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Amendment 50
to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Catch Level Adjustments, Rebuilding Schedule, and Allocations for Red Porgy

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

August 2021

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Award Number FNA15NMF4410010

DRAFT DOCUMENT

Amendment 50
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 50 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 red porgy. Actions would establish a rebuilding plan, revise annual catch limits (ACL), sector allocations, accountability measures (AM), and management measures for the commercial and recreational sectors.

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This Environmental Assessment (EA) is being prepared using the 2020 CEQ NEPA Regulations. The effective date of the 2020 CEQ NEPA Regulations was September 14, 2020, and reviews begun after this date are required to apply the 2020 regulations unless there is a clear and fundamental conflict with an applicable statute. 85 Fed. Reg. at 43372-73 (§§ 1506.13, 1507.3(a)). This EA began on [DATE] and accordingly proceeds under the 2020 regulations.

Table of Contents

List of Appendices

List of Tables

List of Figures

Summary

Why is the South Atlantic Fishery Management Council considering action?

The latest stock assessment (SEDAR 60 2020) indicated the red porgy stock is undergoing overfishing and remains overfished. Management action is needed because the red porgy stock did not rebuild by the end of 2017 under the previous rebuilding plan. The South Atlantic Fishery Management Council (Council) has two years from when it receives notification from the National Marine Fisheries Service (NMFS), to implement a new rebuilding plan. The plan must be implemented by June 2022. The Council's Scientific and Statistical Committee (SSC) has recommended a new acceptable biological catch (ABC) based on results of the stock assessment and the total annual catch limit (ACL) and annual optimum yield (OY) must be adjusted accordingly. The Council cannot set the total ACL above their SSC's recommended ABC. In addition, sector allocations need to be revised because of revisions to the Marine Recreational Information Program (MRIP) to adopt the new Fishing Effort Survey (FES) methodology, and management measures 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 establish a rebuilding plan, set an acceptable biological catch, sector allocations and annual catch limits for South Atlantic Red Porgy 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 Red Porgy, 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 50 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region proposes six actions (one of which contains two sub-actions). Below are the Council's preferred alternatives for each action/sub-action.

Action 1: Establish a rebuilding plan for red porgy

Purpose of Action: The latest stock assessment (SEDAR 60 2020) indicated the stock is undergoing overfishing and remains overfished. Action is needed because the red porgy stock did not rebuild by the end of 2017 under the previous rebuilding plan. The Council has two years from when it receives notification from the NMFS to implement a new rebuilding plan. The plan must be implemented by June 2022.

Preferred Alternative 5: Establish the rebuilding plan to equal the time estimated to rebuild the stock with a 50% probability of success while maintaining fishing mortality at 75% of the Maximum Fishing Mortality Threshold (MFMT) during the rebuilding period. For red porgy, 75%MFMT = 75%F_{msy}. This would equal 26 years with the stock reaching a 50% probability of rebuilding success in 2047. 2022 would be Year 1.

Action 2: Revise the Red Porgy total annual catch limit and annual optimum yield

Purpose of Action: The SSC recommended a new ABC based on results of SEDAR 60 (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 total ACL and annual OY for red porgy and set equal to the updated ABC based on the results of the latest stock assessment (SEDAR 60 2020). The 2026 total ACL and annual OY would remain in place until modified.

Year	Total ACL (lbs ww)
2022	75,000
2023	81,000
2024	87,000
2025	91,000
2026+	95,000

Action 3: Revise the Red Porgy sector allocations and sector annual catch limits

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

Preferred Alternative 2: Apply the current allocation formula: Annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5) to the revised total annual catch limit. This would result in a commercial allocation of 51.43% and a recreational allocation of 48.57% using revised recreational landings estimates from the Fishing Effort Survey.

Year	Commercial ACL (lbs ww)			Recreational ACL (lbs ww)
	Total	Season 1 quota	Season 2 quota	
2022	38,573	11,572	27,001	36,428
2023	41,658	12,497	29,161	39,342

2024	44,744	13,423	31,321	42,256
2025	46,801	14,040	32,761	44,199
2026	48,859	14,658	34,201	46,142

Note: The commercial ACL is split into two seasons with 30% allocated to season 1 (January through April) and 70% allocated to season 2 (May through December). The commercial split of the ACL was implemented through Regulatory Amendment 27 to the Snapper Grouper FMP (SAFMC 2019a) and became effective on February 26, 2020.

Action 4: Modify Red Porgy commercial trip limits

Purpose of Action: Because the red porgy 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 commercial ACL. The Council has only considered modifying the commercial trip limit is and is not considering modifications to other commercial management measures.

Preferred Sub-alternatives 2a and 3a (combined):
Reduce the commercial trip limit for red porgy to 15 fish per trip in both seasons.

Action 5: Modify Red Porgy recreational management measures

Sub-Action 5a. Bag limit

Purpose of Action: A reduction in the recreational bag limit is being considered to address overfishing and constrain recreational harvest to the proposed recreational ACL. The Council also considered vessel limits for the private and charter modes and the headboat mode independently of each other and in combination. The Council opted to remove consideration of vessel limits at their June 2021 meeting.

Preferred Sub-alternative 2a: Reduce the recreational bag limit for red porgy to 1 fish per person per day, or 1 fish per person per trip, whichever is more restrictive.

Sub-Action 5b. Recreational fishing season

Purpose of Action: To constrain recreational harvest to the proposed recreational ACL and avoid an in-season closure for that sector, the Council is considering establishing a recreational fishing season for red porgy in the South Atlantic.

Preferred Alternatives 3 and 4 (combined): Establish a recreational fishing season for red porgy; harvest would be allowed during May through August.

Action 6: Modify Red Porgy 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.

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

Chapter 1. Introduction

1.1 What actions are being proposed in this plan amendment?

The actions in Amendment 50 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 red porgy. Actions include establishing a rebuilding plan, revising annual catch limits (ACL), sector allocations, accountability measures (AM), and management measures for the commercial and recreational sectors.

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 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.

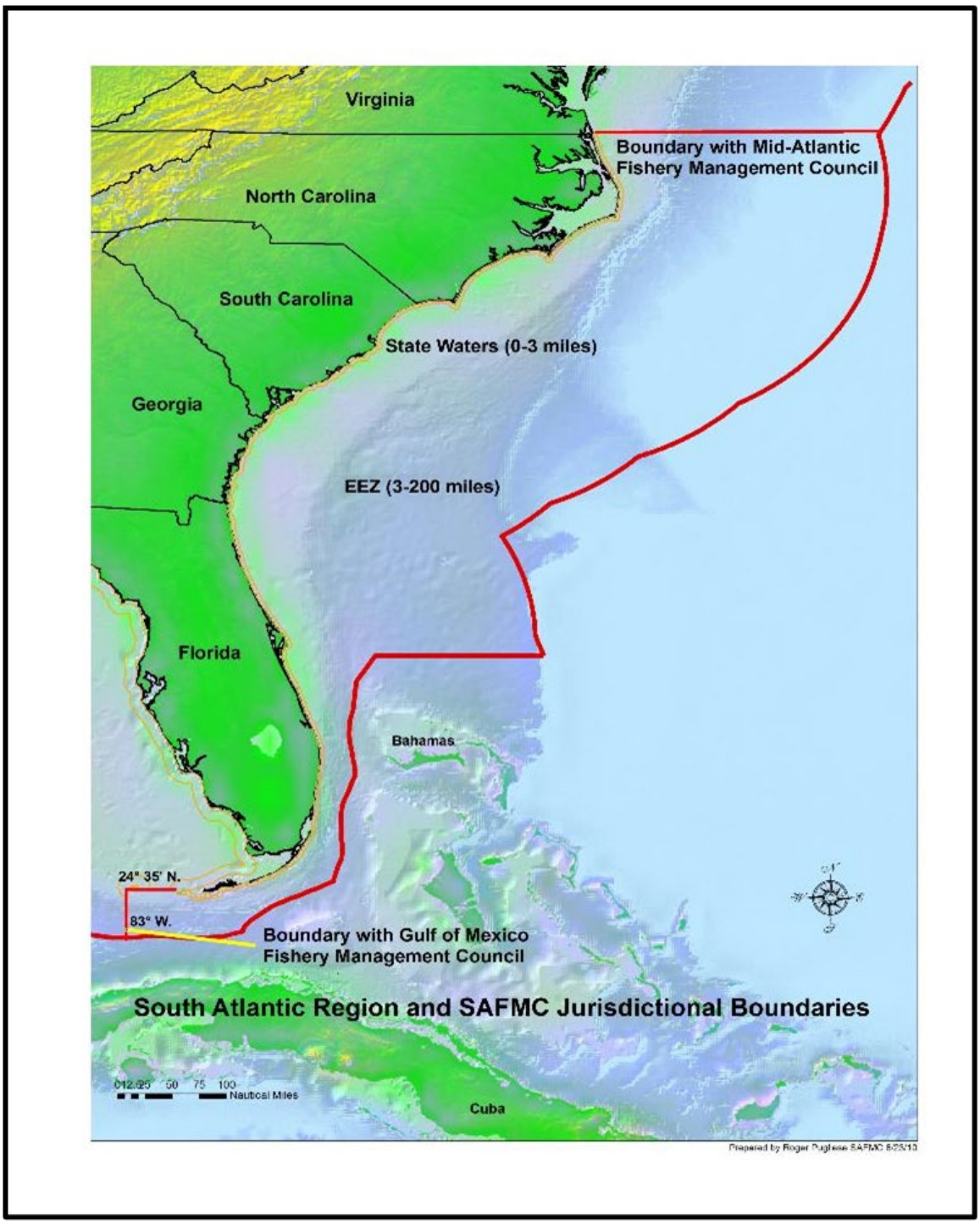

Figure 1.3.1. Jurisdictional boundaries of the Council.

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

Purpose: The *purpose* of this fishery management plan amendment is to establish a rebuilding plan, set an acceptable biological catch, sector allocations and annual catch limits for South Atlantic red porgy 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 red porgy, 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 red porgy (SEDAR 60 2020). The assessment followed a standard approach with data through 2017 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 landings while the updated ABC would be inclusive of Fishing Effort Survey (FES) units for these landings. The findings of the assessment indicated that the South Atlantic red porgy stock is overfished and undergoing overfishing. The Council received notification from NMFS (via letter dated June 12, 2020) of the status of the red porgy stock and indicated management has not made adequate progress in rebuilding the population. 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 red porgy?

The Council's Scientific and Statistical Committee (SSC) reviewed the red porgy stock assessment (SEDAR 60 2020) at their April 2020 meeting. 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 recommended revising the overfishing limit (OFL) based on projections under a fishing mortality rate that would produce maximum sustainable yield (MSY; $F = F_{msy}$) and recommended the $F = 75\% F_{msy}$ scenario be used to set the acceptable biological catch (ABC) for red porgy. Both sets of projections used average recruitment from the last three assessment years instead of long-term recruitment. The findings of SEDAR 60 indicated average recruitment showed a declining trend throughout the time series and has been below the recruitment levels corresponding to MSY for most of the past three decades.

The SSC had a difficult time applying the ABC control rule because red porgy has made little to no progress towards rebuilding given low recruitment in recent years. The projections indicate the ABCs will have only a very minor impact on stock rebuilding. If recruitment continues to be low, the productivity of the stock and the benchmark reference points will need to be reevaluated. The SSC provided OFL and ABC recommendations for 2022 through 2026 (Table 1.5.1). The Council decided at the June 2021 meeting to set the total ACLs in pounds gutted weight (lbs gw) instead of pounds whole weight (lbs ww) because red porgy are predominantly landed in gutted condition. The converted ACLs are presented in Action 2.

