,059 in 2024, and $267,880 in 2025 and subsequent years. Divided by the average number of vessels with reported landings of snowy

grouper from 2015 through 2019, this translates to an annual loss in ex-vessel revenue that ranges from $1,664 (2021 dollars) to $1,766 per vessel (approximately 2% of average annual per vessel gross revenue). Individual fishing businesses, however, may experience varying levels of economic effects, depending on their fishing practices, operating characteristics, and profit maximization strategies.

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

Four alternatives were considered for the action to revise the ABC, ACL, and annual OY for snowy grouper. The first alternative, the no action alternative, would maintain the current ABC, ACL, and annual OY. Therefore, it would not be expected to change fishing practices or commercial harvests of snowy grouper, nor would it be expected to result in economic effects. This alternative was not selected by the Councils because it would be inconsistent with the SSCs' latest catch limit recommendations and the transition to MRIP-FES, and therefore, would not be based on the best scientific information available. The second alternative is the preferred alternative. The third alternative would set the ACL and annual OY for snowy grouper equal to 95% of the most recent ABC recommendation from the SSC. Under the third alternative, both the ACL and annual OY would be set to 113,956 lbs gw in 2023, 115,208 lbs gw 2024, and 116,745 lbs gw in 2025 and subsequent years. The ACL and annual OY for 2023 and subsequent years, in numbers of fish, would remain constant at 14,501 fish. Relative to the preferred alternative and assuming no change to the current sector allocations, this alternative would reduce the commercial ACL and annual OY by an additional 5,698 lbs gw in 2023, 6,064 lbs gw in 2024, and 6,144 lbs gw in 2025 and subsequent years. These further reductions in the ACL would result in an estimated annual reduction in ex-vessel revenue that is $32,934 (2021 dollars) to $35,512 ($205 to $221 per vessel) greater than what is expected under the preferred alternative. The Council did not select the third alternative because they felt it would be less effective at achieving the objectives of the fishery management plan (FMP) and that the current monitoring mechanisms in the South Atlantic, coupled with the existing and proposed management measures, would be sufficient at preventing overages, thus not requiring a buffer between the ABC and ACL. The fourth alternative would set the ACL and annual OY for snowy grouper equal to 90% of the most recent ABC recommendation from the SSC. Under the third alternative, both the ACL and annual OY would be set to 107,959 lbs gw in 2023, 109,145 lbs gw 2024, and 110,600 lbs gw in 2025 and subsequent years. The ACL and annual OY for 2023 and subsequent years, in numbers of fish, would remain constant at 13,738 fish. Relative to the preferred alternative and assuming no change to the current sector allocations, this alternative would reduce the commercial ACL and annual OY by an additional 11,695 lbs gw in 2023, 12,127 lbs gw in 2024, and 12,289 lbs gw in 2025 and subsequent years. These further reductions in the ACL would result in an estimated annual reduction in ex-vessel revenue that is $67,597 (2021 dollars) to $71,030 ($420 to $441 per vessel) greater than what is expected under the preferred alternative. The Council did not select the fourth alternative because they felt it would be less effective at achieving the objectives of the FMP and that the current monitoring mechanisms in the South Atlantic, coupled with the existing and proposed management

measures, would be sufficient at preventing overages, thus not requiring a buffer between the ABC and ACL.

Three alternatives were considered for the action to revise sector allocations and ACLs for snowy grouper. The first alternative, the no action alternative, would retain the current commercial sector and recreational sector allocations as 83% and 17%, respectively, of the revised total ACL for snowy grouper. Based on the preferred alternative in the first action, this alternative would result in a commercial sub-ACL of 99,313 lbs gw in 2023, 100,656 lbs gw in 2024, and 101,999 lbs gw in 2025 and subsequent years. Compared to the preferred alternative, the commercial sub-ACL would be 5,444 lbs gw lower in 2023, 5,518 lbs gw lower in 2024, and 5,590 lbs gw lower in 2025 and subsequent years. This would translate to an additional aggregate annual loss of $31,466 (2021 dollars) to $32,310 ($195 to $201 per vessel) relative to the preferred alternative. The Council did not select the first alternative because the status quo sector allocation percentages are based on average landings from 1986 through 2005 in MRIP CHTS units and therefore do not reflect the intent or results of the original allocation formula when applied to the new MRIP-FES based ACL. The second alternative is the preferred alternative. The third alternative would allocate 73.36% of the revised total ACL for snowy grouper to the commercial sector and 26.64% of it to the recreational sector. Based on the preferred alternative in the first action, this alternative would result in a commercial sub-ACL of 87,778 lbs gw in 2023, 88,965 lbs gw in 2024, and 90,151 lbs gw in 2025 and subsequent years. Compared to the preferred alternative, the commercial sub-ACL would be 16,979 lbs gw lower in 2023, 17,209 lbs gw lower in 2024, and 17,438 lbs gw lower in 2025 and subsequent years. This would translate to an additional aggregate annual loss of $98,139 (2021 dollars) to $100,792 ($610 to $626 per vessel) relative to the preferred alternative. The Council did not select the third alternative because they felt that the method used to determine the current allocations (average landings from 1986-2005) was more appropriate than the allocations formula adopted through the Comprehensive ACL Amendment (SAFMC 2011) for unassessed species. They also felt that the third alternative would be less effective at achieving the objectives of the FMP and satisfying the needs of the commercial sector, in particular

Appendix D. Essential Fish Habitat and Ecosystem Based Fishery Management

I. 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 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.

a. South Atlantic Council EFH User Guide

The EFH Users Guide 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). These sources should be reviewed for information on the components of EFH assessments, steps to EFH consultations, and other aspects of EFH program operation.

b. 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.

c. 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)

II. 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.

III. Ecosystem Approach to Conservation and Management of Deep-water Ecosystems

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.

IV. FEP II Development

The South Atlantic Council developed FEP II 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.

a. FEP II Dashboard (In transition to new Habitat and Ecosystem Page)

The FEP II Dashboard and associated online tools provided a clear description of the fundamental physical, biological, human, and institutional context of South Atlantic ecosystems within which fisheries are managed. The Council's new website (under development) will include a new Habitat and Ecosystem page where the FEP II Dashboard layout shown below will be refined and integrated.

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

V. NOAA EBFM Activities Supporting FEP II

a. 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 (under revision) of the FEP II Dashboard 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.

b. FEP II Implementation Plan Structure and Framework

The Implementation Plan 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.

c. FEP II Two Year Roadmap

The FEP II Two Year Roadmap 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.

d. 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.

VI. Regional Habitat and Ecosystem Partners

The South Atlantic Council, with the Habitat Protection and Ecosystem 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.

VII. Regional Ecosystem Modeling in the South Atlantic

a. 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.

The current 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.

VIII. Tools supporting Habitat Conservation and EBFM in the South Atlantic Region

The South Atlantic Council developed a Habitat Conservation and Ecosystem Management Section which provided access to the FEP II Digital Dashboard and associated tools which is under development with the new website. Florida's FWRI maintains and distributes GIS data, imagery, and documents relevant to habitat conservation and ecosystem-based fishery management in their jurisdiction. Web Services and spatial representations of EFH and other habitat related layers are accessible through the Council's SAFMC Atlas, a platform for searching and visualizing GIS data relevant to the Council's mission and download of GIS layers and information on regional partners is available through the SAFMC Digital Dashboard. The online systems provide access to the following Services:

i. South Atlantic Fisheries Webservice: 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).
ii. South Atlantic EFH Webservice: Provides access to spatial representation of EFH and EFH-HAPCs for South Atlantic Council-managed species and Highly Migratory Species.
iii. South Atlantic Managed Areas Service: Provides access to spatial presentations of South Atlantic Council and other managed areas in the region.
iv. South Atlantic Artificial Reefs Web Application: Provides a regional view of artificial reefs locations, contents and imagery associated with programs in the southeastern U.S. overseen by individual states (Florida, Georgia, South Carolina, North Carolina).
v. South Atlantic ACCSP Web Map and Application: The web map displays Atlantic Coastal Cooperative Statistics Program (ACCSP) Statistical Areas representing catch and values of Council-managed species across time with the application displaying charts of landings and values for ACCSP Statistical Areas.

IX. Ecosystem-Based Action, Future Challenges and 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. Actions and Alternatives Removed from Consideration

Action. Reduce the snowy grouper commercial trip limit.

Alternative 1 (No Action). The commercial trip limit for snowy grouper is 200 pounds gutted weight.

Alternative 2. Reduce the commercial trip limit for snowy grouper to 150 pounds gutted weight.

Alternative 3. Reduce the commercial trip limit for snowy grouper to 100 pounds gutted weight.

Discussion: The Council acknowledged that reductions in commercial harvest of snowy grouper are needed to achieve updated catch levels. However, input from both the Snapper Grouper Advisory Panel and the public during scoping, noted that a trip limit under 200 pounds gutted weight would exclude many commercial fishermen because the trip to depths were snowy are caught would not be worth it. To prevent the adverse social and economic effects of reducing the trip limit the Council removed this action from this amendment. In lieu of reducing the commercial trip limit, the commercial sector will retain both in-season and post season accountability measures to ensure the ACL is not continually exceeded.

Appendix F. Data Analyses

1.1 Commercial ACL Analysis

Analyses for Amendment 51
Jeff Pulver – Southeast Regional Office LAPP/DM Branch

Preliminary analyses are for the 2023 potential commercial annual catch limit (ACL) of 99,562 pounds (lbs) gutted weight (gw) with the current allocation (83% commercial and 17% recreational).

Commercial Trip Limits

The Southeast Fisheries Science Center (SEFSC) commercial logbook data (5/6/21) was used to examine trip limits in the South Atlantic snowy grouper commercial fishery. Currently, the fishery has a 200-lb gw trip limit that was implemented in August 2015. From 2016 through 2019, the commercial logbook had 3,249 trips recorded that harvested snowy grouper in the South Atlantic. Greater than 40% of the trips harvesting snowy grouper are estimated to have landed between 151 through 200 lbs gw (**Figure F.1.1.1**). Trips estimated to have harvested greater than 200 lbs gw were normalized to 200 lbs gw when estimating potential trip limit reductions. Estimated reductions from projected landings for potential trip limits are shown in **Table F.1.1.1**.

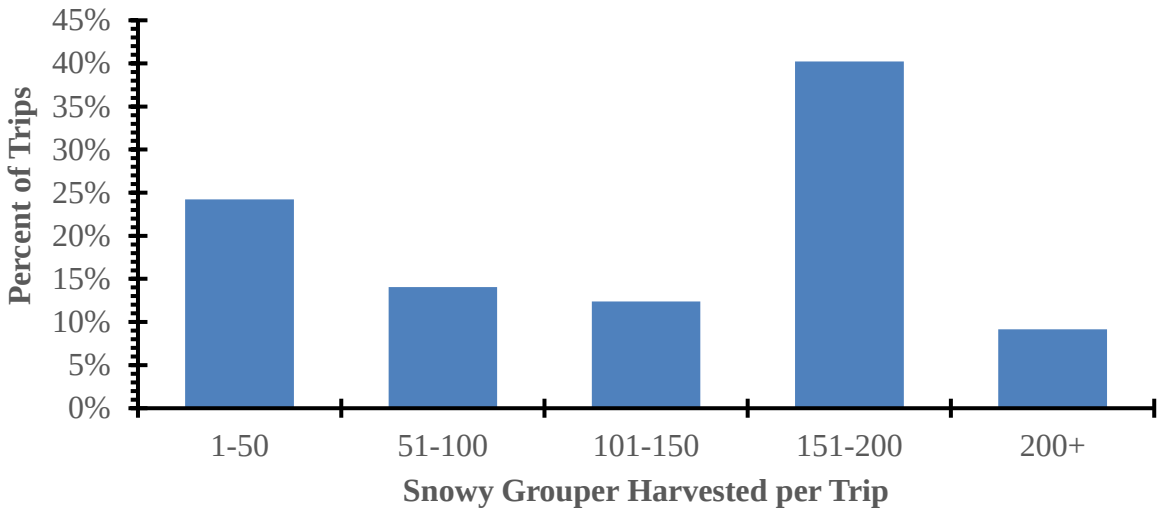

Figure F.1.1.1 The percent of commercial trips (n=3,249) harvesting snowy grouper by bin from 2016 through 2019. Source: SEFSC commercial logbook [May 6, 2021].

Table F.1.1.1 The predicted percent change in landings per trip from the current 200-lb gw trip limit.

Current Trip Limit (lbs gw)	Potential Trip Limit (lbs gw)	Predicted Change in Landings
200-lb	150-lb	-16%
200-lb	100-lb	-38%

Commercial Season Length

Landings for South Atlantic snowy grouper were obtained from the SEFSC commercial ACL file (4/5/21). Future landings were predicted by taking an average of the most recent three years of data for each month, as the most recent data are believed to be the best approximation of future harvest (**Figure F.1.1.2**). Due to fishery closures in recent years, it was necessary to go back to 2010 for some monthly landings later in the calendar year. All monthly landings prior to August 2015 (when the trip limit was increased from 100 to 200-lb gw) were adjusted using to account for the management change. For months with a closure that had the fishery open for the majority of the days, the landings were expanded using the ratio of total days in the month to those when the fishery was open. Season lengths were projected using daily catch rates with upper and lower 95% confidence intervals with the different trip limit options (**Table F.1.1.2**).