Table 1.5.1. South Atlantic red porgy OFL and ABC recommendations (in pounds and numbers of fish) based on management starting in 2022 (SEFSC, September 2020). NOTE: Catch levels in numbers of fish were included in the SSC's recommendations; hence, they are provided here for completeness.

OFL Recommendations		
Year	**Landings (lbs ww)**	**Numbers of Fish**
2022	97,000	62,000
2023	102,000	65,000
2024	107,000	67,000
2025	110,000	69,000
2026	113,000	71,000
ABC Recommendations		
Year	**Landings (lbs ww)**	**Numbers of Fish**
2022	75,000	47,000
2023	81,000	51,000
2024	87,000	54,000
2025	91,000	57,000
2026	95,000	59,000

1.6 What is the history of management for the red porgy 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 red porgy 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 4 (1991)
The amendment prohibited the use of various gear, including fish traps, the use of bottom longlines for wreckfish, and powerheads in special management zones off South Carolina; defined overfishing/overfished and established rebuilding timeframe: red porgy ≤ 10 years (year 1 = 1991); established bag limits and minimum size limits for several species (12-inch TL minimum size limit for red porgy); required permits (commercial and for-hire) and specified data collection regulations; and required that all snapper grouper species possessed in the South Atlantic EEZ must have heads and fins intact through landing.

Amendment 9 (1998)
The amendment established a 14-inch TL (recreational and commercial) minimum size limit, 5 fish recreational bag limit, and no purchase or sale in March and April for red porgy.

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

Interim Rule for Red Porgy (1999)
This emergency interim rule prohibited harvest of red porgy from September 8, 1999 to August 28, 2000.

Amendment 12 (2000)
The amendment established a rebuilding plan (18 years, 1999=year1), modified the MSY, OY, MFMT, and MSST values, implemented a 1-fish recreational bag limit and 50 lb commercial trip limit May through December, and prohibited sale during January through April for red Porgy.

Amendment 13C (2006)
The amendment increased the commercial trip limit to 120 fish during May through December and increased the recreational bag limit to three red porgy per person per day.

Amendment 15A (2008)
The amendment established a new rebuilding plan and status determination criteria for red porgy.

Amendment 15B (2008)
The amendment established sector allocations for red porgy (50% commercial and 50% recreational).

Regulatory Amendment 18 (2012)
The amendment revised ACLs and OY for red porgy.

Regulatory Amendment 21 (2014)
The amendment modified the definition of the overfished threshold (MSST) for red porgy.

Amendment 34/Generic AM Amendment (2015)

The amendment modified AMs for red porgy.

Regulatory Amendment 27 (2019)
The amendment established split seasons for the commercial sector for red porgy, allocated the commercial ACL 30/70 between the two seasons and established a trip limit in season 1.

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Establish a rebuilding plan for red porgy

2.1.1 Alternatives

Alternative 1 (No Action). The South Atlantic red porgy stock is overfished and undergoing overfishing. The red porgy stock in the South Atlantic was under an 18-year rebuilding plan that was expected to rebuild the stock by the end of 2017. Red porgy did not rebuild by the end of 2017.

Alternative 2. Establish a rebuilding plan to equal the shortest possible time to rebuild in the absence of fishing mortality (T_{min}). This would equal 11 years with the rebuilding period ending in 2032. 2022 would be Year 1.

Alternative 3. Establish a rebuilding plan to equal T_{min} + one generation. This would equal 18 years with the rebuilding period ending in 2040. 2022 would be Year 1.

Alternative 4. Establish a rebuilding plan to equal T_{min} times two. This would equal 22 years with the rebuilding period ending in 2044. 2022 would be Year 1.

Preferred Alternative 5. Establish a rebuilding plan to equal the time estimated to rebuild the stock with a 50% probability of success while maintaining fishing mortality at 75% of the Maximum Fishing Mortality Threshold (MFMT) during the rebuilding period. For red porgy, 75%MFMT = 75%F_{msy}. This would equal 26 years with the stock reaching a 50% probability of rebuilding success in 2047. 2022 would be Year 1.

Discussion:

Alternative 1 (No Action) is not a viable alternative as the red porgy stock remains overfished and the stock did not rebuild under the previous rebuilding plan that ended in 2017; hence, a new rebuilding plan must be put in place. **Alternative 2** through **Preferred Alternative 5** present different rebuilding timeframes based on guidance in the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) National Standards. **Alternative 2** corresponds to the minimum amount of time needed to rebuild (T_{min}) in the absence of fishing mortality (no allowable catch and zero discards). Hence, under **Alternative 2**, the red porgy annual catch limit (ACL) would need to be set equal to zero. Because reducing discards to zero is unlikely since red porgy are caught incidentally when fishermen target vermilion snapper and gray triggerfish, it can be expected that under this scenario rebuilding would take longer than the predicted 11 years. However, under this scenario, a 51.4% probability of rebuilding is predicted to be achieved in 2032. This projection assumed current fishing mortality from 2018 through 2021.

Alternative 3 proposes a rebuilding timeframe of 18 years based on the time it would take to rebuild under the T_{min} scenario (11 years) plus one generation. Generation time is the length of time between when an individual is born and the birth of its offspring. The generation time for

red porgy is approximately 7 years (N. Klibanski, SEFSC 2020). The rebuilding timeframe under **Alternative 4** is equal to 22 years: the time it would take to rebuild under the T_{min} scenario (11 years) times two.

Predicted catch levels under the rebuilding timeframes corresponding to **Alternatives 3** and **4** were not generated since they would be above the South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee's (SSC) recommended acceptable biological catch (ABC).

Preferred Alternative 5 is based on the maximum time allowed for rebuilding (T_{max}) and would equal 26 years. Catch levels under this scenario also exceed the current recommendation for ABC. Therefore, it can be expected that rebuilding would happen sooner than predicted under this rebuilding scenario. Under this scenario, a 51.1% probability of rebuilding success would be achieved in 2047. This projection assumed current fishing mortality from 2018 through 2021.

2.1.2 Comparison of Alternatives:

In general, prescribing less time to rebuild the stock could result in lower ACLs and more restrictive management measures, but would translate into greater biological benefits for the stock in a shorter timeframe. The rebuilding timeframe under **Alternative 2** is projected to rebuild the red porgy stock in the least amount of time; therefore, it can be expected that future biological benefits may accrue soonest, followed by **Alternative 3**, **Alternative 4**, and **Preferred Alternative 5**.

Alternative 1 (No Action) would incur the lowest implied economic benefits, as there would be no rebuilding timeframe which presumably would not aid in the red porgy stock rebuilding. This alternative is not viable as it does not comply with the Magnuson-Stevens Act to set a rebuilding timeframe for a species that is determined to be overfished. **Alternative 2** would provide the shortest viable rebuilding period of 11 years, which would be accompanied but the highest implied long term economic benefits. **Preferred Alternative 5** would provide the longest rebuilding period of 26 years; hence, it has the lowest implied economic benefits amongst the viable alternatives. The economic effects for **Alternative 3** (18 years) and **Alternative 4** (22 years) would fall between those of **Alternative 2** and **Preferred Alternative 5**. In summary, it can be expected that implied economic benefits would be highest under **Alternative 2**, followed by **Alternative 3**, **Alternative 4**, **Preferred Alternative 5**, and **Alternative 1 (No Action)**, which is not a viable alternative.

Long-term social benefits would be experienced soonest under **Alternative 2**, followed by **Alternative 3**, **Alternative 4**, **Preferred Alternative 5**, and **Alternative 1 (No Action)**. Alternatively, fewer short-term negative effects on fishing communities would be seen under **Alternative 1 (No Action)**, followed by **Preferred Alternative 5**, **Alternative 4**, **Alternative 3**, and **Alternative 2**.

The shorter the amount of time required to rebuild the stock would likely require more restrictive harvest regulations. **Alternative 1 (No Action)**, which would not establish a rebuilding timeframe, would require subsequent additional management action to adopt a legally compliant

rebuilding timeframe. Therefore, it would have the greatest imposed administrative burden on NMFS. Among the action alternatives, **Alternatives 2** through **Preferred Alternative 5**, would also likely impact the administrative environment for NMFS in the form of developing, implementing, and monitoring more restrictive harvest regulations for red porgy, in addition to annually reviewing rebuilding progress.

2.2 Action 2. Revise the red porgy total annual catch limit and annual optimum yield

2.2.1 Alternatives

Alternative 1 (No Action). The total annual catch limit and annual optimum yield for red porgy are equal to the current acceptable biological catch (328,000 pounds whole weight/315,384 pounds gutted weight).

Preferred Alternative 2. Revise the total annual catch limit and annual optimum yield for red porgy and set equal to the updated acceptable biological catch. The 2026 total annual catch limit and annual optimum yield would remain in place until modified.

Year	Total ACL (lbs ww)	Total ACL (lbs gw)
2022	75,000	72,115
2023	81,000	77,885
2024	87,000	83,654
2025	91,000	87,500
2026+	95,000	91,346

Alternative 3. Revise the total annual catch limit and annual optimum yield for red porgy and set equal to 90% of the updated acceptable biological catch. The 2026 total annual catch limit and annual optimum yield would remain in place until modified.

Year	Total ACL (lbs ww)	Total ACL (lbs gw)
2022	67,500	64,904
2023	72,900	70,096
2024	78,300	75,288
2025	81,900	78,750
2026+	85,500	82,212

Alternative 4. Revise the total annual catch limit and annual optimum yield for red porgy and set equal to 80% of the updated acceptable biological catch. The 2026 total annual catch limit and annual optimum yield would remain in place until modified.

Year	Total ACL (lbs ww)	Total ACL (lbs gw)
2022	60,000	57,692
2023	64,800	62,308
2024	69,600	66,923
2025	72,800	70,000
2026+	76,000	73,077

Discussion:
The updated ABC recommendations are based on the results of the SEDAR 60 2020 red porgy stock assessment (Section 1.5).

Per the guidance provided at 50 CFR § 600.310(f)(4)(iv), the Council has chosen to specify optimum yield (OY) for red porgy on an annual basis and set it equal to the ACL.

Alternative 1 (No Action) would retain the current total ACL and annual OY implemented through Regulatory Amendment 18 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2013). **Preferred Alternative 2** is based on the SSC's ABC recommendation and would implement ABC=ACL. **Alternatives 3** and **4** would add a 10% and 20% buffer, respectively, between the total ACL and the ABCs.

2.2.2 Comparison of Alternatives:

Alternative 1 (No Action) would no longer be based on the best scientific information available (BSIA) and, therefore, is not a viable alternative for consideration in this 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 red porgy stock. **Preferred Alternative 2** would result in the least biological benefit to the red porgy 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.

Reducing the total ACL under **Preferred Alternative 2** through **Alternative 4** would result in smaller sector ACLs for the commercial and recreational sectors. 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 by **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**.

In general, a higher ACL would lower the chance of triggering an AM and result in the lowest level of negative effects on fishing communities. Among the action alternatives, **Preferred Alternative 2** would be the most beneficial for fishermen, followed by **Alternative 3**, and **Alternative 4**. As stated above, **Alternative 1 (No Action)** is not a viable alternative because it is not based on BSIA.

Reducing the total ACL and annual OY for red porgy through **Preferred Alternative 2** through **Alternative 4** would not have effects on the administrative environment, outside of the requisite public notices.

2.3 Action 3. Revise the red porgy sector allocations and sector annual catch limits

2.3.1 Alternatives

Note: The revised total annual catch limit in Alternative 1 (No Action) through Alternative 3 reflects Preferred Alternative 2 in Action 2. The revised total annual catch limit includes recreational landings from the Marine Recreational Information Program using the Fishery Effort Survey method used in the latest assessment (SEDAR 60 2020) (add additional information on updated commercial and headboat landings, etc. as appropriate).