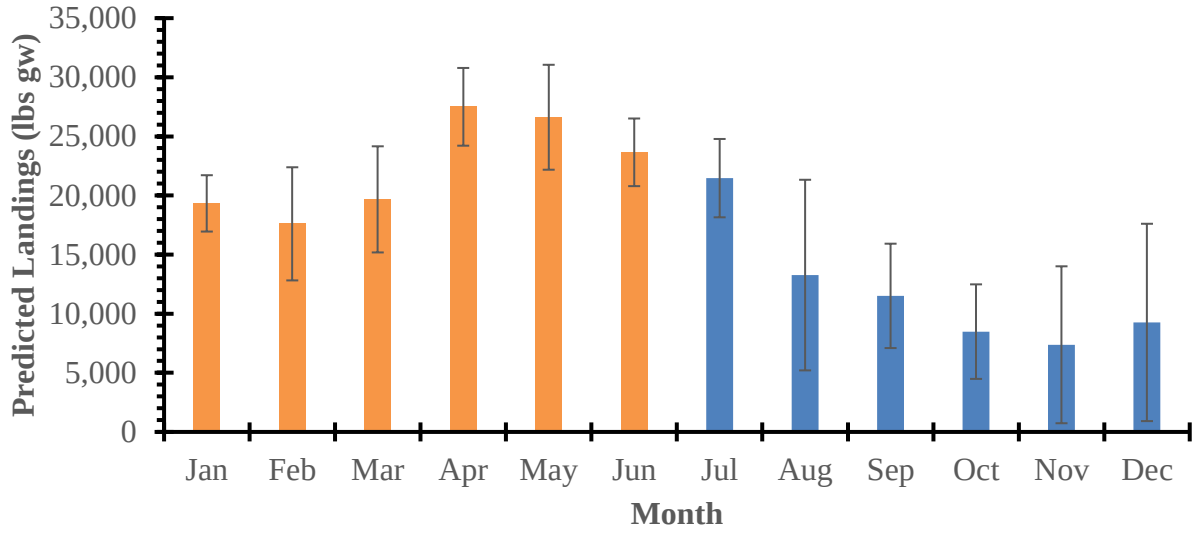

Figure F.1.1.2. The predicted monthly snowy grouper landings (lbs gw) based on current trip limits with 95% confidence interval. Source: SEFSC commercial ACL file [April 5, 2021].

Table F.1.1.2. The projected 2023 closure dates with an ACL of 99,562 lbs gw for snowy grouper by season with different trip limit options and 95% confidence interval (CI). Note that 70% of the ACL is allocated to the January through June season and 30% to the July through December season.

Season	ACL (lbs gw)	Trip Limit (gw)	Closure Date	Season Length (95% CI)
January 1 – June 30	69,693	200-lb	April 15	Apr 2 – May 1

January 1 – June 30	69,693	150-lb	April 29	Apr 15 – May 19
January 1 – June 30	69,693	100-lb	June 3	May 14 – No Closure
July 1 – December 31	29,869	200-lb	August 20	Aug 8 – Sep 28
July 1 – December 31	29,869	150-lb	September 2	Aug 16 – Nov 21
July 1 – December 31	29,869	100-lb	October 8	Sep 5 – No Closure

1.2 Commercial Season Closure Analysis for the Snowy Grouper Fishery

Alisha Gray; November 12, 2021
LAPP/DM Branch
Southeast Regional Office

The South Atlantic Fishery Management Council (SAFMC) manages snowy grouper in South Atlantic federal waters under the Snapper Grouper Fishery Management Plan (Snapper Grouper FMP). Amendment 51 to the Snapper Grouper FMP proposes to adjust catch levels (annual catch limits), and revise sector allocations. This analysis investigates when the commercial sector will be expected to close under the proposed ACL and sector allocation changes using observed landings in pounds (lbs) gutted weight (ww) between 2015 and 2019.

Commercial Trip Limits

The Southeast Fisheries Science Center (SEFSC) commercial logbook data (5/6/21) was used to examine trip limits in the South Atlantic snowy grouper commercial fishery. Currently, the fishery has a 200-lb gw trip limit that was implemented in August 2015. From 2016 through 2019, the commercial logbook had 3,249 trips recorded that harvested snowy grouper in the South Atlantic. Greater than 40% of the trips harvesting snowy grouper are estimated to have landed between 151 through 200 lbs gw (**Figure F.1.2.1**). Trips estimated to have harvested greater than 200 lbs gw were normalized to 200 lbs gw when estimating potential trip limit reductions. Estimated reductions from projected landings for potential trip limits are shown in **Table F.1.2.1**.

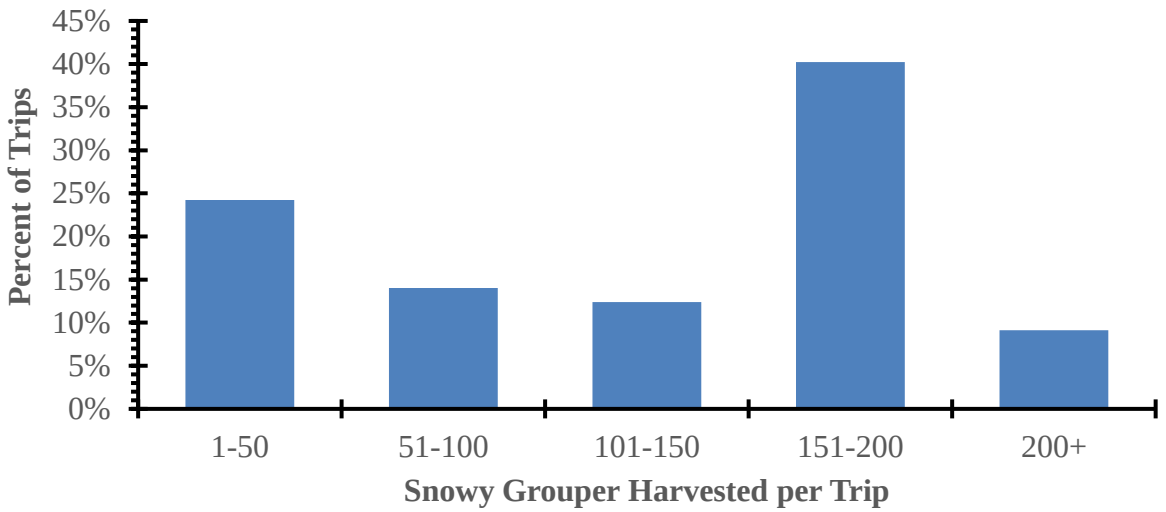

Figure F.1.2.1. The percent of commercial trips (n=3,249) harvesting snowy grouper by bin from 2016 through 2019. Source: SEFSC commercial logbook [May 6, 2021].

Table F.1.2.1. The predicted percent change in landings per trip from the current 200-lb gw trip limit.

Current Trip Limit (lbs gw)	Potential Trip Limit (lbs gw)	Predicted Change in Landings
200-lb	150-lb	-16%
200-lb	100-lb	-38%

Commercial Season Length

Final commercial landings for 2010 through 2020 were provided from the Southeast Fisheries Science Center (SEFSC) on September 29, 2021. Monthly South Atlantic commercial snowy grouper landings were averaged from 2017 through 2019 to project future landings for January through May months. Due to fishery closures in months June through December in recent years, it was necessary to go back to 2010 for some monthly landings later in the calendar year. All monthly landings prior to August 2015 (when the trip limit was increased from 100 to 200-lb gw) were adjusted to account for the management change. For months with a closure that had the fishery open for the majority of the days, the landings were expanded using the ratio of total days in the month to those when the fishery was open. Changes to the commercial fishing year in response to regulatory amendment 27 are assumed to have minimal impact on monthly fishing behavior, and no additional adjustments were made to monthly landings to project future landings. Predicted landings are presented in **Figure F.1.2.2**. Season lengths were projected using daily catch rates with upper and lower 95% confidence intervals with the different trip limit options (**Table F.1.2.2**).

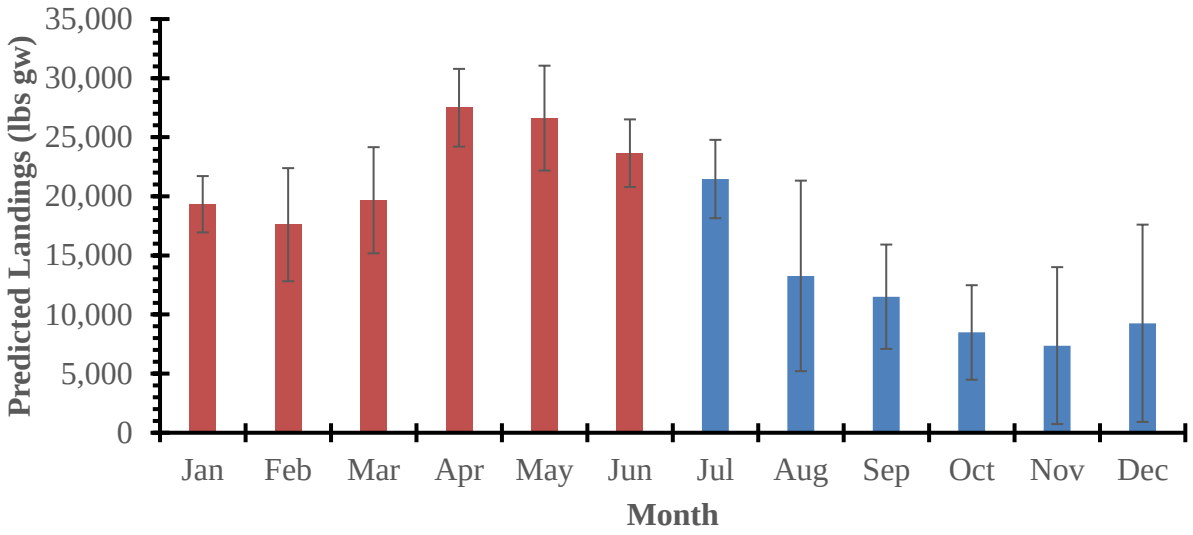

Figure F.1.2.2. The predicted monthly snowy grouper landings (lbs gw) based on current trip limits with 95% confidence interval. Source: SEFSC commercial ACL file [September 29, 2021].

Table F.1.2.2. The projected closure dates with each ACL option for snowy grouper by season with different trip limit options and 95% confidence interval (CI). Note that 70% of the ACL is allocated to the January through June season and 30% to the July through December season.

Option 1: 83% ACL= 99,562 lbs gw				
Season	ACL (lbs gw)	Trip Limit (lbs gw)	Closure Date	Season Length (95% CI)
January 1 – June 30	69,693	200	April 15	Apr 2 – May 1
January 1 – June 30	69,693	150	April 29	Apr 15 – May 20
January 1 – June 30	69,693	100	June 3	May 14 – No Closure
July 1 – December 31	29,869	200	August 20	Aug 8 – Sep 29
July 1 – December 31	29,869	150	September 3	Aug 16 – Dec 2
July 1 – December 31	29,869	100	October 8	Sep 4 – No Closure
Option 2: 87.55% ACL= 109,038 lbs gw				
Season	ACL (lbs gw)	Trip Limit (lbs gw)	Closure Date	Season Length (95% CI)
January 1 – June 30	76,327	200	April 22	Apr 8 – May 11
January 1 – June 30	76,327	150	May 8	Apr 23 – May 31
January 1 – June 30	76,327	100	June 16	May 25 – No Closure
July 1 – December 31	32,711	200	August 27	Aug 12 – Oct 17
July 1 – December 31	32,711	150	September 11	Aug 21 – No Closure
July 1 – December 31	32,711	100	October 24	Sep 13 – No Closure
Option 3: 73.36% ACL= 88,046 lbs gw				
Season	ACL (lbs gw)	Trip Limit (lbs gw)	Closure Date	Season Length (95% CI)
January 1 – June 30	61,632	200	April 6	Mar 23 – Apr 21
January 1 – June 30	61,632	150	April 19	Apr 5 – May 6

January 1 – June 30	61,632	100	May 18	May 1 – Jun 12
July 1 – December 31	26,414	200	August 12	Aug 3 – Sep 14
July 1 – December 31	26,414	150	August 24	Aug 10 – Oct 8
July 1 – December 31	26,414	100	September 21	Aug 26 – No Closure

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

1.3 Recreational ACL Analysis

Analyses for Amendment 51
Chip Collier – South Atlantic Fishery Management Council

Landings data match landings data included in SEDAR 36 Update working paper 2020–S36Update–WP01 and were similar to the FES monitoring file (MRIP_FES_rec81_21wv1_11May21w2014_2020LACreel).