Alternative 1 (No Action). Retain the current commercial and recreational sector allocations as applied to the **revised total annual catch limit** for red porgy. The red porgy total annual catch limit is allocated 50% to the commercial sector and 50% to the recreational sector. An equal allocation was selected because it was closest to status quo at the time (2001-2003 landings were 51% recreational and 49% commercial). The commercial annual catch limit is split into two seasons with 30% allocated to season 1 (January through April) and 70% allocated to season 2 (May through December).

Year	Commercial ACL (lbs gw)			Recreational ACL (lbs gw)
	Total	Season 1 quota	Season 2 quota	
2022	36,058	10,817	25,240	36,058
2023	38,942	11,683	27,260	38,942
2024	41,827	12,548	29,279	41,827
2025	43,750	13,125	30,625	43,750
2026+	45,673	13,702	31,971	45,673

Preferred Alternative 2. Allocate 51.43% of the red porgy total annual catch limit to the commercial sector and 48.57% to the recreational sector. This allocation is based on the allocation formula: Annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5) applied to the revised total annual catch limit that includes recreational landings from the Marine Recreational Information Program using the Fishing Effort Survey method.

Year	Commercial ACL (lbs gw)			Recreational ACL (lbs gw)
	Total	Season 1 quota	Season 2 quota	
2022	37,089	11,127	25,962	35,026
2023	40,056	12,017	28,039	37,829
2024	43,023	12,907	30,116	40,631
2025	45,001	13,500	31,501	42,499
2026+	46,979	14,094	32,886	44,367

Discussion:

Allocations need to be reviewed since the recreational landings stream changed in the new assessment. Landings estimates now conform to the new Fishing Effort Survey.

The current sector allocations for red porgy were implemented through Amendment 15B to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP; SAFMC 2009). In Amendment 15B, the Council selected an equal allocation because it was closest to status quo at the time (2001-2003 landings were 51% recreational and 49% commercial). The Council discussed having to adjust the total allowable catch if the commercial sector was allocated greater than 50% due to higher commercial discard mortality. Updated discard mortality estimates used in SEDAR 60 are discussed in Appendix G (Bycatch Practicability Analysis).

The sector allocations proposed under **Preferred Alternative 2** result from applying the allocation formula adopted through the Comprehensive ACL Amendment (SAFMC 2011) for unassessed snapper grouper species: Annual catch limit = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5). The same formula has also been used to allocate the total ACL for some assessed species (i.e., golden tilefish). This formula was not used in Amendment 15B to establish the current red porgy sector allocations

It is difficult to use landings from recent years to determine sector allocations because the current allocations and management actions have affected those landings. Since closures likely disrupt how the fishery would otherwise operate, and closures might occur for one sector and not the other, there would be some biases in the landings data and ultimately the allocations too. Also note that there was an economic downturn in 2009 that had significant impacts on the fishing community, both commercial and recreational. Using data from the years where the economy was performing poorly could also introduce biases in the data, further misaligning allocations for the red porgy fishery into the future. The time series used in the allocation formula (Preferred Alternative 2) was selected by the Council in 2011 with these issues in mind.

2.3.2 Comparison of Alternatives:

Biological effects are not expected to be substantially different between **Alternative 1 (No Action)** and **Preferred Alternative 2**, since the allocation percentages would be similar and do not affect the total ACL specified in Action 2. **Preferred Alternative 2** would allocate a slightly higher percentage to the commercial sector. Because the commercial sector tends to harvest red porgy from deeper water than the recreational sector, it is possible that a higher allocation to the commercial sector could increase overall discard mortality. Therefore, **Preferred Alternative 2** could incur negative biological effects on the red porgy stock relative to **Alternative 1 (No Action)**. However, the commercial sector has effective in-season and post-season AMs in place to prevent the commercial ACL from being exceeded.

Under **Alternative 1 (No Action)**, sector allocations would remain at 50 percent of the total ACL for each sector. This allocation results in a reduction in total economic benefits being derived to both the commercial and recreational sectors under the new ACLs, but no change in net economic benefits. The economic effects of changes in the sector allocations on a pound basis under this alternative are addressed in Preferred Alternative 2 of Action 1. Under **Preferred Alternative 2**, the commercial sector would receive an additional 1,072 lbs ww of red porgy, while the recreational sector would receive 1,072 lbs ww less. The economic effects of this alternative would depend on the year examined, but in the first year that the new total ACL

is implemented (2022), the expected change in net economic benefits is a reduction in net benefits to the recreational sector of $7,257, an increase in net benefits to the commercial sector of $1,044 and a reduction in total net benefits of $6,213.

Alternative 1 (No Action) would maintain the current sector allocation percentages and may have few social effects as both sectors would have an equal ACL. With **Preferred Alternative 2**, there would be a slight decrease in the recreational allocation compared to **Alternative 1 (No Action)**, which could have some negative social effects if recreational fishermen have a negative perception of this change due to the slight decrease in fishing opportunity and concerns about long-term social effects, especially if future actions further decreased harvest opportunities. Both the commercial and recreational sectors are projected to experience closures under **Preferred Alternative 2**, even considering proposed actions that aim to reduce harvest (Action 4 and Sub-Actions 5a and 5b). While closures are likely to result in short-term negative social effects to fishing communities associated with decreased access to the resource, ending overfishing and slowing the rate of harvest is expected to contribute to rebuilding goals for red porgy which would be expected to contribute to the sustainability of harvest and the health of the red porgy stock and provide for long-term social benefits.

Administrative effects would not vary between **Alternative 1 (No Action)** and **Preferred Alternative 2** because the sector allocations are essentially the same and an in-season closure is predicted for both sectors.

2.4 Action 4. Modify the red porgy commercial management measures

2.4.1 Alternatives

Alternative 1 (No Action). The commercial trip limit for red porgy in the South Atlantic exclusive economic zone is 60 fish from January 1 through April 30 and 120 fish from May 1 through December 31.

Preferred Alternative 2. Reduce the commercial trip limit for red porgy from January 1 through April 30 to:

Preferred Sub-alternative 2a. 15 fish per trip.
Sub-alternative 2b. 20 fish per trip.
Sub-alternative 2c. 30 fish per trip.
Sub-alternative 2d. 45 fish per trip.

Preferred Alternative 3. Reduce the commercial trip limit for red porgy from May 1 through December 31 to:

Preferred Sub-alternative 3a. 15 fish per trip.
Sub-alternative 3b. 20 fish per trip.
Sub-alternative 3c. 30 fish per trip.
Sub-alternative 3d. 45 fish per trip.
Sub-alternative 3e. 60 fish per trip.

Discussion:
Regulatory Amendment 27 to the FMP (SAFMC 2019a), effective February 26, 2020, established the red porgy split season and modified the commercial trip limits. The amendment removed the January to April spawning season closure and allowed harvest during those months for the first time since 1999. The amendment established a 60 fish trip limit from January through April. This action was intended to reduce discarding in the commercial fishery during the early part of the fishing year and essentially create a "bycatch allowance" so commercial fishermen could retain small numbers of red porgy during January through April. The 120 fish trip limit was retained for the second commercial season (June through December).

Because the proposed commercial ACL is lower than the current ACL (Action 3) and red porgy are undergoing overfishing (SEDAR 60 2020), the Council is considering a reduction to commercial trip limit. The sub-alternatives under **Preferred Alternative 2** would reduce trip limits during the first annual commercial season (January through April) whereas those under **Preferred Alternative 3** propose various trip limits for the second commercial season. Thus, the Council has the flexibility to modify the trip limit for one of the seasons or for both.

2.4.2 Comparison of Alternatives:

The biological effects of **Preferred Alternatives 2** and **3**, and their respective sub-alternatives, would not differ from **Alternative 1 (No Action)** in terms of risk of overfishing as overall harvest would be limited to the commercial ACL and split-season quotas, and AMs would be

triggered if the ACL was reached. Reducing commercial trip limits in combination with a reduction in the commercial ACL under Action 3 could extend the length of the respective commercial fishing seasons relative to **Alternative 1 (No Action)**. **Sub-alternatives 2c** and **3c** would impart the highest biological benefit to the stock among the alternatives and sub-alternatives considered relative to **Alternative 1 (No Action)**.

Since the revised commercial sector ACL for red porgy is expected to be fully harvested regardless of the alternative or sub-alternative chosen, the total net economic effects are expected to be similar amongst the alternatives. In terms of potential net economic benefits **Alternative 1 (No Action)** would allow for the most benefits followed by **Sub-alternative 3e**, **3d** and **2d**, **3c** and **2c**, **3b** and **2b**, and **Preferred Sub-alternatives 3a** and **2a**.

Social effects depend on how commercial fishing communities are affected by a lower trip limit and a longer season or a higher trip limit and a shorter season and the likelihood of commercial harvest being open during times of the year when it is profitable to target red porgy. The majority of trips landing red porgy harvested less than 30 fish during a trip (see Section 4.4.1). **Sub-alternatives 2c** and **3c** propose a trip limit of 30 fish during both fishing seasons. While those low trip limits result in shorter fishing seasons, matching the trip limit to what fishermen are already catching on an average trip may reduce the negative social effects associated with a lower trip limit. In terms of potential social benefits **Alternative 1 (No Action)** would allow for the most benefits followed by **Sub-alternative 3e**, **3d** and **2d**, **3c** and **2c**, **3b** and **2b**, and **Preferred Sub-alternatives 3a** and **2a**.

Alternative 1 (No Action), and **Preferred Alternative 2** and **3** would not substantially change the administrative environment from its current state. The probability of an in-season closure increases with increasing trip limits; therefore, **Alternative 1 (No Action)** would impose the most administrative burden, followed by combinations of **Sub-alternatives 2d**, **2c**, **2b** and **3e**, **3d**, **3c**, and **3b**. **Preferred Sub-alternatives 2a** and **3a** would impose the least administrative burden of the proposed alternatives.

2.5 Action 5. Modify the red porgy recreational management measures

2.5.1 Sub-Action 5a. Bag limit

2.5.1.1 Alternatives

Alternative 1 (No Action). The recreational bag limit for red porgy in the South Atlantic exclusive economic zone is 3 per person per day, or 3 per person per trip, whichever is more restrictive.

Preferred Alternative 2. Reduce the recreational bag limit for red porgy to 1 fish per person per day, or 1 fish per person per trip, whichever is more restrictive.

Alternative 3. Reduce the recreational bag limit for red porgy to 2 fish per person per day, or 2 fish per person per trip, whichever is more restrictive.

Discussion:
The proposed overall reduction in the red porgy ACL based on SEDAR 60 (2020) is needed to end overfishing of red porgy. Hence a reduction from current levels of harvest is needed and modification to management measures is necessary to constrain harvest to the revised ACLs. **Preferred Alternative 2** and **Alternative 3** propose reductions to the red porgy recreational bag limit that would help reduce recreational harvest to end overfishing and rebuild the stock.

2.5.1.2 Comparison of Alternatives

The most restrictive bag limit alternative (**Preferred Alternative 2**) would be expected to impart the most biological benefit to the red porgy stock as it would result in the greatest reduction in potential harvest of the alternatives considered.

Leaving the bag limit at 3 fish per person per day (**Alternative 1 (No Action)**) that would allow more than an average of 2 fish per person (**Alternative 3**) is expected to have minimal economic effects on a trip, while setting the bag limit at 1 fish per person (**Preferred Alternative 2**) would have noticeably larger negative economic effects on a trip-level. Conversely, more restrictive retention limits would allow for longer open harvest seasons. Since the revised recreational sector ACL for red porgy is expected to be fully harvested regardless of the alternative chosen, the total net economic effects are expected to be similar amongst the alternatives.

In general, the social effects of modifying the recreational bag or vessel limit would be a trade-off between longer seasons under lower bag limits, and the negative effects on recreational fishing opportunities because the bag limit is too low. While **Preferred Alternative 2** and **Alternative 3** would limit recreational fishing opportunities for red porgy and change the recreational fishing experience by restricting the number of red porgy that can be kept, the season would also likely be longer because the rate of harvest would be slower.

Administrative effects would not vary much between **Alternative 1 (No Action)**, **Preferred Alternative 2**, and **Alternative 3**.

2.5.2 Sub-Action 5b. Recreational fishing season

2.5.2.1 Alternatives

Alternative 1 (No Action). Recreational harvest is allowed year-round until the recreational annual catch limit is met or is projected to be met.

Alternative 2. Establish a recreational fishing season for red porgy; harvest would be allowed during January through April.

Preferred Alternative 3. Establish a recreational fishing season for red porgy; harvest would be allowed during May through June.

Preferred Alternative 4. Establish a recreational fishing season for red porgy; harvest would be allowed during July through August.

Alternative 5. Establish a recreational fishing season for red porgy; harvest would be allowed during June through August.

Discussion:
A recreational season is being considered to reduce recreational harvest and end overfishing of red porgy. Alternatives under this action consider allowing recreational fishing during various portions of the year. **Alternative 2** would allow harvest during the first four months of the year. **Preferred Alternatives 3** and **4** propose 2-month seasons during Waves 3 and 4 of the Marine Recreational Information Program's survey, respectively. **Alternative 5** would allow recreational harvest during three months of the year, from June through August.

2.5.2.2 Comparison of Alternatives

Because **Alternative 2** would allow recreational harvest during the red porgy spawning season, **Alternative 2** would impart the same effects as **Alternative 1 (No Action)**. Biological effects would be similar among **Preferred Alternatives 3** and **4** and **Alternative 5** since they would all shift fishing effort away from when red porgy are spawning.

Generally, prolonged time periods when recreational harvest is allowed can result in increased economic benefits. Allowing the recreational harvest to close once the sector ACL is met or projected to be met (**Alternative 1 (No Action)**) can help ensure that the ACL is harvested each year and all associate economic benefits from that harvest to recreational anglers is incurred. Conversely, this also creates unpredictability in the season length and knowing when harvest will close. Establishing a fishing season helps increase predictability of the time period in which harvest would be allowed. This may create economic benefits if harvest during the spawning season is curtailed (**Preferred Alternative 3, Preferred Alternative 4**, and **Alternative 5**), thereby leading to greater rebuilding of the red porgy stock and associated long-term economic benefits. If the ACL is not fully harvested during the established season, it can lead to fewer short-term economic benefits (as measured in consumer surplus (CS)) due to the decreased harvest, thus there is the potential for **Alternatives 2**, **Preferred Alternative 3**, **Preferred**

Alternative 4, and **Alternative 5** to have lower economic benefits than **Alternative 1 (No Action)**.

Imposing a recreational season could change the level of access to red porgy during periods when they are available and when participation in the red porgy 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. Considering the proposed recreational allocation (**Preferred Alternative 2**, Action 3), proposed recreational bag limit (**Preferred Alternative 2**, Sub-Action 5a), and peak harvest of red porgy, **Preferred Alternatives 3** and **4** are anticipated to result in highest social benefits for South Atlantic fishing communities, followed by **Alternative 5**, **Alternative 2** and **Alternative 1 (No Action)**. However, social benefits for individual communities highly engaged in the recreational red porgy fishery will vary based on when participation in the fishery is the highest in that community.

Administrative burdens associated with recreational fishing seasons would be related to distributing information, education, and enforcement.

2.6 Action 6. Revise the red porgy recreational accountability measures

2.6.1 Alternatives

Alternative 1 (No Action). If recreational landings reach or are projected to reach the recreational annual catch limit, recreational harvest of red porgy 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 and red porgy 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. 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 (date) and end on the date National Marine Fisheries Service projects the recreational annual catch limit will be met.

Alternative 3. When the recreational annual catch limit is changed, use a single year of landings, beginning with the most recent available year of landings, then a two-year average of landings from that single year and the subsequent year, then a three-year average of landings from those two years and the subsequent year, and thereafter a progressive running three-year average to trigger the recreational accountability measure.

If the recreational annual catch limits are constant and the 3-year mean (*Sub-alternative 3a or 3b*) of landings exceeds the recreational annual catch limit, reduce the length of the following recreational fishing season by the amount necessary to prevent the recreational annual catch limit from being exceeded in the following fishing year. However, the length of the recreational season will not be reduced if the Regional Administrator determines, using the best available science, that it is not necessary.

Sub-alternative 3a. Use the arithmetic mean to calculate average landings.[1]

Sub-alternative 3b. Use the geometric mean to calculate average landings.[2]

Alternative 4. If recreational landings exceed the recreational annual catch limit and the total (commercial and recreational combined) annual catch limit is exceeded, 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

[1] The arithmetic mean is calculated by adding the values of a set of numbers and then dividing the sum by the number of values in the set.

[2] The geometric mean is calculated by multiplying the values of a set of numbers and then taking the n^{th} root of the product, where n is equal to the number of values in the set.

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 sector ACL, if the total ACL were exceeded, that would reduce the sector ACL by the amount of the overage.

Due to the substantial reductions in allowable harvest proposed in this amendment and red porgy's overfished status, it is likely that AMs will be triggered for this species in the future.

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. The start date for the recreational season would correspond to the preferred alternative in Sub-Action 5b. Hence, the May-August timeframe would be the "book-ends" within which recreational harvest of red porgy would be allowed based on how long NMFS determines the season can last.

Alternative 3 uses a three-year mean that would reset when the sector ACL is changed. Depending on landings and whether a change to the sector ACL is put in place, this alternative could delay the AM from being implemented for several years, allowing the recreational sector to exceed its ACL in a single year. There would also be no safeguard in place to prevent the total ACL from being exceeded for more than one year. Both **Sub-alternative 3a** and **3b** use three-year timelines for triggering an AM which could help mitigate the likelihood of a restrictive AM being put in place due to anomalies in the recreational data and would also allow the fishery to potentially continue to operate after a single year of particularly high landings that revert to long-term average levels the following year. Conversely, since there would be no in-season AM to prevent or slow down landings in excess of the sector ACL or total ACL, there is the potential that a single year of extremely high recreational landings to influence the arithmetic mean (**Sub-Alternative 3a**), or to a lesser extent the three-year geometric mean (**Sub-Alternative 3b**) in such a way that a shortened recreational season would remain in place for multiple years until these long-term metrics would revert below the threshold for the AM trigger.

Alternative 4 would remove the current 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 is tied to the total ACL. Under the proposed catch level reductions, AMs are likely to be triggered. Therefore, the total ACL may become a "moving target" if payback is triggered in the commercial sector. As such, the year after a payback (year 3), the recreational ACL would revert back to what's specified in the regulations.

Table 2.6.1. Recreational AM scenarios for each alternative.

	In-season closure	**Post-season AM**		
Alternative		**If recreational ACL exceeded**	**If recreational and total ACL exceeded**	**If recreational and total ACL exceeded, and overfished**
1 (No Action)	√[2]			√[1]
2			√[3]	
3		√[3]		
4			√[3]	

[1] Reduce recreational season length and recreational ACL by overage
[2] When recreational ACL reached or projected to be reached
[3] Reduce recreational season length

2.6.2 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 red porgy stock would be greatest under **Alternative 1 (No Action)**, followed by **Alternatives 2**, **4**, and **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, which 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 3, Alternative 4** and its sub-alternatives.

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 **Alternative 3** and its sub-alternatives.

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

effects would be most burdensome under **Alternative 3** because it is complicated and would result in additional time and costs.

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[3] (FEP; SAFMC 2009) and the FEP II Dashboard which are incorporated here by reference. South Atlantic Fishery Management Council (Council) designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPC) are presented in the SAFMC User Guide and spatial representations of EFH and other habitat related layers are in the Council's online map services provided by the SAFMC Digital Dashboard Habitat and Ecosystem Web Services.[4]

3.1.1 Essential Fish Habitat

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

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

including settlement. In addition, the Gulf Stream is an EFH because it provides a mechanism to disperse snapper grouper larvae.

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

3.1.2 Habitat Areas of Particular Concern

EFH-HAPC for species in the Snapper Grouper FMU in the Atlantic include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; near shore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., primary and secondary nursery areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the Oculina Bank HAPC; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; Council-designated artificial reef special management zones; and deep-water marine protected areas. Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, post-larval, juvenile, and adult stages).

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

Similarly, in the Comprehensive Ecosystem-Based Amendment 1 (CE-BA1; SAFMC 2010), the Council has designated EFH areas and EFH-HAPCs under the Snapper Grouper FMP. Under the Magnuson-Stevens Act, FMPs are required to describe and identify EFH and to minimize the adverse effects of fishing on such habitat to the extent practicable. An EFH-HAPC designation adds an additional layer to the EFH designation. Under the Snapper Grouper FMP, EFH-HAPCs are designated based upon ecological importance, susceptibility to human-induced environmental degradation, susceptibility to stress from development, or rarity of habitat type. The Council determined in CE-BA 1 that the Council-designated SMZs met the criteria to be EFH-HAPCs for species included in the Snapper Grouper FMP. Since CE-BA 1, the Council has designated additional SMZs in the Snapper Grouper FMP. The SMZ and EFH-HAPC designations serve similar purposes in pursuit of identifying and protecting valuable and unique habitat for the benefit of fish populations, which are important to both fish and fishers. Therefore, the Council has determined that a designated SMZ meets the criteria for an EFH-HAPC designation, and the Council intends that all SMZs designated under the Snapper Grouper FMP also be designated as EFH-HAPCs under the Snapper Grouper FMP.

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

3.2 Biological and Ecological Environment

The reef environment in the South Atlantic management area affected by actions in this environmental assessment includes red porgy, other affected species, and protected species. These components will be described in detail in the following sections.

The waters off the South Atlantic coast are home to a diverse population of fish. The Snapper Grouper FMU contains 55 species of fish, many of them neither "snappers" nor "groupers." These species live in depths from a few feet (typically as juveniles) to hundreds of feet. As far as north/south distribution, the more temperate species tend to live in the upper reaches of the South Atlantic management area (e.g., black sea bass, red porgy) while the tropical variety's core residence is in the waters off south Florida, Caribbean Islands, and northern South America (e.g., black grouper, mutton snapper). These are reef-dwelling species that live amongst each other. These species rely on the reef environment for protection and food. There are several reef tracts that follow the southeastern coast. The fact that these fish populations congregate dictates the nature of the fishery (multi-species) and further forms the type of management regulations proposed in this document. Life history information for snapper grouper species affected by this amendment may be found in the South Atlantic EcoSpecies Database.[5]

3.2.1 Red Porgy

3.2.1.1 Life History

Red porgy, *Pagrus pagrus*, are distributed throughout the Atlantic Ocean at depths of 18 to 280 m (Manooch and Hassler 1978). In the South Atlantic region, red porgy are commonly associated with "live bottom" habitat with rocky outcrops and rocky ledges (Manooch and Hassler 1978, Grimes et al. 1982). Red porgy are protogynous, meaning the begin life as female and change to male later on. Therefore, most of the smaller fish are females, but males occur in all age groups (SEDAR 1 2002). In the Northeast Gulf of Mexico, red porgy appear to be pair spawners (do not form aggregations), and change sex over a wide range of sizes and ages (DeVries 2006). Spawning occurs from November through May, with peak spawning in March and April (Manooch 1976, Farmer et al. 2017). Red porgy grow slowly and live relatively long (an 18-year-old specimen is the oldest on record), but maturity occurs at younger ages. Roumillat and Waltz (1993) collected red porgy along the continental shelf between Cape Fear, North Carolina, and Cape Canaveral, Florida. The study determined the vast majority of females were mature by age two.