Data

Marine Recreational Information Program (MRIP) samples included trips that landed from North Carolina through the Florida Keys as reported in SEDAR 36 Update. The raw intercept data files were downloaded from the MRIP webpage and included trips for sub-region 6 (South Atlantic) plus Monroe County (State =Florida and County = Monroe). Data available included trips back to 1981. Headboat from the Southeast Region Headboat Survey (SRHS) are available to 1974 and were provided by the survey staff. MRIP landings data match landings data included in SEDAR 36 Update working paper 2020–S36Update–WP01 (Matter and Nuttall 2020) and total recreational landings were similar (within 20 fish each year) to the FES monitoring file (MRIP_FES_rec81_21wv1_11May21w2014_2020LACreel).

The IPT suggested the recreational seasonal analysis should include data from 2015 to 2019. This time period matches a regulation change in the fishery when the ACL increased from 521 fish and season was shortened to May through August. Data going back to 2010 were reviewed to see if dramatic shifts occurred in the seasonality of the catch due to the recreational season established in 2015.

The analysis included trips for Monroe County, FL where regulations differ between South Atlantic and Gulf of Mexico. Some of these trips may have been conducted in the Gulf of Mexico waters, where snowy grouper is included in a 4-grouper aggregate per person. The bag limit for the South Atlantic is one per vessel. It appears the trips were included in the assessment based on comparison of the data set used for this analysis and Table 1 from the SEDAR 36 Update Assessment working paper on recreational data (Matter and Nuttall 2020). Therefore,

these trips were included in the seasonal analysis even though changes to SAFMC regulations would not change the landings of Snowy Grouper on the trips.

Review of Recreational Data Available for Snowy Grouper

Data on recreational trips were limited for Snowy Grouper. On average, 16 MRIP (private and charter boat combined) trips per year (min = 11 and max = 21) were sampled with Snowy Grouper landings and 18 headboat trips (min=8 and max = 33) reported landings of Snowy Grouper from 2015 to 2019. Due to the low sample size and high variability (relative) in landings, any seasonal analysis will have a high degree of uncertainty.

Analysis

Recreational data from private recreational vessel, charter boats, and headboats were summed up by wave and year from 2015 to 2019. Mean landings were calculated by wave. Confidence intervals were calculated as mean +/- 1.96 *standard deviation. A minimum value of 0 was used for confidence interval estimates that were less than zero.

Results

The annual recreational landings of Snowy Grouper have been less than 10,000 fish every year from 2010 to 2019 except 2012 when landings were over 60,000 fish. Charter and private recreational trips (estimated through MRIP) averaged 89% of the total recreational landings over the ten-year timeframe. Snowy Grouper were only observed through MRIP from trips that landed in North Carolina and Florida and most observations by SRHS occurred in North Carolina and Florida from 2010 to 2019. Snowy Grouper have not been observed through MRIP from trips the landed in Georgia since 1993 and South Carolina since 1982.

Recreational landings of Snowy Grouper from 2010 to 2019 tended to be highest in May - June wave or July - August wave (**Figure F.1.3.1**), 2011 included a deepwater closure for part of the year). There were rarely landings from November through February. Prior to the establishment of the recreational season for Snowy Grouper (2015), landings were most common in May through August but were reported in the March – April wave and September – October wave. From 2015 to 2019, the average landings were highest during the Snowy Grouper recreational fishing season May through August (**Figure F.1.3.2, Table F.1.3.1**). Landings were reported in January through April and most of these landings (55%) occurred in 2015, prior to the season being enacted.

There are extremely large confidence intervals based on the standard deviations. This indicates there will be significant uncertainty in estimating any impact from changing the recreational season. The confidence interval for all waves except wave 4 (July – August) are set to a minimum of zero to avoid negative numbers (**Table F.1.3.1**).

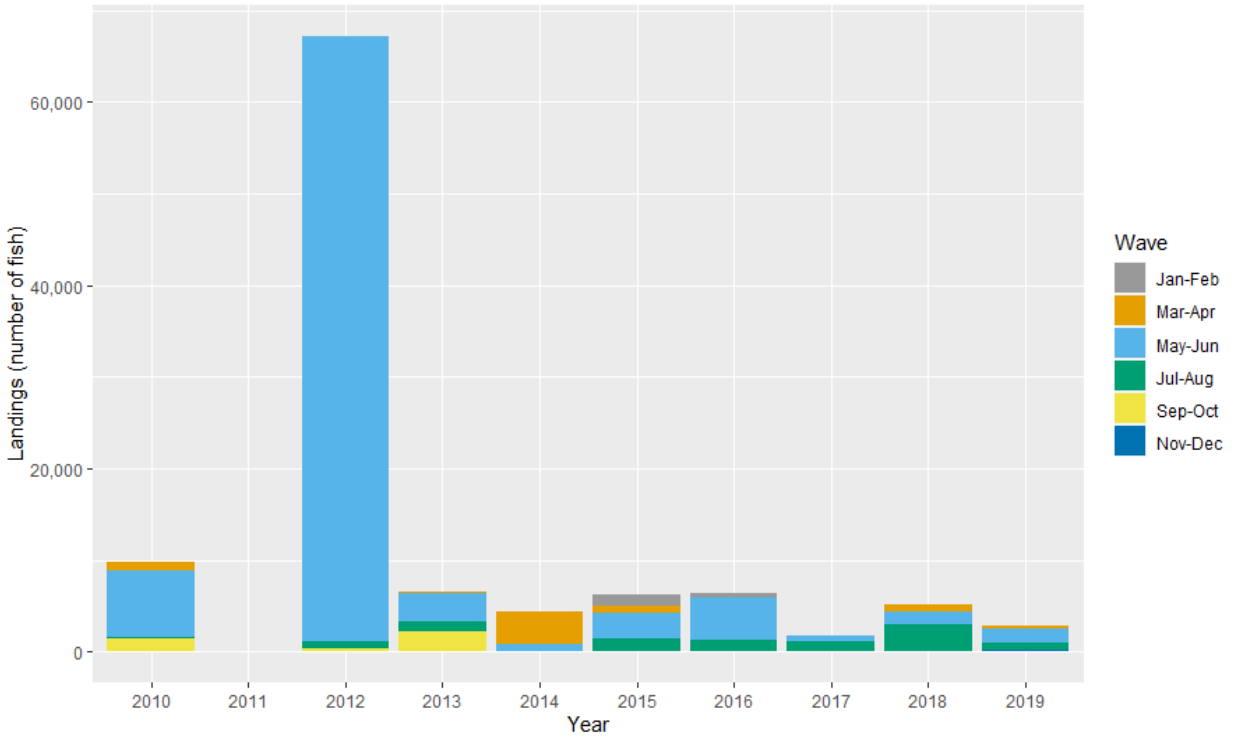

Figure F.1.3.1. Recreational landings of Snowy Grouper (number of fish) by year and wave from 2010 to 2019 for the South Atlantic region. Landings include trips reported from Key West, FL up to the Virginia and North Carolina border.

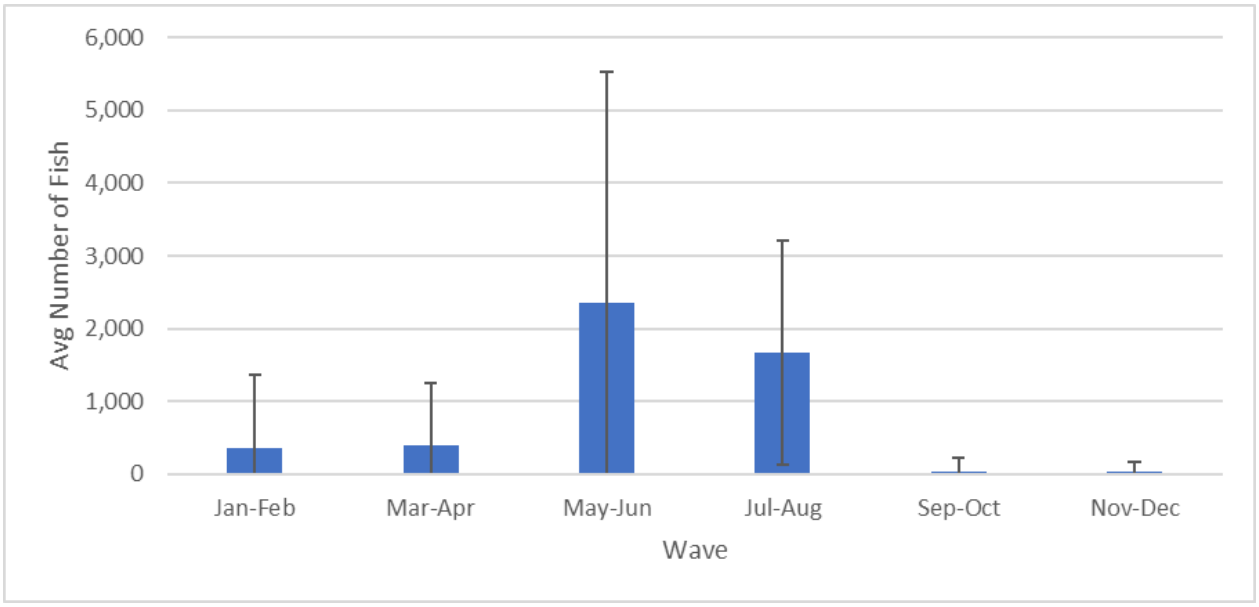

Figure F.1.3.2. Average number of Snowy Grouper landed in recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe

County, FL. Blue bars represent the average landings and lines represent the 95% confidence interval.

Table F.1.3.1. Average number of Snowy Grouper landed by the recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe County, FL. The confidence interval was developed based on the standard deviation of the five years.

Wave	Average	Confidence Interval	Avg Number Per Month
Jan-Feb	351	0 - 1,372	175.5
Mar-Apr	395	0 - 1,256	197.5
May-Jun	2,354	0 - 5,520	1,177.0
Jul-Aug	1,674	138 - 3,210	837.0
Sep-Oct	45	0 - 230	22.5
Nov-Dec	30	0 - 163	15.0

Literature Cited

Matter, Vivian M. and Matthew A. Nuttall. 2020. Recreational Survey Data for Snowy Grouper in the South Atlantic. 2020-SEDAR36U-WP01. SEDAR, North Charleston, SC. 21 pp.

1.4 Recreational Season Closure Analysis

LAPP/DM Branch
NOAA Fisheries Service
Southeast Regional Office
May 2022

The South Atlantic Fishery Management Council (SAFMC) manages snowy grouper in South Atlantic federal waters under the Snapper Grouper Fishery Management Plan (Snapper Grouper FMP). Amendment 51 to the Snapper Grouper FMP proposes to adjust annual catch limits (ACLs), revise sector allocations, and modify the recreational season. This analysis projects how long the recreational season will be for each of the season alternatives in Action 5 while incorporating the preferred alternatives in Action 1 (Alternative 2: ACL=ABC) and Action 2 (Alternative 1, No Action: 17% recreational and 83% commercial sector allocation). The recreational season will be expected to close under the proposed ACL, season, and sector allocation changes using observed landings in numbers of fish between 2017 and 2019.

Recreational

Recreational landings were obtained from the Southeast Fisheries Science Center (SEFSC) recreational ACL file (3/17/22; **Figure F.1.4.1**). This dataset includes landings from the Southeast Region Headboat Survey (SRHS) and Marine Recreational Information Program (MRIP). Monthly predicted landings are required to explore how the proposed ACLs and season

options will impact the fishing season length. SRHS data provide monthly landings estimates whereas MRIP data are provided in two-month waves (e.g., January and February = wave 1, March and April = wave 2, etc.). Monthly landings in January through April and September 1 through December 31 were minimal due to the seasonal closure that runs during those months. To estimate monthly landings, MRIP waves were used to estimate to monthly landings by assuming equal daily catch rates for months within a wave, and then SRHS landings were added back in. Future landings were predicted by taking an average of 2017 through 2019 landings for each month (**Table F.1.4.1**). Because snowy grouper landings are quite variable, future landings were also predicted by taking an average of 2015 through 2019 landings for each month for comparison. To estimate future landings in September through November, which have historically been months closed to fishing, a range was provided using the average monthly landings in Wave 3 and Wave 4, since those were observed landings. More recent years (e.g., 2020 and 2021) were not used in predicting future landings due to a decrease in landings seen those years. The decrease in observed landings coincided with pandemic-related disruption in dockside sampling that required MRIP estimations be imputed from previous years. These data were post-stratified to include Monroe County landings in South Atlantic landings. Based on the cumulatively summed projected recreational landings of snowy grouper, the recreational sector will be expected to be open between 61 and 98 days (**Table F.1.4.2-F.1.4.4**), with variability found depending on which sector allocation option is selected in Action 2.

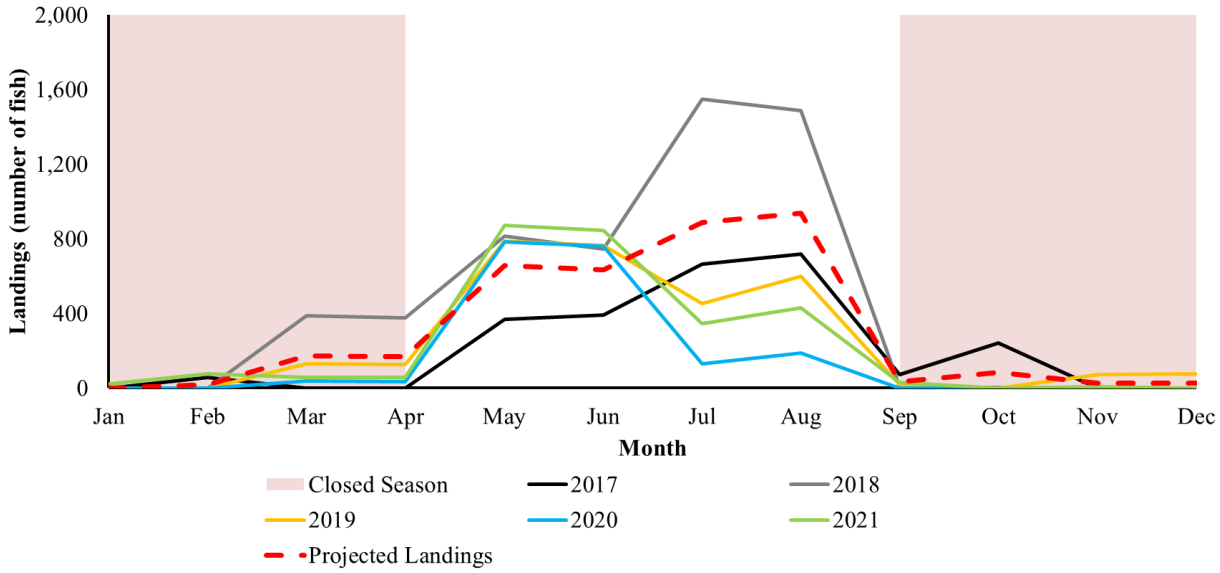

Figure F.1.4.1. South Atlantic snowy grouper recreational landings by month from 2017-2019 and projected landings. All of the landing projections assume no landings between January 1 - April 30 and September 1 – December 31 for the season closure. Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Table F.1.4.1. Average number of snowy grouper landed by the recreational sector by wave from the South Atlantic based on a three-year average (2017 to 2019) and a five-year average (2015 to 2019). Landings include trips reported from Monroe County, FL. The confidence interval was developed based on the standard deviation of the three years.

Three-year Average (2017-2019)

Wave	Average	Confidence Interval	Average Number Per Month
Jan-Feb	20	0 - 598	10
Mar-Apr	342	0 - 806	11
May-Jun	**1,290**	**0 - 3,120**	**645**
Jul-Aug	**1,824**	**938 - 2,710**	**912**
Sep-Oct	116	0 - 270	58
Nov-Dec	0	0 - 126	0
Five-year Average (2015-2019)			
Wave	**Average**	**Confidence Interval**	**Average Number Per Month**
Jan-Feb	351	0 – 1,372	176
Mar-Apr	395	0 – 1,256	198
May-Jun	**2,354**	**0 – 5,520**	**1,177**
Jul-Aug	**1,674**	**138 – 3,210**	**837**
Sep-Oct	45	0 - 230	23
Nov-Dec	30	0 - 163	15

Table F.1.4.2. The projected South Atlantic snowy grouper recreational landings (number of fish) and closure dates expected for each Alternative of Action 5 using a three-year (2017-2019) and five-year (2015-2019) average. The recreational ACL options considered here assume current sector allocations of 17% recreational and 83% commercial (Alternative 1 of Action 2). Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Note: All alternatives to Action 5 assume the proposed ACLs set equal to the ABC (Preferred Alternative 2 of Action 1). All ACLs and projected landings are in numbers of fish.

*The recreational ACLs presented are inclusive of recreational landings tracked using the MRIP Fishing Effort Survey.

Alternative 1 (No Action): May 1 – August 31					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	2,278	August 4	95	June 28	58
2024	2,309	August 5	96	June 29	59
2025	2,339	August 6	97	June 30	60
2026	2,339	August 6	97	June 30	60
Alternative 2: Wave 3 Option (May 1 – June 30)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	2,278	No Closure (1,290 fish)	60	June 28	58
2024	2,309	No Closure (1,290 fish)	60	June 29	59
2025	2,339	No Closure (1,290 fish)	60	June 30	60
2026	2,339	No Closure (1,290 fish)	60	June 30	60
Alternative 3: Wave 4 Option (July 1 – Aug 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	2,278	No Closure	61	No Closure	61

		(1,824 fish)		(1,674 fish)	
2024	2,309	No Closure (1,824 fish)	61	No Closure (1,674 fish)	61
2025	2,339	No Closure (1,824 fish)	61	No Closure (1,674 fish)	61
2026	2,339	No Closure (1,824 fish)	61	No Closure (1,674 fish)	61
Overall Season Length Analysis: Wave 3 Option (May 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	2,278	August 4	95	June 28	58
2024	2,309	August 5	96	June 29	59
2025	2,339	August 6	97	June 30	60
2026	2,339	August 6	97	June 30	60
Overall Season Length Analysis: Wave 4 Option (July 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	2,278	Sept 8 - Sept 11	69 – 72	Sept 8 - Sept 11	69 – 72
2024	2,309	Sept 8 - Sept 12	69 – 73	Sept 9 - Sept 12	70 – 73
2025	2,339	Sept 9 - Sept 12	70 – 73	Sept 9 - Sept 12	70 – 73
2026	2,339	Sept 9 – Sept 12	70 – 73	Sept 9 - Sept 12	70 – 73

Table F.1.4.3. The projected South Atlantic snowy grouper recreational landings (number of fish) and closure dates expected for each Alternative of Action 5 using a three-year (2017-2019) and five-year (2015-2019) average. The recreational ACL options considered here assume current sector allocations of 12.45% recreational and 87.55% commercial (Alternative 2 of Action 2). Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Alternative 1 (No Action): May 1 – August 31					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	July 14	74	June 13	43
2024	1,691	July 14	74	June 13	43
2025	1,713	July 15	75	June 14	44
2026	1,713	July 15	75	June 14	44
Alternative 2: Wave 3 Option (May 1 – June 30)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	No Closure (1,290 fish)	61	June 13	43
2024	1,691	No Closure (1,290 fish)	61	June 13	43
2025	1,713	No Closure (1,290 fish)	61	June 14	44
2026	1,713	No Closure (1,290 fish)	61	June 14	44
Alternative 3: Wave 4 Option (July 1 – Aug 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open

2023	1,668	Aug 26	56	Aug 31	60
2024	1,691	Aug 27	57	No Closure (1,674 fish)	61
2025	1,713	Aug 28	58	No Closure (1,674 fish)	61
2026	1,713	Aug 28	58	No Closure (1,674 fish)	61
Overall Season Length Analysis: Wave 3 Option (May 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	July 14	74	June 13	43
2024	1,691	July 14	74	June 13	43
2025	1,713	July 15	75	June 14	44
2026	1,713	July 15	75	June 14	44
Overall Season Length Analysis: Wave 4 Option (July 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	1,668	Aug 26	56	Aug 31	61
2024	1,691	Aug 27	57	Sept 1	62
2025	1,713	Aug 28	58	Sept 1	62
2026	1,713	Aug 28	58	Sept 1	62

Note: All alternatives to Action 5 assume the proposed ACLs set equal to the ABC (Preferred Alternative 2 of Action 1). All ACLs and projected landings are in numbers of fish.
*The recreational ACLs presented are inclusive of recreational landings tracked using the MRIP Fishing Effort Survey.

Table F.1.4.4. The projected South Atlantic snowy grouper recreational landings (number of fish) and closure dates expected for each Alternative of Action 5 using a three-year (2017-2019) and five-year (2015-2019) average. The recreational ACL options considered here assume current sector allocations of 26.64% recreational and 73.36% commercial (Alternative 3 of Action 2). Source: SEFSC MRIP FES Recreational ACL Database [March 17, 2022].

Alternative 1 (No Action): May 1 – August 31					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	3,570	No Closure (3,115 fish)	122	Aug 14	105
2024	3,618	No Closure (3,115 fish)	122	Aug 16	107
2025	3,666	No Closure (3,115 fish)	122	Aug 18	109
2026	3,666	No Closure (3,115 fish)	122	Aug 18	109
Alternative 2: Wave 3 Option (May 1 – June 30)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	3,570	No Closure (1,290 fish)	61	No Closure (2,356 fish)	61
2024	3,618	No Closure	61	No Closure	61

		(1,290 fish)		(2,356 fish)	
2025	3,666	No Closure (1,290 fish)	61	No Closure (2,356 fish)	61
2026	3,666	No Closure (1,290 fish)	61	No Closure (2,356 fish)	61
Alternative 3: Wave 4 Option (July 1 – Aug 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	3,570	No Closure (1,824 fish)	62	No Closure (1,674 fish)	61
2024	3,618	No Closure (1,824 fish)	62	No Closure (1,674 fish)	61
2025	3,666	No Closure (1,824 fish)	62	No Closure (1,674 fish)	61
2026	3,666	No Closure (1,824 fish)	62	No Closure (1,674 fish)	61
Overall Season Length Analysis: Wave 3 Option (May 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	3,570	Sept 8 – Sept 11	130-133	Aug 14	105
2024	3,618	Sept 9 – Sept 12	130-132	Aug 16	107
2025	3,666	Sept 10 – Sept 13	130-131	Aug 18	109
2026	3,666	Sept 10 – Sept 13	130-131	Aug 18	109
Overall Season Length Analysis: Wave 4 Option (July 1 – Dec 31)					
Year	Recreational ACL (numbers of fish)*	3-Year Average Closure Date	3-Year Average Days Open	5-Year Average Closure Date	5-Year Average Days Open
2023	3,570	Sep 29 – Oct 11	91 - 103	Sep 25 – Oct 5	87 – 97
2024	3,618	Sep 30 – Oct 13	92 - 105	Sep 25 – Oct 6	88 – 99
2025	3,666	Oct 1 – Oct 14	94 - 106	Sep 26 – Oct 6	90 – 100
2026	3,666	Oct 1 – Oct 14	94 - 106	Sep 26 – Oct 6	90 - 100

Note: All alternatives to Action 5 assume the proposed ACLs set equal to the ABC (Preferred Alternative 2 of Action 1). All ACLs and projected landings are in numbers of fish.
*The recreational ACLs presented are inclusive of recreational landings tracked using the MRIP Fishing Effort Survey.

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

1.5 Recreational Co-Catch Analysis

South Atlantic snowy grouper catch analysis for the recreational sector
Mike Larkin

Amendment 51 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic region (Amendment 51) is in the process of modifying regulations for South Atlantic snowy grouper. The South Atlantic Fishery Management Council members asked for an analysis of the species harvested and released with snowy grouper in the recreational sector in the South Atlantic. Snowy grouper recreational harvest and release information is collected in the South Atlantic region from two different recreational surveys: Marine Recreational Information Program (MRIP) and the Southeast Region Headboat Survey (Headboat). South Atlantic snowy grouper MRIP discard and harvest data from 2015 through 2019 was downloaded from the NOAA fisheries recreational landings website (fisheries.noaa.gov) in January of 2021. South Atlantic Headboat discard and harvest data was provided from the Southeast Fisheries Science Center in July of 2020.

The MRIP data resulted in 57 trips that either discarded or harvested snowy grouper. The species that were caught on these snowy grouper trips were isolated from looking at species caught on the same trip. Individual MRIP trips were defined by having the same trip identification code which is the MRIP variable called "ID_CODE". The top ten species caught (discard and harvest) with snowy grouper on MRIP trips are show in Table 1. Ten of the 57 trips had snowy grouper that were discarded. The species caught on trips that discarded a snowy grouper are shown in Table 2. There were 47 MRIP trips that harvested snowy grouper and they are shown in Table 3.

Table F.1.5.1. Top ten species caught on trips that caught snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 57 trips that caught snowy grouper. This includes both discard and harvest snowy grouper trips.

Species	Number of Trips
Dolphin	26
Blueline Tilefish	19
Black Sea Bass	10
Greater Amberjack	10
Blackfin Tuna	7
Gray Triggerfish	7
Almaco Jack	6
Wahoo	6
Yellowedge Grouper	6
Blackbelly Rosefish	5

Table F.1.5.2. Top five species caught on trips that discarded snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 10 trips that discarded snowy grouper.

Species	Number of Trips
Yellowedge Grouper	1
Red Snapper	1
Black Sea Bass	1
Unidentified Shark	1

Bluefish	1

Table F.1.5.3. Top ten species caught on trips that harvested snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 47 trips that released snowy grouper.