[5] http://saecospecies.azurewebsites.net

3.2.1.2 Stock Status

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

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

The South Atlantic red porgy stock was first assessed in 1991 and Amendment 4 to the FMP indicated the red porgy stock was undergoing overfishing and was overfished. Amendment 4 established an initial rebuilding plan and the associated final rule (56 FR 56016, October 31, 1991) implemented a minimum size limit for red porgy. The rebuilding plan was put into effect in 1991 with a target time to rebuild of 10 years. The stock was assessed in 1999 (Vaughan 1999), and based on the findings the stock was determined to be subject to overfishing and overfished. In an emergency rule published September 3, 1999 (64 FR 48324), NMFS prohibited the harvest and possession of red porgy in or from the exclusive economic zone (EEZ) off the southern Atlantic states. NMFS extended the prohibition on harvest and possession of red porgy through August 28, 2000 (65 FR 10039; February 25, 2000).

The red porgy stock in the South Atlantic was the first stock assessed through the Southeast Data, Assessment, and Review (SEDAR) process in 2002. The findings of the assessment indicated the stock was overfished but not undergoing overfishing. The final rule for Amendment 12 to the Snapper Grouper FMP (65 FR 51248, August 23, 2000) closed commercial harvest during the red porgy peak spawning season, reduced the commercial trip limit, and reduced the recreational bag limit; and the amendment specified a new 18 year rebuilding plan, which was the maximum recommended timeframe based on the formula: T_{min} (10 years) + one generation time (8 years, based on data used in the assessment). The rebuilding schedule began with the implementation of the no harvest emergency rule on September 3, 1999 (64 FR 48324) and ended on December 31, 2017. The findings from subsequent update assessments in 2006 and 2012 resulted in the same determinations. The stock has not rebuilt despite management efforts throughout its management history.

A standard assessment of the red porgy stock in the South Atlantic (SEDAR 60) was completed in 2020 with data through 2017 (SEDAR 60 2020). The findings of the assessment indicated

that the South Atlantic Red porgy stock is overfished and undergoing overfishing. The findings of SEDAR 60 also indicated average recruitment showed a declining trend throughout the time series and has been below the recruitment levels corresponding to maximum sustainable yield (MSY) for most of the past three decades.

3.2.2 Bycatch

The implications of bycatch on the red porgy 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 (greater amberjack, vermilion snapper, red snapper, and gray triggerfish) that are caught while fishing for red porgy. For life history information of species that are not directly affected by actions in this amendment, refer to the South Atlantic Ecospecies Database.[6]

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)[7] 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

[6] http://saecospecies.azurewebsites.net

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

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).

3.3 Economic Environment

3.3.1 Economic Description of the Commercial Sector

3.3.1.1 Snapper grouper and red porgy

Commercial fishing vessels that participate in the federal snapper grouper (SG) fishery must have a SG permit, which either limits trips to landing no more than 225 lbs of snapper grouper or has no such limit. A condition of the permit is that SG permitted vessels must report their fishing activity via logbooks submitted for each trip. On average, 82.99% of SG permitted vessels report landings of snapper grouper species annually (Table 3.3.1.1).

Table 3.3.1.1. Number and percentage of SG permitted vessels that reported landing snapper grouper, 2015-2019.

Year	Vessels with Unlimited Permit	Vessels with 225-lb Permit	Total Vessels with SG Permit	Permitted Vessels that Landed SG	Percentage of Permitted Vessels that Landed SG
2015	571	121	692	580	83.82%
2016	565	116	681	561	82.38%
2017	554	114	668	568	85.03%
2018	549	110	659	541	82.09%
2019	543	108	651	530	81.41%
Average	**556**	**114**	**670**	**556**	**82.99%**

Source: NMFS SERO for permits (October 15, 2020) and SEFSC Socioeconomic Panel (Jan 2021) accessed by the SEFSC Economic Query System (April 2021).

Average annual dockside revenue from the sale of all reported snapper grouper landings by SG permitted vessels was approximately $18.14 million (2019 dollars) from 2015 through 2019. That $18.14 million generated an annual average of 2,307 jobs, $66.78 million (2019 dollars) in income, and other economic impacts as shown in Table 3.3.1.2. [8]

[8] Economic impacts are the employment, personal income, and output generated by the commercial harvest sector and other major components of the U.S. seafood industry. The premise behind economic impact modeling is that every dollar spent in a regional economy (direct impact) is either saved or re-spent on additional goods or services. If those dollars are re-spent on other goods and services in the regional economy, this spending generates additional economic activity in the region. Four different measures are commonly used to show how commercial fisheries landings affect the economy in a region (state or nationwide): sales, income, value added, and employment. The term sales refers to the gross value of all sales by regional businesses affected by an activity, such as commercial fishing. The category includes both the direct sales of fish landed and sales made between businesses and households resulting from the original sale. Income includes personal income (wages and salaries) and proprietors' income (income from self-employment). Value-added is the contribution made to the gross domestic product in a region. Employment is specified on the basis of full-time and part-time jobs supported directly or indirectly by the sales of seafood or purchases of inputs to commercial fishing. See Fisheries Economics of the United States (NOAA Technical Memorandum NMFS-F/SPO-187 December 2018) for more information about economic impacts generated by commercial fishing.

Table 3.3.1.2. Average annual dockside revenue (2019 $) from SG landings and jobs and other economic impacts (2019 $) of that average landings revenue, 2015-2019.

Ave. Dockside Revenue	Jobs	Income	Total Value Added	Sales
$18,144,615	2,323	$67.27 million	$95.05 million	$183.19 million

Source: Estimates of economic impacts calculated by NMFS SERO using model developed for NMFS (2017) and Bureau of Economic Analysis (BEA) for GDP deflator (April 2021).

On average, 24% (159) of all 670 SG permitted vessels report landings of red porgy annually (Table 3.3.1.3). Those 159 SG permitted vessels represent approximately 29% of the average annual (557) SG-permitted vessels that report harvesting any snapper grouper.

Table 3.3.1.3. Numbers of snapper-grouper permitted vessels and those that reported landing SG and red porgy (RP) and percentages that landed RP, 2015-2019.

Year	SG Permitted Vessels	Vessels Landed SG	Vessels Landed RP	Percentage SG Permitted Vessels Landed RP	Percentage Vessels with SG Landings Landed RP
2015	692	580	159	22.98%	27.41%
2016	681	561	146	21.44%	26.02%
2017	668	568	166	24.85%	29.23%
2018	659	541	174	26.40%	31.16%
2019	651	530	158	24.27%	29.81%
Average	**670**	**556**	**161**	**23.99%**	**28.93%**

Source: NMFS SERO for permits (October 15, 2020) and SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) for vessels that land SG and RP.

During the same 5-year period, annual red porgy landings represent, on average, 2.04% of all reported snapper grouper landings by weight and 1.31% by value (Table 3.3.1.4). It follows that red porgy landings accounted for 1.31% of the average annual economic impacts from the sale of snapper grouper landings from 2015 through 2019. The average nominal dockside price per lb gw of red porgy varied from $2.13 to $2.35, whereas the average nominal dockside price per lb gw of snapper grouper varied from $3.30 to $3.76 during the 5-year period. Note that reported red porgy landings in 2019 (77,319 lbs gw) were 61.49% of what they had been in 2015 (125,735 lbs gw).

Table 3.3.1.4. Reported SG and RP landings (lbs gw) and dockside revenue (2019 $) by SG permitted vessels and percentage of SG landings and dockside revenue from RP, 2014-2019.

Year	SG Landings	RP Landings	Percentage SG Landings from RP	SG Dockside Revenue	RP Dockside Revenue	Percentage SG Revenue from RP
2015	5,331,941	125,735	2.36%	$18,832,311	$287,426	1.53%
2016	5,177,907	102,208	1.98%	$18,743,100	$239,341	1.28%
2017	5,520,308	102,327	1.86%	$19,985,292	$251,034	1.26%
2018	4,381,998	98,036	2.24%	$16,419,804	$233,225	1.42%
2019	4,449,268	77,319	1.74%	$16,742,569	$177,748	1.06%
Average	**4,972,284**	**101,125**	**2.04%**	**$18,144,615**	**$237,755**	**1.31%**

SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Because this action concerns fishing for red porgy, the remainder of this section focuses on red porgy and not the snapper grouper fishery as a whole. Therefore, the following focus is on the average 161 SG permitted vessels that report landings of red porgy annually, and it does not include the average 395 SG permitted vessels that report SG landings without red porgy annually as in Table 3.3.14. For additional information on SG permitted vessels and their landings, see the report, Socio-Economic Profile of the Snapper Grouper Fishery in the South Atlantic Region, which is incorporated herein by reference[9] (SAFMC 2018) and Regulatory Amendment 27 to the FMP (SAFMC 2019a).

Total dockside revenue from reported red porgy landings varies considerably across the four South Atlantic states (Figure 3.3.1.1). From 2015 through 2019, dockside revenue from all reported red porgy landings in Georgia never reached $16,000, while that in South Carolina never fell below $76,000 (2019 $). Dockside revenue from all reported red porgy landings in Florida fell from $109,789 in 2015 to $41,118 (2019 $) in 2019.

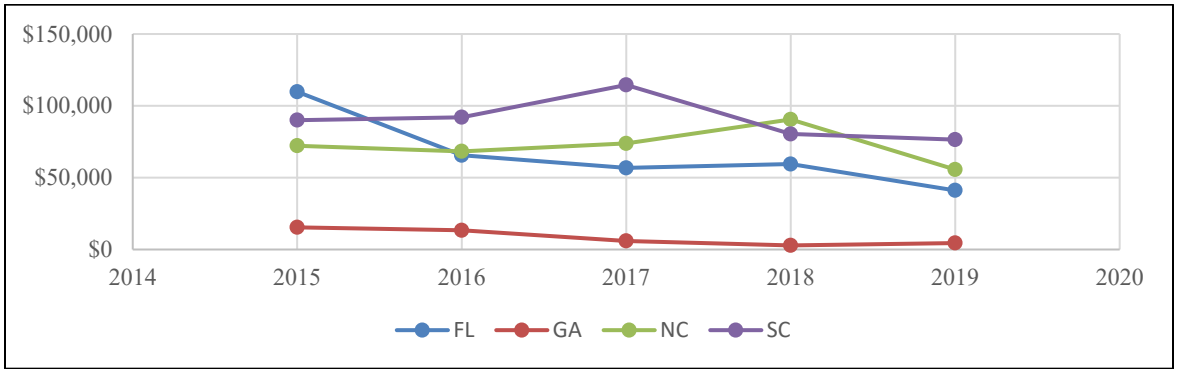

Figure 3.3.1.1. Dockside revenue (2019 $) from reported RP landings by state, 2015-2019.
Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Dockside revenue from red porgy landings accounts for 2.16% of the average 161 SG permitted vessel's annual dockside revenue from all landings; however, that average varies across the states. In Florida, for example, dockside revenue from red porgy landings accounts for an annual average of 1.88% of dockside revenue from all landings by the SG permitted vessels that land red porgy in that state, whereas it accounts for 4.43% of dockside revenue from all landings by SG permitted vessels that land red porgy in Georgia (Table 3.3.1.5).