Species	Number of Trips
Dolphin	26
Blueline Tilefish	19
Black Sea Bass	10
Greater Amberjack	9
Blackfin Tuna	7
Gray Triggerfish	7
Almaco Jack	6
Wahoo	6
Yellowedge Grouper	5
Blackbelly Rosefish	5

The Headboat data were explored and resulted in 79 trips that either discarded and/or harvested snowy grouper. The species that were caught on these snowy grouper trips were isolated from looking at species caught on the same trip. Individual Headboat trips were defined by having the same trip identification code which is the Headboat variable called "COLLECTION". The top ten species caught (discard and harvest) with snowy grouper on these Headboat trips are shown in Table 4. Of the 79 trips there was only 1 trip where snowy grouper were discarded and this same trip also had a harvest of snowy grouper. The species caught on this one Headboat trip with a snowy grouper discard were vermilion snapper, king mackerel, and almaco jacks. All of the Headboat trips that caught snowy grouper also harvested snowy grouper, so the list of species caught with harvested snowy grouper are shown in Table 4.

Table F.1.5.4. Top ten species caught on trips that caught snowy grouper in the South Atlantic region from 2015 to 2019. This data came from Headboat which had 79 trips that caught snowy grouper. This includes both discard and harvest snowy grouper trips.

Species	Number of Trips
Blueline Tilefish	56
Almaco Jack	51
Mutton Snapper	43
Blackfin Tuna	43
Blackfin Snapper	40
Scamp	40
Queen Snapper	40
Red Grouper	37
Black Grouper	35
Dolphin	35

Appendix G. Bycatch Practicability Analysis

Background

Amendment 51 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) would modify management of South Atlantic snowy grouper. Actions include revising annual catch limits (ACL), sector allocations, recreational accountability measures (AM), and management measures for the commercial and recreational sectors. Development of Amendment 51 is a response to the most recent stock assessment for South Atlantic snowy grouper. National Marine Fisheries Service (NMFS) outlines at 50 CFR § 600.350(d) (3) (i) ten factors that should be considered in determining whether a management measure minimizes bycatch or bycatch mortality to the extent practicable.

1. Population effects for the bycatch species.
2. Ecological effects due to changes in the bycatch of that species (effects on other species in the ecosystem).
3. Changes in the bycatch of other species of fish and the resulting population and ecosystem effects.
4. Effects on marine mammals and birds.
5. Changes in fishing, processing, disposal, and marketing costs.
6. Changes in fishing practices and behavior of fishermen.
7. Changes in research, administration, and enforcement costs and management effectiveness.
8. Changes in the economic, social, or cultural value of fishing activities and non-consumptive uses of fishery resources.
9. Changes in the distribution of benefits and costs.
10. Social effects.

Bycatch Reporting Requirements and Methodology

For the commercial sector, the vessel reporting requirement is achieved through logbooks. Fishermen with Commercial South Atlantic Unlimited Snapper Grouper or 225-lb Trip Limit Snapper Grouper Permits, who are selected by the Science and Research Director, are required to maintain, and submit fishing records through the National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) Commercial Logbook. Discard data are collected using the Supplemental Discard Logbook that is sent to a 20% stratified random sample of the active commercial permit holders in the fishery. In addition to the number of self-reported discards per trip and gear, the SEFSC Supplemental Discard Logbook attempts to quantify the reason why discarding occurs using four codes.[16] Fishermen can specify multiple reasons for a species discarded on the same trip and gear.

1) Regulation – Not legal size: Animals that would have been sold, however local or federal size limits forbid it.

[16] More information on the discard logbook is available here https://www.fisheries.noaa.gov/about/southeast-fisheries-science-center.

2) Regulation – Out of season: Animals that would have been sold, however the local or federal fishing season is closed.
3) Regulation – Other: Animals that would have been sold, however a local or federal regulation other than size or season, forbids it (Other than size or season; i.e., protected species, not properly permitted).
4) Market conditions: Animals that have no market value (rotten, damaged).

For the recreational sector, estimates of discards from private recreational and charter fishermen are collected through the Marine Recreational Information Program (MRIP)/Fishing Effort Survey (FES). MRIP/FES replaced the Marine Recreational Fishery Statistics Survey. The Southeast Region Headboat Survey, which includes limited headboat observer sampling, collects discard information from headboat vessels. In addition, in January 2021, NMFS implemented the Southeast For-Hire Electronic Reporting Program, which implemented mandatory electronic reporting of for-hire vessel catch data for over 3,000 vessels in the Gulf of Mexico and South Atlantic. The purpose of this program is to provide more accurate and reliable fisheries information about for-hire catch, effort, and discards.

1. Population Effects for the Bycatch Species

1.1 Amount and Type of Bycatch and Discards

Commercial Sector

The South Atlantic snapper grouper fishery is characterized by moderately high discards, especially of black sea bass, vermilion snapper, and red porgy (Table G.1.1.1 and Figure G.1.1.1). Commercial fishermen have also reported discards of snowy grouper (Table G.1.1.2). Most discards originate from handline/electric rig and trap gear, with some discards from trolling gear and relatively low discards from longline and diving gear. Trap/pot gear show high levels of discarded black sea bass, which is the targeted species of this gear type, but low levels of bycatch for other species. It is possible that trip-level reporting leads to the relatively high discard estimates from trolling gear; these may be sets using another gear type (i.e., handline/electric rig) on a trip declared as a trolling gear trip. The ratio of commercial landings to commercial discards is not compared because commercial landings are reported in pounds and discards are reported in numbers of fish.

Table G.1.1.1. Top ten species with mean estimated South Atlantic commercial discards (number of fish) during snapper grouper trips (defined as trips with >50% of landings from snapper grouper stocks), sorted from largest to smallest, by gear, for the 2015-2019 period.

Stock	Diver	Stock	Handline / Electric	Stock	Longline	Stock	Trap / Pot	Stock	Troll
Gray Snapper	133	Vermilion Snapper	23,324	Red Grouper	176	Black Sea Bass	25,581	Black Sea Bass	1,114
Hogfish	57	Red Porgy	20,337	Snowy Grouper	157	Trigger-fishes	1,507	Grunts	66
Black Grouper	28	Red Snapper	16,805	Blueline Tilefish	32	Vermilion Snapper	662	King Mackerel	34

Stock	Diver	Stock	Handline / Electric	Stock	Longline	Stock	Trap / Pot	Stock	Troll
Ocean Triggerfish	10	Black Sea Bass	7,797	Greater Amberjack	26	Gray Triggerfish	407	White Grunt	24
Mutton Snapper	8	Yellowtail Snapper	7,278	Red Snapper	20	White Grunt	207	Gag	19
Red Grouper	5	Gray Triggerfish	3,966	Red Porgy	18	Grunts	161	Dolphin	16
Yellow Jack	2	Trigger-fishes	2,652	Trigger-fishes	5	Red Porgy	94	Black Grouper	13
Yellowtail Snapper	2	Almaco Jack	2,004	Golden Tilefish	2	Red Snapper	65	Rock Sea Bass	6
Groupers	1	Blue Runner	1,956	Amberjacks	1	Gag	23	Trigger-fishes	5
King Mackerel	1	Greater Amberjack	1,510	Blackfin Snapper	1	Red Grouper	6	Greater Amberjack	3

Source: SEFSC Coastal Logbook (accessed May 2020) and Discard Logbook (accessed May 2020). Note: Commercial gray triggerfish includes the "triggerfishes, unclassified" category.

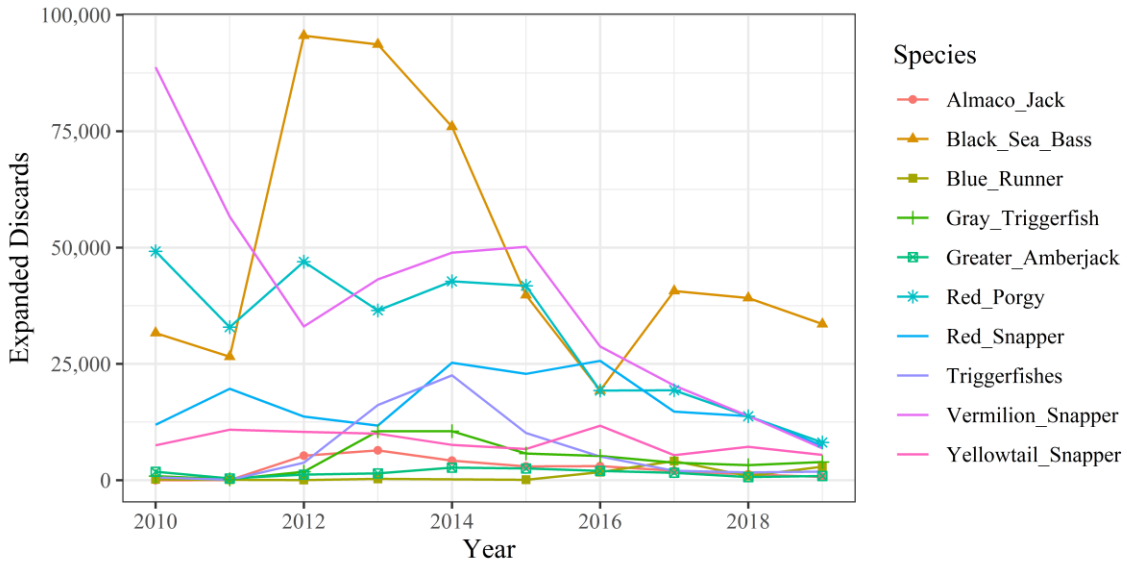

Figure G.1.1.1. Expanded self-reported commercial discards (numbers of fish) for the top ten species discarded during snapper grouper trips (defined as trips with >50% of landings from snapper grouper stocks) from 2010-2019 for all gear types. *Source*: SEFSC Coastal Logbook (accessed May 2020) and Discard Logbook (accessed May 2020).

Table G.1.1.2. South Atlantic commercial discards (numbers of fish) of snowy grouper based on the SEFSC Commercial Logbook Data (Sept 2022) and SEFSC Discard Logbook Data (Sept 2022).

Year	Snowy grouper (N=5,537)
2015	2,015
2016	1,098
2017	2,968
2018	1,208
2019	65
Average (2015-2019)	1,471

Of the four discard codes, regulations (i.e., not legal size and out of season) was the most common reason selected for the most commonly discarded snapper grouper species based on self-reported discards (Table G.1.1.3). The minimum size limit appears to be the primary driver of commercial discards for black sea bass, gag, gray snapper, gray triggerfish, greater amberjack, and yellowtail snapper. Out of season appears to be the primary driver of discards for almaco jack, red porgy, red snapper, and vermilion snapper. Red porgy has the second highest number of discards in the commercial vertical line component of the snapper grouper fishery, with 78% of discards attributed to "out of season."

Table G.1.1.3. The percentage of unexpanded discards for each discard reason out of the total number of self-reported discards reported to the Supplemental Discard Logbook for the top ten snapper grouper species discarded in the South Atlantic from 2015 through 2019. Some percentages may not sum to 100% due to rounding.

Species	Not Legal Size	Out of Season	Other Regulations	Market Conditions
Almaco Jack	4%	72%	7%	17%
Black Sea Bass	99%	0%	0%	0%
Gag	78%	20%	0%	2%
Gray Snapper	91%	0%	0%	8%
Gray Triggerfish	59%	39%	1%	0%
Greater Amberjack	77%	20%	3%	1%
Red Porgy	19%	78%	2%	0%
Red Snapper	2%	78%	20%	0%
Vermilion Snapper	43%	50%	7%	0%
Yellowtail Snapper	92%	6%	2%	0%

Sources: SEFSC Supplemental Commercial Discard Logbook (May 2020).

Table G.1.1.4 provides the top ten species that co-occur on trips (as percent of trips) that either caught or discarded South Atlantic snowy grouper.

Table G.1.1.4. Commercial Co-Occurring Species on Trips that Caught each Specified Species (% trips). Commercial trip co-occurrence was determined using SEFSC Commercial Logbook Data (Sept 2022). Co-occurrence is determined using years 2015-2019.

Year	Snowy grouper (N=5,537)
Blueline_Tilefish	44
Vermilion_Snapper	27
Golden_Tilefish	27
Almaco_Jack	24
Gray_Triggerfish	21
Yellowedge_Grouper	18
Dolphin	18
Greater_Amberjack	16
Black_Sea_Bass	14
Red_Porgy	14

Recreational Sector

From 2015 through 2019, the most discarded species on trips capturing a snapper grouper species was black sea bass for all three modes (Table G.1.1.5). Red snapper, tomtate, yellowtail snapper, and grunt species were in the top ten for all modes.

Table G.1.1.5. From 2015 through 2019, the top ten species with discards reported on trips capturing a snapper grouper species by recreational mode. Species are sorted by number of total discards for each mode from 2015-2019.