Table 3.3.1.5. Percentage of average SG permitted vessel's total annual dockside revenue from red porgy landings by state where red porgy landed, 2015-2019.

Year	FL	GA	NC	SC	All
2015	2.26%	5.07%	2.19%	2.44%	2.37%
2016	2.17%	4.90%	1.89%	2.31%	2.20%
2017	1.82%	6.34%	2.03%	2.90%	2.33%

[9] http://safmc.net/download/SGProfileReport_May2018.pdf

Year	FL	GA	NC	SC	All
2018	1.94%	2.74%	2.21%	2.56%	2.24%
2019	1.19%	3.10%	1.45%	2.42%	1.68%
Average	**1.88%**	**4.43%**	**1.96%**	**2.53%**	**2.16%**

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Although red porgy landings account for a relatively small percentage of the average SG permitted vessel's annual dockside revenue from all landings of those vessels that land red porgy, the average trip with red porgy landings generates larger dockside revenue than the average trip without red porgy landings (Table 3.3.1.6). From 2015 through 2019, the average trip with red porgy landings had dockside revenue from all its landings of $3,900, whereas the average trip with no red porgy landings had dockside revenue had dockside revenue of all its landings of $1,858 (2019 $). Red porgy landings account for $189 (4.84%) of the $3,900 that is the average revenue of a trip with red porgy landings (Table 3.3.1.7).

Table 3.3.1.6. Dockside revenue (2019 $) from trips that landed red porgy and from trips that did not, and average dockside revenue (2019 $) per trip for those trips, 2015-2019.

Year	Revenue from RP Trips	RP Trips	Ave. Revenue per RP Trip	Revenue from Non-RP Trips	Non-RP Trips	Ave. Revenue per Non-RP Trip
2015	$5,198,321	1,351	$3,848	$6,953,932	3,333	$2,086
2016	$4,656,258	1,233	$3,776	$6,232,044	2,999	$2,078
2017	$5,005,645	1,276	$3,923	$5,790,432	3,394	$1,706
2018	$4,975,509	1,206	$4,126	$5,421,978	3,246	$1,670
2019	$4,630,615	1,210	$3,827	$5,938,658	3,397	$1,748
Average	**$4,893,269**	**1,255**	**$3,900**	**$6,067,409**	**3,274**	**$1,858**

Source: SEFSC Socioeconomic Panel (Jan 2021) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Table 3.3.1.7. Dockside revenue (2019 $) from red porgy and jointly caught species and average dockside revenue (2019 $) per trip from red porgy and jointly caught species, 2015-2019.

Year	Revenue from RP	RP Trips	Ave. Revenue from RP per Trip	Revenue from Jointly Caught Species	Jointly Caught Trips	Ave. Revenue from Jointly Caught Species per Trip
2015	$287,426	1,351	$213	$4,910,895	1,351	$3,635
2016	$239,341	1,233	$194	$4,416,917	1,233	$3,582
2017	$251,034	1,276	$197	$4,754,611	1,276	$3,726
2018	$233,225	1,206	$193	$4,742,284	1,206	$3,932
2019	$177,749	1,210	$147	$4,452,866	1,210	$3,680
Average	**$237,755**	**1,255**	**$189**	**$4,655,515**	**1,255**	**$3,711**

Source: SEFSC Socioeconomic Panel (Jan 2021) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

From 2015 through 2019, no person could sell or purchase a red porgy harvested from or possessed in the South Atlantic EEZ from January 1 through April 31. Despite that prohibition, there were reported landings of red porgy by permitted vessels during those months, although, on average, 99.5% of annual landings occurred from May through December (Table 3.3.1.8).

Table 3.3.1.8. Monthly and average monthly landings (lbs gw) of red porgy and average percentage of annual landings, 2015-2019.

Month	2015	2016	2017	2018	2019	Average	Percentage
Jan	45	41	198	1	6	58	0.06%
Feb	240	225	11	25	0	100	0.10%
Mar	0	0	8	10	9	5	0.01%
Apr	0	246	704	582	18	310	0.31%
May	18,601	11,197	14,805	15,972	12,440	14,603	14.44%
Jun	15,773	11,181	10,739	15,759	13,349	13,360	13.21%
Jul	31,146	26,700	24,545	13,933	12,668	21,798	21.55%
Aug	25,699	19,338	18,454	16,938	11,764	18,439	18.23%
Sep	19,751	18,693	11,620	11,014	8,806	13,977	13.82%
Oct	5,100	5,033	11,050	13,039	7,860	8,416	8.32%
Nov	4,765	5,238	7,038	4,735	5,495	5,454	5.39%
Dec	4,615	4,316	3,156	6,117	4,904	4,622	4.57%
Total	**125,735**	**102,208**	**102,328**	**98,125**	**77,319**	**101,143**	**100.00%**

Source: SEFSC Socioeconomic Panel (Jan 2021) accessed by the SEFSC Economic Query System (April 2021).

Regulatory Amendment 27, which came into effect in February 2020, eliminated the sale prohibition from January 1 through April 30 and established two commercial fishing seasons for

red porgy.[10] Season 1 is from January 1 through April 30, and Season 2 is from May 1 through December 31. Since February 26, 2020, the commercial trip limit for red porgy during Season 1 is 60 fish. During Season 2, the commercial trip limit for red porgy is 120 fish, and it has been 120 fish from May through December since 2006.

As explained in Appendix F the average red porgy landed in North Carolina weighs 1.65 lbs gw (1.72 lbs ww), that landed in South Carolina weights 2.12 lbs gw (2.20 lbs ww), and the average red porgy landed in either Georgia and Florida weighs 2.00 lbs gw (2.08 lbs ww). A 120-fish limit would translate to 198 lbs gw for red porgy landed in North Carolina, 254 lbs gw for those landed in South Carolina, and 240 for those landed in Georgia and Florida. Those averages are used to estimate the average numbers of red porgy landed in those states per trip during Season 2 from 2015 through 2019. The average number of red porgy landed ranges from 37 to 67 (Figure 3.3.1.2). Note that Georgia and Florida landings (lbs) and trips are combined to avoid disclosure of confidential information.

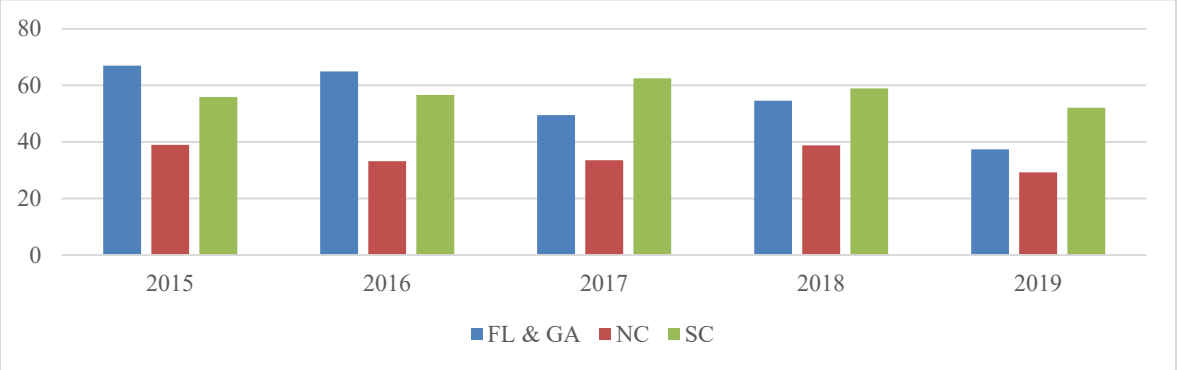

Figure 3.3.1.2. Average number of red porgy landed per trip during Season 2 by state, 2015 - 2019.
Source: SEFSC Socioeconomic Panel (Jan 2021) accessed by the SEFSC Economic Query System (April 2021).

3.3.2 Economic Description of the Recreational Sector

3.3.2.1 South Atlantic Snapper Grouper Fishery

Any for-hire fishing vessel that takes anglers into the South Atlantic EEZ where they harvest species within the SG fishery must have a charter/headboat permit for SG, which is an open-access permit that is specifically assigned to that vessel. From 2015 through 2019, there was an increase in the number of for-hire fishing vessels with the SG permit (Table 3.3.2.1). However, as of October 26, 2020, there were 1,700 vessels with the permit, which falls outside the 2015-2019 range (NMFS SERO PIMS).[11]

[10] Preliminary landings for 2020 indicate 6,896 lbs of red porgy were landed by permitted vessels in March and 4,672 lbs were landed by those vessels in April.
[11] As of November 4, 2020, there are 1,807 for-hire vessels with a dolphin/wahoo permit, 1,715 for-hire vessels with a pelagic fish permit, and 1,650 for-hire vessels with the snapper-grouper permit. All of these permits are open-access permits.

Table 3.3.2.1. Number of for-hire vessels with South Atlantic charter/headboat snapper grouper permit.

Year	Number of For-Hire Vessels with SG Permit
2015	1,779
2016	1,867
2017	1,982
2018	2,128
2019	2,183
Average	**1,987**

Source: NMFS SERO SFD Permit Counts (October 2020)

As of October 14, 2020, 91.5% of the South Atlantic charter/headboat permits were held by entities residing in a South Atlantic state (Table 3.3.2.2). Florida entities ranks first with approximately 62% of the permits.

Table 3.3.2.2. Number of for-hire vessels with South Atlantic charter/headboat snapper grouper permit by state as of October 14, 2020.

State	Number For-Hire Vessels with SG Permit	Percent of Vessels with Permit
FL	1,405	62.2%
GA	50	3.0%
NC	297	17.7%
SC	145	8.6%
Other	142	8.5%
Total	**1,679**	**100.0%**

Source: NMFS SERO Permits FOIA Page.

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 charter vessel or a headboat. Operation as either a charter vessel or headboat is not restricted by permitting regulations and vessels may operate in both capacities on separate trips. However, only selected headboats are required to submit harvest and effort information to the NMFS Southeast Region Headboat Survey (SRHS). Participation in the SRHS is based on determination by the NMFS Southeast Fisheries Science Center (SEFSC) that the vessel primarily operates as a headboat.

Charter vessels and headboats are differentiated by passenger capacity and the method passengers pay. Specifically, a headboat is defined as a federally permitted for-hire vessel that participates in the SRHS, and a vessel in the SRHS meets all or a combination of the following criteria: 1) is licensed to carry 15 or more passengers, 2) fishes in federal waters or state and adjoining waters for federally managed species, and 3) charges primarily per angler (by the head). A charter vessel is defined as a federally permitted for-hire fishing vessel that does not participate in the SRHS.

Private recreational fishing vessels are not required to have a federal permit to harvest snapper grouper species/species groups from the EEZ. Recreational fishers (anglers) aboard these vessels, however, must either be federally registered or licensed in states that have a system to provide complete information on the states' saltwater anglers to the national registry.

Angler fishing effort refers to the estimated number of angler fishing trips taken, and an angler trip is an individual fishing trip taken by a single angler for any amount of time, whether it is half an hour or an entire day. Currently, angler fishing effort is estimated by conducting telephone surveys of coastal households (Coastal Household Telephone Survey) and for-hire (charter) vessel captains (For-Hire Survey), as well as on-site survey methods (MRIP APAIS). From these survey interviews, NMFS can estimate how many people are fishing, where people are fishing, and how often people go fishing. Moreover, with the MRIP APAIS (survey of anglers by the private boat, charter vessel and shore modes as they complete a trip), NMFS can estimate how many trips target snapper grouper, how many trips catch snapper grouper and how many are being caught, how many snapper grouper are kept, how many are discarded, the condition of discarded fish, and the size and weight of snapper grouper caught. The data are used to generate estimates of effort of the shore, private vessel and charter vessel and modes. SRHS data are used to generate estimates of headboat effort.

Targeted trips are those trips where individual anglers reported snapper grouper as the primary or secondary target species of the trip. From 2015 through 2019, combined anglers fishing from the shore, private vessel and charter vessel modes took an annual average of 1.70 million trips that targeted snapper grouper (Table 3.3.2.3). The majority of the annual directed angler trips are by private vessels. Headboats do not make targeted trips.

Table 3.3.2.3. Number of trips that targeted (primary or secondary) snapper grouper, 2015 – 2019.

Year	Shore	Private	Charter	Total	Percent Shore	Percent Private	Percent Charter
2015	448,988	858,656	22,287	1,329,931	33.76%	64.56%	1.68%
2016	732,078	756,902	17,535	1,506,515	48.59%	50.24%	1.16%
2017	565,053	1,017,339	22,284	1,604,676	35.21%	63.40%	1.39%
2018	350,997	2,037,591	18,343	2,406,931	14.58%	84.66%	0.76%
2019	689,172	917,679	44,459	1,651,310	41.73%	55.57%	2.69%
Average	557,258	1,117,633	24,982	1,699,873	34.78%	63.69%	1.54%

Source: SERO LAPP, November 13, 2020.

Those targeted trips generate economic impacts, such as jobs and income. From 2015 through 2019, the average 1.12 million annual trips by anglers on private vessels that targeted snapper grouper generated 694,595 jobs, approximately $32.01 million in income, $113.11 million in sales and $56.53 million in value-added impacts (2018 dollars) (Table 3.3.2.4). Trips that targeted red porgy represented none of the shore trips, 0.02% of the charter vessel trips and 0.04% to 0.05% of private vessel trips.

Table 3.3.2.4. Average annual jobs and other economic impacts (2019 $) from trips that targeted (primary or secondary) snapper grouper, 2015 – 2019.

Mode	Targeted Trips	Value Add	Sales	Income	Jobs
Shore	557,258	$311,667,878	$581,690,491	$201,061,612	4,039,149
Private	1,117,633	$56,529,614	$113,110,949	$32,014,484	694,595
Charter	24,982	$1,603,488	$3,054,326	$929,173	22,021

Source: Estimates of economic impacts calculated by NMFS SERO using model developed for NMFS and BEA GDP deflator (April 2021).

Similar analysis of recreational angler trips is not possible for the headboat mode because headboat data are not collected at the angler level. Also, target species are not collected. Estimates of effort by the headboat mode are provided in terms of angler days, or the total number of standardized full-day angler trips.[12] From 2015 through 2019, an annual average of 210,551 angler days (Table 3.3.2.5).

Table 3.3.2.5. Number of angler days, 2015 – 2019.

Year	Angler Days
2015	257,397
2016	260,432
2017	183,210
2018	174,984
2019	176,734
Average	210,551

The actions of this framework amendment concern fishing for red porgy only. Consequently, the remainder of this section focuses exclusively on recreational fishing for red porgy in the Region.

Additional information on recreational landings and fishing for the snapper grouper fishery as a whole or the other species or complexes within it can be found in previous amendments to the Snapper Grouper FMP[13], and are incorporated herein by reference. Information about for-hire fishing vessels in the South Atlantic region in general can also be found in Holland et al. (2012).

3.3.2.2 Red Porgy

Anglers fishing from shore, private/rental and charter vessels do not report that they target red porgy. Consequently, if there are any angler trips that target red porgy, they represent at most a minimal percentage of the economic impacts of snapper-grouper targeted trips.

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[12] 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.

[13] Regulatory Amendment 26 to the FMP (SAFMC 2019b), Amendment 13C to the FMP (SAFMC 2006), Amendment 15A to the FMP (SAFMC 2008a), Amendment 15B to the FMP (SAFMC 2008b), Amendment 16 to the FMP (SAFMC 2009), Regulatory Amendment 9 to the FMP (SAFMC 2011d), Amendment 25 to the FMP (SAFMC 2012), and Regulatory Amendment 25 to the FMP (SAFMC 2016

Recreational saltwater fishing trips have associated expenses. These trip-related expenses can include bait, ice, charter fees, boat fuel, boat and equipment rentals, lodging, public and other vehicle transportation, access and parking, and food. There are also durable goods expenditures associated with recreational fishing, such as, but not limited to rods and reels, tackle, boat purchases and maintenance, boat accessories, and clothing. These expenditures represent only part of the value of the recreational fishing sector. Fish harvested by saltwater anglers for their own or family's consumption are not included in traditional economic (market) valuation of the recreational sector, although those fish harvested may have substantial personal and social values, especially to the individuals and families that rely on recreationally caught fish and shellfish to feed themselves and their families throughout the year and especially at times of economic hardship. There is relaxation, camaraderie of being with family and friends, being out in nature, the thrill of adventure, and other factors that cause one to value recreational fishing beyond the expenses. One method used to put a dollar value on those values is determining saltwater angler's willingness to pay in excess of expenses, and that extra amount (above expenses) is termed consumer surplus. Although estimates of consumer surplus from recreational fishing for red porgy are not available, estimates of consumer surplus of a generic snapper and generic grouper are. The estimated value of the consumer surplus for a second snapper kept on a trip is approximately $13.32 with bounds of $8.80 ad $19.25 at the 95% confidence level (Haab et al. 2012; values updated to 2019 dollars using BEA GDP deflator, issued April 2021), and that for a second grouper is approximately $109 (SAFMC 2019b; value updated to 2019 dollars using BEA GDP deflator issued April 2021).

Economic value for for-hire vessels can be measured by producer surplus per passenger trip, which is the amount of money that a vessel owner earns in excess of the cost of providing the trip. Estimates of producer surplus per for-hire passenger trip are not available. Instead, net operating revenue, which is the return used to pay all labor wages, returns to capital, and owner profits, is used here as a proxy for producer surplus. For vessels in the South Atlantic, the estimated net operating revenue is $175 per charter angler trip (SAFMC 2019b). The estimated net operating revenue per headboat angler trip is approximately $48 (SAFMC 2019b; values updated to 2019 dollars using BEA GDP deflator issued April 2021).

3.4 Social Environment

This amendment affects the commercial and recreational management of red porgy in the South Atlantic. This section provides the background for the proposed action, which is evaluated in Chapter 4. Commercial and recreational landings and permits by state are included to provide information on the geographic distribution of fishing involvement. Descriptions of the top-ranking communities by the number of commercial snapper grouper permits are included, along with descriptions of the top communities involved in commercial snapper grouper, descriptions of the top-ranking communities by the number of for-hire permits, descriptions of communities with SRHS landings of red porgy, and descriptions of top recreational fishing communities based on recreational engagement and reliance. Community level data are presented in order to meet the requirements of National Standard 8 of the Magnuson-Stevens Fishery Management and Conservation Act (Magnuson-Stevens Act), which requires the consideration of the importance of fishery resources to human communities when changes to fishing regulations are considered. Lastly, social vulnerability data are presented to assess the potential for environmental justice concerns. Additional detailed information about communities in the following analysis can be found on the SERO's Community Snapshots website.[14]

3.4.1 Commercial

Landings by State

The greatest proportion of commercial red porgy landings came from waters adjacent to South Carolina (38.1% in 2019, SEFSC Commercial ACL File), followed by North Carolina (37%), Florida (21.9%) and Georgia (3.1%).

Permits

As of April 8, 2021, there were 518 South Atlantic commercial snapper grouper unlimited permits (SERO Permits Office). The majority of snapper grouper unlimited permits are issued to individuals in Florida (67.2%), followed by North Carolina (19.3%), South Carolina (7.9%), and Georgia (1.5%, SERO Permits Office, April 8, 2021). Residents of other states (Illinois Louisiana, Michigan, Minnesota, New Jersey, New York, Ohio, Texas, and West Virginia) also hold snapper grouper unlimited permits, but these states represent a small percentage of the issued permits.

South Atlantic snapper grouper unlimited permits are held by individuals with mailing addresses in 152 communities (SERO Permits Office, April 8, 2021). Communities with the most snapper grouper unlimited permits are located in Florida, South Carolina, North Carolina, and Texas (Table 3.4.1.1). The communities with the most snapper grouper unlimited permits are Key West (9.8% of snapper grouper unlimited permits), Jacksonville (7.9%), and Miami, Florida (3.7%).

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

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

State	Community	Unlimited Permits	State	Community	225-lb Trip-Limited Permits
FL	Key West	51	FL	Key West	9
FL	Jacksonville	41	FL	Marathon	8
FL	Miami	19	FL	Jupiter	6
FL	Rockledge	13	FL	Big Pine Key	5
SC	Little River	12	FL	Miami	5
FL	Marathon	11	FL	Summerland Key	5
NC	Southport	11	FL	Fort Pierce	3
FL	Key Largo	10	FL	Key Largo	3
FL	Summerland Key	10	NC	Wilmington	3
NC	Hampstead	10			
SC	Murrells Inlet	10			
FL	Hialeah	9			
FL	Jupiter	9			
FL	Port Orange	9			
FL	Tavernier	9			
FL	Winter Springs	8			
TX	Corpus Christi	8			

Source: SERO Permits Office, April 8, 2021.

As of April 8, 2021, there were 97 South Atlantic commercial snapper grouper 225-lb trip-limited permits (SERO Permits Office). The majority of snapper grouper 225-lb trip-limited permits are issued to individuals in Florida (85.6%), followed by North Carolina (9.3%, SERO Permits Office, April 8, 2021). Residents of other states (New Jersey, South Carolina, Texas, and Virginia) also hold snapper grouper 225-lb trip-limited permits, but these states represent a small percentage of the issued permits.

South Atlantic commercial snapper grouper 225-lb trip-limited permits are held by individuals with mailing addresses in 51 communities (SERO Permits Office, April 8, 2021). Communities with the most commercial snapper grouper 225-lb trip-limited permits are located in Florida and North Carolina (Table 3.4.1.1). The communities with the most snapper grouper 225-lb trip-limited permits are Key West (9.3% of snapper grouper 225-lb trip-limited permits), Marathon (8.2%), and Jupiter, Florida (6.2%).

Regional Quotient

The descriptions of communities include information about the top communities based on a "regional quotient" (RQ) of commercial landings for red porgy The RQ is the proportion of landings out of the total landings of that species for that region and that year, and is a relative measure. Figure 3.4.1.1 includes the top red porgy communities by RQ landings and value during 2019. The top red porgy communities are located in Florida, South Carolina, and North Carolina. About 37% of red porgy is landed in the top three communities (Mayport, Florida;

Little River, South Carolina; and Supply, North Carolina), representing about 35% of the South Atlantic-wide ex-vessel value for the species.