Rank	HEADBOAT		CHARTER		PRIVATE	
	Species	Discards (N)	Species	Discards (N)	Species	Discards (N)
1	Black Sea Bass	2,362,007	Black Sea Bass	1,464,909	Black Sea Bass	40,129,026
2	Vermilion Snapper	461,562	Red Snapper	601,973	Gray Snapper	21,989,786
3	Tomtate	327,379	Yellowtail Snapper	529,770	Pinfish	10,632,466
4	White Grunt	294,025	Tomtate	472,005	Red Snapper	9,907,110
5	Yellowtail Snapper	278,821	Vermilion Snapper	416,724	Yellowtail Snapper	6,926,752
6	Red Snapper	258,627	Gray Snapper	275,171	Tomtate	6,619,263
7	Gray Triggerfish	183,024	Mutton Snapper	149,472	Hardhead Catfish	5,036,604
8	Blue Runner	121,476	Blue Runner	133,872	Grunt (family)	4,961,629
9	Grunts (unidentified)	99,496	Grunt (family)	128,757	Atlantic Croaker	4,675,997
10	Atlantic Sharpnose Shark	90,504	Greater Amberjack	112,017	Gray Triggerfish	3,828,858

Sources: MRIP FES data from SEFSC Recreational ACL Dataset (September 2020); Headboat data from SEFSC Headboat Logbook CRNF files (expanded; July 2020).

Recreational discards of several snapper grouper species are higher than the landings for certain modes of fishing (Table G.1.1.6). Red snapper, black sea bass, red grouper, and tomtate discards are many times higher than their landings across all modes. Across most of the snapper grouper species, the magnitude of private mode discards is much higher compared to the headboat or charter modes. Red porgy recreational discards to landings ratios are 106% in the headboat component, 63% in the charter component, and 77% in the private recreational component.

Table G.1.1.6. South Atlantic snapper grouper headboat, charter, and private mean annual estimates of landings and discards (2015-2019). Headboat and MRIP (charter and private) landings and discards are in numbers of fish.

Species	HEADBOAT			CHARTER			PRIVATE		
	Landings (N)	Discards (N)	Ratio (D:L)	Landings (N)	Discards (N)	Ratio (D:L)	Landings (N)	Discards (N)	Ratio (D:L)
Almaco Jack	8,345	1,683	20%	12,752	2,921	23%	70,012	237,235	339%
Black Sea Bass	48,095	472,401	982%	37,817	288,186	762%	484,547	7,953,343	1,641%
Gag	679	805	118%	2,387	2,257	95%	21,664	57,088	264%
Gray Triggerfish	39,606	36,605	92%	53,395	19,237	36%	306,482	765,772	250%
Greater Amberjack	3,757	3,555	95%	24,570	22,404	91%	69,007	128,035	186%
Mutton Snapper	15,939	15,516	97%	24,579	29,894	122%	208,691	576,812	276%
Red Grouper	2,577	8,675	337%	3,282	8,902	271%	53,718	142,866	266%
Red Porgy	12,095	12,765	106%	14,248	8,922	63%	109,050	83,622	77%
Red Snapper	2,461	51,725	2,102%	6,033	120,395	1,996%	211,833	1,981,423	935%
Scamp	1,554	1,044	67%	3,174	193	6%	2,775	1,458	53%
Snowy Grouper	**501**	**4**	**1%**	**1,936**	**165**	**9%**	**2,536**	**599**	**24%**
Tomtate	44,536	65,476	147%	13,456	94,401	702%	439,869	1,323,853	301%
Vermilion Snapper	128,029	92,312	72%	73,407	83,345	114%	435,534	661,292	152%
White Grunt	149,852	58,805	39%	26,450	8,944	34%	517,265	350,516	68%
Whitebone Porgy	5,083	1,720	34%	3,475	325	9%	25,948	3,740	14%
Yellowtail Snapper	134,139	55,764	42%	239,421	105,954	44%	1,002,876	1,385,351	138%

Sources: MRIP FES data from SEFSC Recreational ACL Dataset (September 2020); Headboat data from SEFSC Headboat Logbook CRNF files (expanded; July 2020).

The MRIP data resulted in 57 trips that either discarded or harvested snowy grouper. The species that were caught on these snowy grouper trips were isolated from looking at species caught on the same trip. Individual MRIP trips were defined by having the same trip identification code which is the MRIP variable called "ID_CODE". The top ten species caught (discard and harvest) with snowy grouper on MRIP trips are show in Table G.1.1.7. Ten of the 57 trips had snowy grouper that were discarded. The species caught on trips that discarded a snowy grouper are shown in Table G.1.1.8. There were 47 MRIP trips that harvested snowy grouper and they are shown in Table g.1.1.9.

Table G.1.1.7. Top ten species caught on trips that caught snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 57 trips that caught snowy grouper. This includes both discard and harvest snowy grouper trips.

Species	Number of Trips
Dolphin	26
Blueline Tilefish	19
Black Sea Bass	10
Greater Amberjack	10
Blackfin Tuna	7
Gray Triggerfish	7
Almaco Jack	6
Wahoo	6
Yellowedge Grouper	6
Blackbelly Rosefish	5

Table G.1.1.8. Top five species caught on trips that discarded snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 10 trips that discarded snowy grouper.

Species	Number of Trips
Yellowedge Grouper	1
Red Snapper	1
Black Sea Bass	1
Unidentified Shark	1
Bluefish	1

Table G.1.1.9. Top ten species caught on trips that harvested snowy grouper in the South Atlantic region from 2015 to 2019. This data came from MRIP which had 47 trips that released snowy grouper.

Species	Number of Trips
Dolphin	26
Blueline Tilefish	19
Black Sea Bass	10

Greater Amberjack	9
Blackfin Tuna	7
Gray Triggerfish	7
Almaco Jack	6
Wahoo	6
Yellowedge Grouper	5
Blackbelly Rosefish	5

The Headboat data were explored and resulted in 79 trips that either discarded and/or harvested snowy grouper. The species that were caught on these snowy grouper trips were isolated from looking at species caught on the same trip. Individual Headboat trips were defined by having the same trip identification code which is the Headboat variable called "COLLECTION". The top ten species caught (discard and harvest) with snowy grouper on these Headboat trips are show in Table G.1.1.10. Of the 79 trips there was only 1 trip where snowy grouper were discarded and this same trip also had a harvest of snowy grouper. The species caught on this one Headboat trip with a snowy grouper discard were vermilion snapper, king mackerel, and almaco jacks. All of the Headboat trips that caught snowy grouper also harvested snowy grouper so the list of species caught with harvested snowy grouper are shown in Table G.1.1.10.

Table G.1.1.10. Top ten species caught on trips that caught snowy grouper in the South Atlantic region from 2015 to 2019. This data came from Headboat which had 79 trips that caught snowy grouper. This includes both discard and harvest snowy grouper trips.

Species	Number of Trips
Blueline Tilefish	56
Almaco Jack	51
Mutton Snapper	43
Blackfin Tuna	43
Blackfin Snapper	40
Scamp	40
Queen Snapper	40
Red Grouper	37
Black Grouper	35
Dolphin	35

1.2 Practicability of Management Measures in Directed Fisheries Relative to their Impact on Bycatch and Bycatch Mortality

Expected Impacts on Bycatch for the Subject Amendment Actions

Action 1 would revise the acceptable biological catch (ABC), total annual catch limit (ACL), and annual optimum yield (OY) for snowy grouper. All of the proposed ABCs, ACLs, and OYs would lead to a reduction in harvest of snowy grouper. The Council selected **Alternative 2** as

the preferred alternative, which proposes an ABC, total ACL, and annual OY that are equal to the ABC level recommended by the Council's SSC. Lower ACLs from **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** could also result in earlier closures of snowy grouper for both the commercial and recreational sectors because currently there are in-season accountability measures for both sectors. Early closures could increase regulatory discards. As release mortality for snowy grouper is estimated to be 100% (SEDAR 36 Update), fishing mortality would increase with the increase in regulatory discards. Early closures could result in bycatch of snowy grouper if fishermen target co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) after the closure occurs. However, adverse effects are expected to be relatively minor as discards comprise a relatively minor component of the over total mortality. During the SEDAR 36 Update, total removals were estimated to comprise on average 95.4% landings and 4.6% dead discards. This could indicate that snowy grouper can be effectively targeted, which would make noteworthy increases in bycatch due to fishery closures less likely to occur. Substantial changes in fishing effort or behavior are not expected as a result of this action, thus the proposed ACLs under this action would not be expected to result in any biological effects, positive or negative, on co-occurring species.

Action 2 would revise the sector allocations for snowy grouper and sector ACLs to reflect the updated ABC level recommended by the Council's SSC and chosen by the Council. **Preferred Alternative 2** would allocate a higher percentage to the commercial sector. When considering discards, any sector that receives a lower sector ACL after reallocation could have increased discards as the in-season closure may occur earlier and snowy grouper may be discarded when fishing for co-occurring species, such as blueline tilefish. Under **Preferred Alternative 2** the recreational sector allocation is decreased from the current allocation, therefore increased recreational discards could occur. The opposite would result from **Alternative 3** as the commercial sector allocation would be lower than the current allocation, therefore an increase in commercial discards is possible. Discards are not expected to change under **Alternative 1 (No Action)**. According to the SEDAR 36 Update assessment, snowy grouper discard mortality is 100% for both sectors, therefore no significant difference in discard mortality is expected. In addition, substantial changes in fishing effort or behavior are not expected as a result of this action, thus the proposed sector ACLs under this action would not be expected to result in any biological effects, positive or negative, on co-occurring species.

Action 3 would modify the recreational season for snowy grouper. **Preferred Alternative 2** and **Alternative 3**, when compared with **Alternative 1 (No Action),** could result in more discards. These alternatives would each close two more months, and snowy grouper would need to be returned to the water during the closure if caught when targeting other species such as blueline tilefish. Currently, the snowy grouper recreational season occurs during the same months as the recreational blueline tilefish season, and snowy grouper and blueline tilefish are often caught during the same trip. Snowy grouper discards are not expected to change north of Cape Hatteras North Carolina, as co-occurrence of snowy grouper and blueline tilefish north of Cape Hatteras is not common. The Council is also considering changes to the fishing season for the recreational sector for blueline tilefish. Discards of snowy grouper would likely increase if the blueline tilefish season is four months and the snowy grouper season is shortened.

Golden tilefish is considered another deepwater species where fishermen may have to return snowy grouper to the water when target them. In areas where mud bottom is adjacent to rubble bottom, fishermen may catch golden tilefish with snowy grouper and blueline tilefish. Fishery independent surveys report catches of snowy grouper, blueline tilefish, and golden tilefish on the same gear set when short bottom longline gear went across rubble and mud. An example of these areas are pinnacles in 100 fathoms off South Carolina.

Action 4 would revise the recreational AMs for snowy grouper. The proposed AMs range from implementing an in-season closure to announcing the length of the season. If a recreational fishing season is shortened as a result of a triggered AM, this action could increase regulatory discards in the fishery. However, substantial changes to fishing activity or behavior are not expected; thus, no changes in bycatch are expected for Action 4.

Past, Current, and Future Actions to Prevent Bycatch and Improve Monitoring of Harvest, Discards, and Discard Mortality

Actions taken in the Snapper Grouper FMP related to management of snowy grouper, including actions that could reduce bycatch and bycatch mortality of snowy grouper and other snapper grouper species, are outlined in this amendment. Other past, current, and future actions that could prevent bycatch and/or improve monitoring of harvest, discards, and discard mortality are included below.

Amendment 16 to the Snapper Grouper FMP (SAFMC 2009) required the use of dehooking devices, which could help reduce bycatch mortality of snapper grouper species. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly without removing the fish from the water. If a fish does need to be removed from the water, de-hookers reduce handling time thus increasing survival (Cooke et al. 2001).

Amendment 17A to the Snapper Grouper FMP (SAFMC 2010) required circle hooks for snapper grouper species north of 28 degrees N latitude, which has likely reduced bycatch mortality of some snapper grouper species.

The Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2; SAFMC 2011a) included actions that modified management of special management zones (SMZ) off South Carolina; revised sea turtle release gear requirements for the snapper grouper fishery that were established in Amendment 15B to the Snapper Grouper FMP (SAFMC 2008); and designated new essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern in the South Atlantic. CE-BA 2 also included an action that limited harvest and possession of snapper grouper and coastal migratory pelagic (CMP) species to the bag limit in SMZs off South Carolina. This action likely reduced bycatch around SMZs by restricting commercial harvest in the area, but has probably had limited effect on the magnitude of overall bycatch of snapper grouper species in the South Atlantic.

The Comprehensive ACL Amendment (SAFMC 2011b) implemented ACLs and AMs for species not undergoing overfishing in the FMPs for snapper grouper, dolphin and wahoo, golden crab, and *Sargassum*, in addition to other actions such as allocations and establishing annual

catch targets for the recreational sector. ACLs and AMs have likely reduced bycatch of target species as well as incidentally caught species.

The Council's Headboat Electronic Reporting Amendment (SAFMC 2013) changed the reporting frequency by headboats from monthly to weekly, and required that reports be submitted electronically. The action is expected to provide more timely information on landings and discards. Improved information on landings would help ensure ACLs are not exceeded. Furthermore, more timely and accurate information would be expected to provide a better understanding of the composition and magnitude of catch and bycatch, enhance the quality of data provided for stock assessments, increase the quality of assessment output, and lead to better decisions regarding additional measures to reduce bycatch.

Amendment 36 to the Snapper Grouper FMP (SAFMC 2016) established SMZs and is expected to reduce bycatch of many snapper grouper species, especially speckled hind and Warsaw grouper.

The Council developed a joint For-Hire Reporting Amendment (SAFMC 2017) with the Gulf of Mexico Fishery Management Council that requires all federally permitted charter vessels report landings information weekly to the SEFSC electronically. Additionally, the Councils will also begin development of a joint amendment to require that all federally permitted commercial fishing vessels in the southeast also report their logbook landings information electronically. These actions will help to improve estimates on the composition and magnitude of catch and bycatch of species affected by this amendment, as well as all other federally managed species in the southeast region.

Amendment 42 to the Snapper Grouper FMP (SAFMC 2019b) modified sea turtle release gear regulations for the commercial snapper grouper fishery and modified the snapper grouper framework so the Council may more quickly modify sea turtle and other protected resources release gear and handling requirements in the future.

Regulatory Amendment 29 to the Snapper Grouper FMP (SAFMC 2020) required descending devices be on board all commercial, for-hire, and private recreational vessels while fishing for or possessing snapper grouper species; the use of non-offset, non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear and natural baits north of 28 degrees N latitude; and all hooks be non-stainless steel when fishing for snapper grouper species with hook-and-line gear and natural baits throughout South Atlantic federal waters. The Council has also implemented an extensive outreach and public education program, which along with its citizen science initiative is promoting best fishing practices for all the species it manages.

Regulatory Amendment 31 to the Snapper Grouper FMP (included in the Comprehensive Recreational AMs Amendment) could include actions to revise recreational AMs to allow more flexibility in managing recreational fisheries.

Amendment 46 to the Snapper Grouper FMP proposes actions to focus on private recreational permit and reporting.

These past, current, and potential future actions will help to improve estimates on the composition and magnitude of catch and bycatch of federally managed species in the southeast region and minimize discard mortality. Additional information on fishery related actions from the past, present, and future considerations can be found in Chapter 6 (Cumulative Effects) of the amendment.

2. Ecological Effects Due to Changes in Bycatch

Release mortality rates for the snapper grouper fishery are widely variable from species to species and sector to sector, and are dependent on fishing mode (Table G.2.2.1). For instance, recreational discards of red snapper in the South Atlantic are a main driver in the overfishing determination for that stock (SEDAR 41 2017). However, discard mortality estimates for snapper grouper species are variable and highly uncertain. Generally, release mortality is highly correlated with depth for snapper grouper species, with highest mortality among fish captured in deeper water (Campbell et al. 2014; Pulver 2017; Rudershausen et al. 2014; Stephen and Harris 2010; Wilson and Burns 1996). Snowy grouper are typically captured in deep water so release mortality rates are nearly 100%

Table G.2.2.1. Release mortality rates of select recreationally and commercially important snapper-grouper species from recent stock assessments.

Species	Fishery	Release mortality	Data Source
Black Sea Bass	Recreational	13.7%	SEDAR 56 (2018)
Black Sea Bass	Commercial Trap/Pot (2007- present)	6.8%	SEDAR 56 (2018)
Black Sea Bass	Commercial Vertical Line	19%	SEDAR 56 (2018)
Gag	Recreational	25%	SEDAR 10 Update (2014)
Gag	Commercial	40%	SEDAR 10 Update (2014)
Gray Triggerfish	Recreational & Commercial	12.5%	SEDAR 41 (2016)
Greater Amberjack	Recreational & Commercial	20%	SEDAR 59 (2020)
Red Porgy	Recreational	41%	SEDAR 60 (2020)
Red Porgy	Commercial	53%	SEDAR 60 (2020)
Red Snapper	Recreational - Private	23%	SEDAR 73 (2021)
Red Snapper	Recreational - Charter & Headboat	22%	SEDAR 73 (2021)
Red Snapper	Commercial	32%	SEDAR 73 (2021)
Vermilion snapper	Recreational	38%	SEDAR 55 (2018)
Vermilion snapper	Commercial	41%	SEDAR 55 (2018)
Yellowtail snapper	Recreational	15%	SEDAR 64 (2020)
Yellowtail snapper	Commercial	12.5%	SEDAR 64 (2020)

It is likely that most mortality is a function of hooking and handling of the fish when the hook is being removed and barotrauma. Regulatory Amendment 29 to the Snapper Grouper FMP (SAFMC 2020) required descending devices be on board all commercial, for-hire, and private recreational vessels while fishing for or possessing snapper grouper species; the use of non-offset, non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear and natural baits north of 28 degrees N latitude; and all hooks be non-stainless steel when fishing for snapper grouper species with hook-and-line gear and natural baits throughout South Atlantic federal waters. The Council also implemented an extensive outreach and public education program, which along with its citizen science initiative is promoting best fishing practices for all the species it manages. The goal of these regulations is to reduce discard mortality for snapper grouper species.

The actions contained in this amendment are not expected to result in substantial changes to bycatch in the snapper grouper fishery; thus, ecological effects due to changes in bycatch in this fishery are expected to be negligible. For more details on ecological effects, see Chapters 3 and 4 of this amendment.

3. Changes in the Bycatch of Other Fish Species and Resulting Population and Ecosystem Effects

Amendment 51 is not expected to result in changes in bycatch of other fish species. The snapper grouper fishery is characterized by a high number of discards for all species and sectors (Table G.1.1.1 and G.1.1.3). Both sectors likely target a wide range of species, including dolphin wahoo, snapper grouper, and coastal migratory pelagic species during each trip. This results in a varied amount and type of bycatch of species. However, the actions in this amendment are not expected to alter overall fishing activity or behavior in the fishery; thus, no changes in bycatch of other species are expected.

4. Effects on Marine Mammals and Birds

Marine Mammals

Under Section 118 of the Marine Mammal Protection Act (MMPA), the NMFS must publish, at least annually, a List of Fisheries (LOF) that places all U.S. commercial fisheries into one of three categories based on the level of incidental serious injury and mortality of marine mammals that occurs in each fishery. The longline and hook-and-line gear components of the snapper grouper fishery are determined to have remote likelihood of / no known interactions with marine mammals (Category III, LOF, 87 FR 55348; October 11, 2022).

Sea Birds

The Bermuda petrel and roseate tern occur within the action area. Bermuda petrels are occasionally seen in the waters of the Gulf Stream off the coasts of North Carolina and South Carolina during the summer. Sightings are considered rare and only occurring in low numbers (Alsop 2001). Roseate terns occur widely along the Atlantic coast during the summer but in the southeast region, they are found mainly off the Florida Keys (unpublished US Fish and Wildlife Service data). Interaction with fisheries has not been reported as a concern for either of these species. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the snapper grouper fishery. Thus, the fishery is not likely to adversely affect the Bermuda petrel and the roseate tern.

5. Changes in Fishing, Processing, Disposal, and Marketing Costs

The actions proposed in Amendment 51 are not expected to substantially alter fishing practices, processing, disposal, or marketing costs in the near or short term in relation to bycatch or discards in the snapper grouper fishery. As shown in the analyses in Chapter 4 of the preferred alternatives for actions potentially affecting catch, costs are not expected to change. Similarly in the long term, it is more likely that current fishing, processing, disposal, and marketing costs would be maintained at or near their status quo levels, thus leading to no anticipated changes.

6. Changes in Fishing Practices and Behavior of Fishermen

As discussed above, the actions proposed in Amendment 51 are not expected to change fishing practices or fishing behavior and are likely to have little effect on the overall magnitude of discards. Also, any changes to fishing behavior and subsequent changes in the level of discards or discard mortality that may result from the actions in the amendment are expected to be small and would not jeopardize the sustainability of any target or non-target species.

7. Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

Research

Research and monitoring is ongoing to understand the effectiveness of implemented management measures and their effect on bycatch. The SEFSC is developing electronic logbooks, which could be used to enable fishery managers to obtain information on species composition, size distribution, geographic range, disposition, and depth of fishes that are released. Further, a joint Commercial Logbook Reporting Amendment is being developed by the Council and the Gulf of Mexico Fishery Management Council, which would require electronic reporting of landings information by federally permitted commercial vessels to increase the timeliness and accuracy of landings and discard data. The For-Hire Reporting Amendment should improve timeliness and quality of data for the charter and headboat components of the recreational sector.

Cooperative research projects between science and industry are available each year in the form of grants from Marine Fisheries Initiative, Saltonstall-Kennedy program, and the Cooperative Research Prom. These programs can provide research funds for observer programs, as well as gear testing and testing of electronic devices. A condition of funding for these projects is that data are made available to the Councils and NMFS upon completion of a study.

Administration

The proposed actions are not expected to significantly impact administrative costs.

Enforcement

The proposed actions are not expected to significantly impact enforcement costs.

8. Changes in the Economic, Social, or Cultural Value of Fishing Activities and Non-Consumptive Uses of Fishery Resources

Changes in economic, social, or cultural values are discussed in Chapter 4. None of the actions and alternatives in Amendment 51 are likely to change the current level of bycatch of target or non-target species in the South Atlantic and thus are unlikely to change the social, economic, or cultural value of fishing activities and non-consumptive uses of the snapper grouper fishery.

9. Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from the proposed actions in Amendment 51 are discussed in the economic and social effects analysis in Chapter 4. These effects are discussed in relation to the baseline economic and social conditions of the fishery and fishing communities outlined in Chapter 3 of the document. Additionally, the Regulatory Impact Review (Appendix B) and Regulatory Flexibility Act Analysis (Appendix C) provide additional information on changes in the distribution of benefits and costs. Overall, almost no such alterations would be caused by changes to bycatch resulting from this amendment.

10. Social Effects

The baseline social environment and social effects of the proposed actions are described in Chapters 3 and 4 of Amendment 51, respectively. In general, fishermen become frustrated as waste of the resource due to regulatory bycatch of target and non-target species increases. This often results in a distrust of science in that regulations are intended to protect stocks and rebuild overfished stocks by reducing such bycatch. However, none of the actions and alternatives in Amendment 51 are likely to change the current level of bycatch of target or non-target species in the South Atlantic and thus are unlikely to result in the negative social effects described.

11. Conclusion

This BPA evaluates the practicability of taking additional action to minimize bycatch and bycatch mortality using the ten factors provided at 50 CFR section § 600.350(d)(3)(i). In summary, the proposed actions in Amendment 51 are not likely to significantly contribute or detract from the current level of bycatch in the snapper grouper fishery. The Council, NMFS, and the SEFSC have implemented and plan to implement numerous management measures and reporting requirements that have improved or are likely to improve monitoring efforts of discards and discard mortality.

Appendix H. Fishery Impact Statement

The Magnuson-Stevens Fishery Conservation and Management Act requires a Fishery Impact Statement (FIS) be prepared for all amendments to fishery management plans (FMP). The FIS contains an assessment of the expected and potential biological, economic, and social effects of the conservation and management measures on: 1) fishery participants and their communities; 2) participants in the fisheries conducted in adjacent areas under the authority of another Council; and 3) the safety of human life at sea. Detailed discussion of the expected effects for all proposed changes is provided in Chapters 1 and 2. The FIS provides a summary of these effects.

Actions Contained in Amendment 51 to the FMP for the Snapper Grouper Fishery of the South Atlantic Region (Amendment 51)

Amendment 51 would modify management of South Atlantic snowy grouper. Actions include revising the acceptable biological catch (ABC), annual catch limits (ACL), annual optimum yield (OY), sector allocations, accountability measures (AM), and recreational management measures. The actions and their preferred alternatives are:

- **Action 1**. Revise the acceptable biological catch, annual catch limit and annual optimum yield for snowy grouper
    - **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 snowy grouper and set them equal to the **recommended** acceptable biological catch. The recommended acceptable biological catch is inclusive of recreational estimates from the Marine Recreational Information Program's Fishing Effort Survey.

- **Action 2**. Revise sector allocations and annual catch limits for snowy grouper
    - **Preferred Alternative 2**. Allocate 87.55% of the revised total annual catch limit for snowy grouper to the commercial sector and 12.45% of the revised total annual catch limit for snowy grouper to the recreational sector.

- **Action 3**. Modify the snowy grouper recreational season
    - **Preferred Alternative 2**. Modify the recreational snowy grouper season to begin on May 1 and end on June 30.

- **Action 4**. Revise the snowy grouper recreational accountability measures
    - **Preferred Alternative 3**. Remove the current recreational in-season accountability measures. If recreational landings exceed the recreational annual catch limit, reduce the length of the following year's recreational fishing season by the amount necessary to prevent the recreational annual catch limit from being exceeded in the following year. However, the length of the recreational season

will not be reduced if the Regional Administrator determines, using the best scientific information available, that it is not necessary.

Assessment of Biological Effects

The preferred alternatives for the actions in Amendment 51 are expected to end overfishing of snowy grouper and aid in rebuilding the stock. The preferred alternatives are based on the best scientific information available and are designed to constrain harvest of snowy grouper to the new ACLs, thus would likely have beneficial effects to the snowy grouper stock. Substantial changes in fishing effort or behavior are not expected as a result of this amendment, thus the proposed actions would not be expected to result in any biological effects, positive or negative, on co-occurring species (BPA, Appendix G). The proposed actions would not change fishing methods for snapper grouper species in the U.S. exclusive economic zone, and therefore would perpetuate the existing level of risk for interactions between Endangered Species Act listed species and the fishery. Thus, there is likely to be no additional effects, positive or negative, to protected species from the actions.

Assessment of Economic Effects

In general, total ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised ACL being considered in Action 1 would be constraining on harvest and is projected to reduce landings of snowy grouper and associated net economic benefits for both the commercial and recreational sectors.

In general, sector ACLs that allow for more fish to be landed can result in increased positive economic effects if harvest increases without notable effects on the stock of a species. 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 measure. In the case of snowy grouper, the revised sector allocations and resulting ACLs being considered in Action 2 would be constraining on harvest for both sectors and shifts between sectors would create distributional economic effects by sector. This action would result in comparatively higher potential benefits for the commercial sector and lower potential benefits for the recreational sector. In terms of total estimated net economic benefits for the action, net benefits are expected to decrease.

Generally, prolonged time periods when recreational harvest is allowed can result in increased economic benefits. Allowing the recreational harvest to be open for longer periods of time can help ensure that the ACL is harvested each year and all associated economic benefits from that harvest to recreational anglers are received. Conversely, this also creates unpredictability in season length and when harvest will close if the accountability measure is triggered. If the ACL is not fully harvested during the established season, it can lead to fewer short-term economic benefits, thus there is the potential for Action 3 to result in lower economic benefits.

Action 4 would result in a reduced fishing season if triggered. This AM would limit overall long-term harvest of snowy grouper but could result in economic benefits that mitigate the short-

term cost of the AM itself by allowing more time to adjust to the changing harvest regulations. There would also be no safeguard in place to prevent the total ACL from being exceeded with the removal of an in-season closure. This could result in short-term economic benefits for the recreational sector due to increased harvest and long-term potential economic costs to fishery participants. If a reduced fishing season is implemented in Action 3, these potential economic effects would be largely mitigated.

Assessment of Social Effects

The ACL (Action 1) 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. 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 altogether due to regulatory closures. However, adjustments in an ACL based on updated information are necessary to ensure continuous social benefits over time. Specifically, updated information ensures the sustainability of fishing activities which can stabilize business operations and planning for the future. Generally, the higher the ACL the greater the short-term social benefits that would be expected to accrue if harvest is sustainable.

Revising sector allocations (Action 2) for the recreational and commercial sectors can result in many different social effects as perceptions are formed. Social effects would also depend upon other actions in conjunction with this one. 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. Based on recent commercial and recreational landings, the commercial and recreational ACLs are expected to be met, resulting in triggering of the AMs. Modifications to recreational management measures are anticipated to decrease landings and length the season, but not to the extent that would prevent a recreational closure.

Shortening the recreational season (Action 3) could change the level of access to snowy grouper during periods when they are available and when participation in the snowy grouper portion of the snapper grouper fishery is highest. However, long-term biological benefits of maintaining a healthy stock would contribute to future fishing opportunities for both the commercial and recreational sectors. Social benefits for individual communities highly engaged in the recreational harvest of snowy grouper (Section 3.4) will vary based on when participation in the fishery is the highest in that community.

AMs (Action 4) can have 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. Some of those effects are similar to other thresholds being met and may involve switching to other species or discontinuing fishing altogether. Those restrictions usually translate into reduced opportunity for harvest, which in turn can change fishing behaviors. Those behaviors can increase pressure on other stocks or amplify conflict. Removing the in-season closure would prevent the direct and in-direct negative

social effects associated with restricted harvest during a current season. However, removal of the two triggers for season reduction in subsequent years may result in the fishing season varying significantly from year to year due to changes in fishing behavior or environmental conditions affecting current year harvest. Inconsistent fishing seasons can make it challenging for private anglers and for-hire business to plan their fishing activities through the long-term.

Assessment of Administrative Effects

Amendment 51 is not expected to result in direct impacts to safety at sea.

Appendix I. History of Management

The snapper grouper fishery is highly regulated; some of the species included in this amendment have been regulated since 1983. The following webpage includes a summary of the amendments to the original Snapper Grouper Fishery Management Plan (FMP), as well as some events not covered in amendment actions:

https://safmc.net/fishery-management-plans/snapper-grouper/

Appendix J. Allocation Review Trigger Policy

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

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

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

The Council chose several indicator-based criteria as triggers:

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

The Council chose a time-based trigger to ensure allocation reviews are regularly considered. Each species will have its sector allocations reviewed not less than every seven years. Table 1 shows by species when the next sector allocation review will be considered by the Council should an indicator-based criterion not be triggered. Regardless of whether consideration of an allocation review is triggered by an indicator or time criterion once it occurs the next one will automatically be scheduled for consideration seven years later. For species which are jointly managed with the Gulf of Mexico Fishery Management Council, the timing for consideration of allocation reviews was coordinated with that council.

A public interest-based criterion was not selected because the Council currently receives substantial and regular comment from the public through scoping and public hearing sessions,

general public comment periods held at every Council meeting, the public comment form on the Council's website, and through other more informal channels. Thus, the Council decided the existing Council process provides sufficient opportunity for public input on allocation.

Table J-1. Next year for allocation reviews (as of 2019) for SAFMC managed species.

Assessed Species	**Review Year**
Black grouper	2026
Black sea bass	2023
Blueline Tilefish	2020
Gag	2022
Golden tilefish	2021
Gray Triggerfish	2023
Greater amberjack	2021
GA-NC Hogfish	2023
FLK/EFL Hogfish	2023
Mutton Snapper	2023
Red grouper	2023
Red porgy	2021
Red snapper	2024
Snowy grouper	2021
Vermilion snapper	2021
Wreckfish	2019
Yellowtail Snapper	2021
Atlantic Group KingMackerel	2021
Atlantic Group Spanish Mackerel	2022
Gulf Group Cobia- FL East Coast Zone	2021
Unassessed Species	
Atlantic Spadefish	2022
Bar Jack	2022
Scamp	2022
Speckled hind*	*
Warsaw grouper*	*
DeepwaterComplex	
Yellowedge Grouper	2024
Silk Snapper	2024
Misty Grouper	2024
Sand Tilefish	2024

Queen Snapper	2024
Blackfin Snapper	2024
Jacks Complex	
Almaco Jack	2025
Banded Rudderfish	2025
Lesser Amberjack	2025
Snappers Complex	
Gray Snapper	2025
Lane Snapper	2025
Cubera Snapper	2025
Grunts Complex	
White Grunt	2024
Sailor's Choice	2024
Tomtate	2024
Margate	2024
Shallow-Water Groupers Complex	
Red Hind	2026
Rock Hind	2026
YellowmouthGrouper	2026
Yellowfin Grouper	2026
Coney	2026
Graysby	2026
Porgy Complex	
Jolthead Porgy	2027
Knobbed Porgy	2027
Saucereye Porgy	2027
Scup	2027
Whitebone Porgy	2027
Dolphin/Wahoo	
Dolphin	2019
Wahoo	2019

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

Appendix K. Stock Projections

The SSC recommends using the calculated P* value of 27.5% along with the geometric mean of the recruitment estimates from 2011-2017 to determine the ABC and the same recruitment values at P*=50% for the OFL. The P* value is implemented in 2023 and the projections extend 5 years to coincide with the recommendation of the next operational assessment.

Table K-1. Projection results with fishing mortality rate fixed at F = P*27.5 (F=75.3%F_{MSY}) starting in 2023. R = number of age-1 recruits (in 1000s), F = fishing mortality rate (per year), S = spawning stock (mt), L = removals (landings and discards) expressed in numbers (n, in 1000s) or whole weight (w, in 1000 lb). The extension base indicates expected values (deterministic) from the base run; the extension med indicates median values from the stochastic projections. The pr.rebuild indicates the number of runs above the L_{MSY} benchmark.

year	R.base (1000)	R.med (1000)	F.base	F.med	S.base (mt)	S.med (mt)	L.base (1000)	L.med (1000)	L.base (1000 lb)	L.med (1000 lb)	pr.rebuild
2019	80	86	0.11	0.11	673	707	24	25	210	216	0.176
2020	80	86	0.11	0.11	672	699	24	25	210	216	0.174
2021	80	87	0.11	0.11	671	693	23	24	210	216	0.172
2022	80	85	0.11	0.11	677	693	23	23	210	216	0.172
2023	80	86	0.08	0.08	694	704	15	16	146	148	0.168
2024	80	86	0.08	0.08	719	717	15	16	149	150	0.157
2025	80	86	0.08	0.08	737	720	15	16	152	152	0.147
2026	80	86	0.08	0.08	749	715	15	16	153	152	0.135

Table K-2. Projection results with fishing mortality rate fixed at F = P*50 (F=F_{MSY}) starting in 2023. R = number of age-1 recruits (in 1000s), F = fishing mortality rate (per year), S = spawning stock (mt), L = removals (landings and dead discards) expressed in numbers (n, in 1000s) or whole weight (w, in 1000 lb). The extension base indicates expected values (deterministic) from the base run; the extension med indicates median values from the stochastic projections. The pr.rebuild indicates the number of runs above the L_{MSY} benchmark.

year	R.base (1000)	R.med (1000)	F.base	F.med	S.base (mt)	S.med (mt)	L.base (1000)	L.med (1000)	L.base (1000 lb)	L.med (1000 lb)	pr.rebuild
2019	80	86	0.11	0.11	673	707	24	25	210	216	0.176
2020	80	86	0.11	0.11	672	699	24	25	210	216	0.174
2021	80	87	0.11	0.11	671	693	23	24	210	216	0.172
2022	80	85	0.11	0.11	677	693	23	23	210	216	0.172
2023	80	86	0.10	0.10	686	696	20	21	192	194	0.160
2024	80	86	0.10	0.10	694	689	20	20	191	193	0.143
2025	80	86	0.10	0.10	696	672	20	20	191	192	0.120
2026	80	86	0.1	0.1	692	653	19	20	189	188	0.093

Table K-3. Projection results with fishing mortality rate fixed at F = Frebuild starting in 2023 and providing a 50% probability of rebuilding. F = fishing mortality rate (per year), pr.rebuild = proportion of stochastic projection replicates with SSB ≥ SSBMSY, S = spawning stock (mt) at peak spawning time, Rm = total removals (landings and dead discards) expressed in numbers (1000s) or whole weight (lb). Total removals presented here would need reduction if values are used to develop quotas based only on landings; recent data suggest that ~ 95.4% of total removals are landings (the remainder being dead discards). The extension base indicates expected values (deterministic) from the base run; the extension med indicates median values from the stochastic projections.

Year	pr.rebuild	F.base	F.med	S.base(mt)	S.med(mt)	Rm.base(1000)	Rm.med(1000)	Rm.base(1000 lbs)	Rm.med(1000 lbs)
2019	0.177	0.11	0.10	672	711	25	24	210	210
2020	0.174	0.10	0.10	673	709	27	26	210	210
2021	0.18	0.10	0.09	690	722	28	27	210	210
2022	0.192	0.09	0.09	728	762	28	28	210	210
2023	0.209	0.08	0.08	790	821	26	27	196	205
2024	0.23	0.08	0.08	869	894	28	28	213	220
2025	0.253	0.08	0.08	955	968	30	30	231	236
2026	0.275	0.08	0.08	1043	1042	31	31	249	250
2027	0.296	0.08	0.08	1130	1112	33	33	266	264
2028	0.316	0.08	0.08	1214	1179	34	34	282	277
2029	0.335	0.08	0.08	1296	1242	36	35	298	289
2030	0.356	0.08	0.08	1376	1304	37	36	313	301
2031	0.375	0.08	0.08	1453	1364	38	37	327	313
2032	0.394	0.08	0.08	1528	1421	39	38	341	325
2033	0.41	0.08	0.08	1599	1479	40	39	355	336
2034	0.427	0.08	0.08	1667	1535	41	40	367	347
2035	0.444	0.08	0.08	1732	1590	42	41	379	357
2036	0.46	0.08	0.08	1794	1640	43	42	390	367
2037	0.475	0.08	0.08	1852	1693	43	43	401	378
2038	0.488	0.08	0.08	1906	1745	44	43	411	387
2039	0.504	0.08	0.08	1957	1793	45	44	420	396