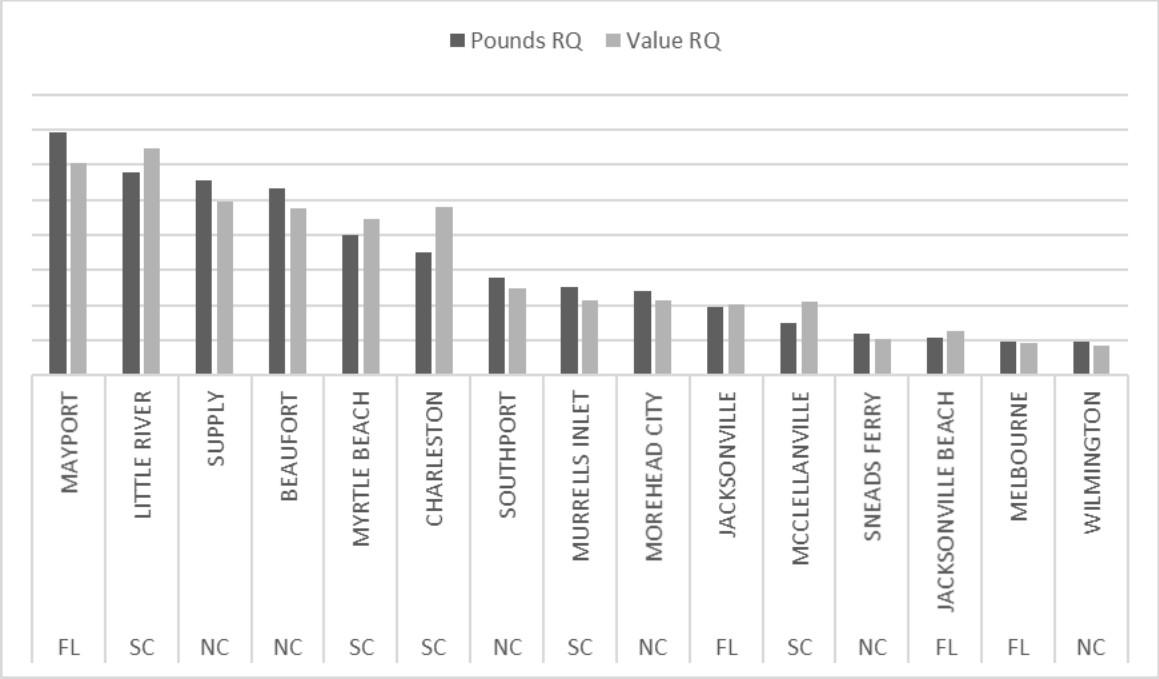

Figure 3.4.1.1. Top South Atlantic communities ranked by pounds and value RQ of red porgy. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SERO, Community ALS 2019.

3.4.2 Recreational

Landings by State
The greatest proportion of recreational red porgy landings came from waters adjacent to Florida and Georgia (41.9% in 2019, SEFSC MRIP FES Recreational ACL Dataset), followed by North Carolina (40%), and South Carolina (18.1%). The landings for Florida and Georgia are combined because of the manner in which headboat landings are reported for confidentiality. The portion of combined category that is attributable to Georgia is minor.

Permits
As of April 8, 2021, there were 1,626 South Atlantic for-hire snapper grouper permits (SERO Permits Office). The majority of for-hire snapper grouper permits are issued to individuals in Florida (63.3%), followed by North Carolina (17.2%), South Carolina (8.8%), and Georgia (2.5%, SERO Permits Office, April 8, 2021). Residents of other Gulf states (Alabama, Mississippi, Louisiana, and Texas) also hold a sizable amount of for-hire snapper grouper permits (2.5%). Residents of other states and territories (Arkansas, California, Delaware, Iowa, Illinois, Indiana, Massachusetts, Maryland, Maine, Michigan, Minnesota, Missouri, New Jersey, New York, Ohio, Pennsylvania, Puerto Rico, Rhode Island, and Virginia) also hold for-hire snapper grouper permits.

South Atlantic for-hire snapper grouper permits are held by those with mailing addresses in 429 communities (SERO Permits Office, April 8, 2021). Communities with the most for-hire snapper grouper permits are located in communities in Florida, North Carolina, and South Carolina (Table 3.4.2.1). A large number of communities with the most for-hire snapper grouper permits are located in the Florida Keys (Key West, Marathon, Islamorada, Tavernier, Summerland Key, and Key Largo). The communities with most South Atlantic for-hire snapper grouper permits are Key West (8.4% of for-hire snapper grouper permits), Marathon (3%), and Islamorada, Florida (2.9%).

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

State	Community	Permits
FL	Key West	136
FL	Marathon	49
FL	Islamorada	47
FL	Tavernier	36
FL	St. Augustine	35
FL	Fort Lauderdale	30
FL	Jacksonville	29
FL	Merritt Island	28
FL	Jupiter	23
NC	Wilmington	23
FL	Summerland Key	22
NC	Hatteras	22
FL	Key Largo	21
FL	Port Orange	19
SC	Charleston	19
FL	Miami	18
SC	Mt. Pleasant	18

Source: SERO Permits Office, April 8, 2021.

Headboat Landings

Recreational landings data are available for headboats by species and can be linked to specific communities through the homeport identified for each vessel. These data are available for headboats registered in the SRHS.

In 2019, 18 federal for-hire vessels in the South Atlantic were registered in the SRHS and landed red porgy (SRHS, SERO LAPPs/Data Management database). Headboats with red porgy landings are registered in South Carolina, followed by North Carolina, Florida, and Georgia. The number of vessels by state are not included to maintain confidentiality.

Figure 3.4.2.1 includes all South Atlantic communities based on a RQ of recreational headboat landings for red porgy. The RQ is the proportion of landings out of the total SRHS landings for that region, and is a relative measure. The top four homeports represent about 86% of the red porgy landings by vessels participating in the SRHS.

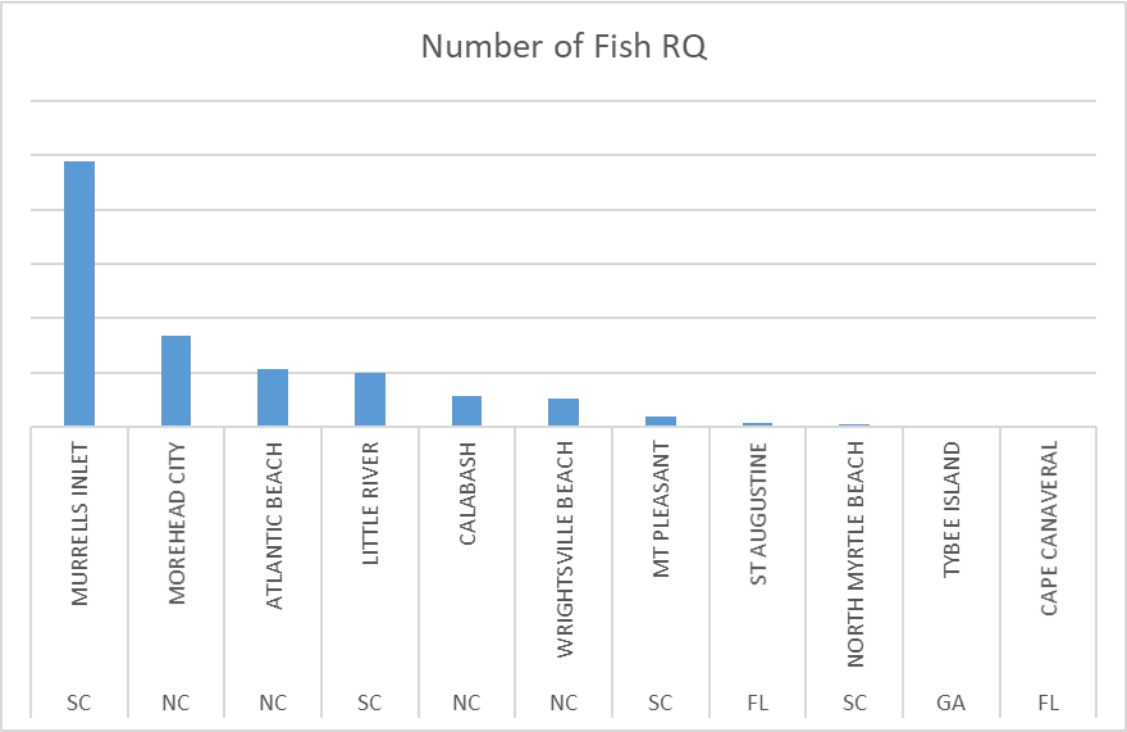

Figure 3.4.2.1. All South Atlantic communities ranked by number of fish landed by headboats included in the SRHS RQ for red porgy. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: SEFSC SRHS (2019).

Engagement and Reliance

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

Figure 3.4.2.2 identifies the top communities that are engaged and reliant upon recreational fishing in general. All included communities demonstrate high levels of recreational engagement. Six communities (Islamorada, Florida; Marathon, Florida; Cudjoe Key, Florida; Hatteras, North Carolina; Manteo, North Carolina; and Ponce Inlet, Florida) demonstrate high levels of recreational reliance.

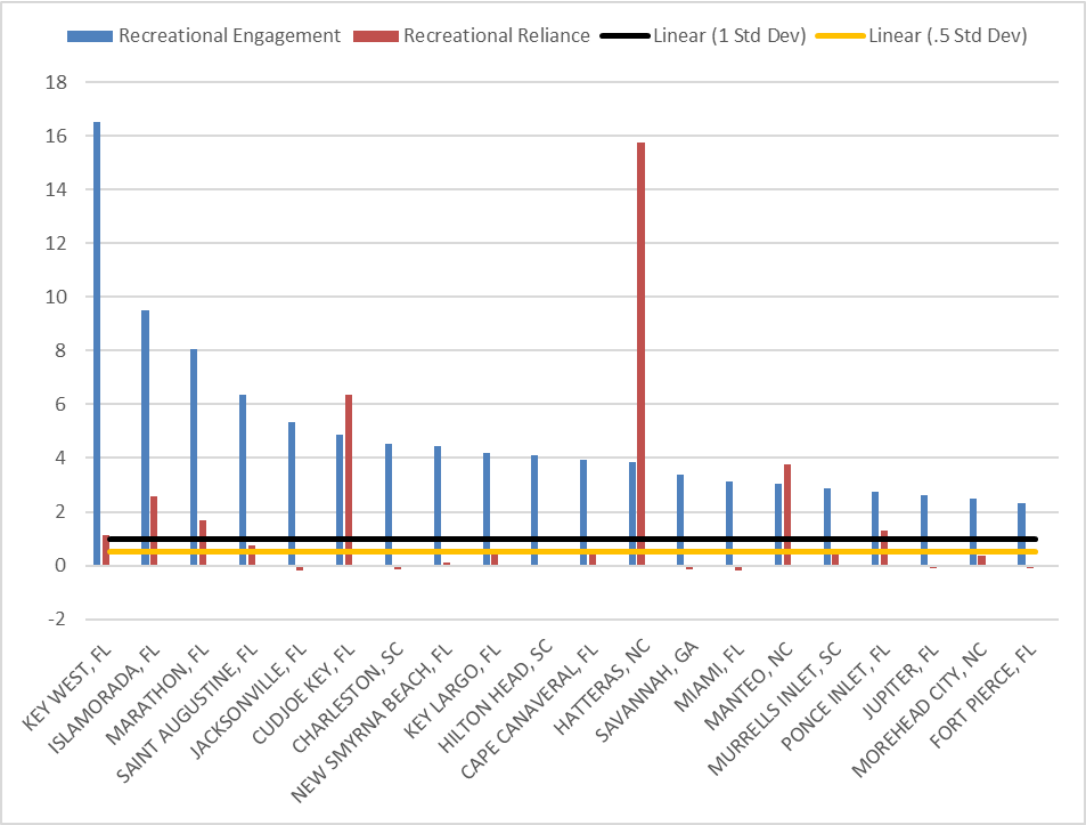

Figure 3.4.2.2. Top 20 recreational fishing communities' engagement and reliance.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

3.4.3 Environmental Justice

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

Information is available concerning communities overall status with regard to minorities and poverty (e.g., census data). To help assess whether any EJ concerns may be present within regional communities, a suite of indices were created to examine the social vulnerability of coastal communities. The three indices are poverty, population composition, and personal disruptions. The variables included in each of these indices have been identified through the literature as being important components that contribute to a community's vulnerability. Indicators such as increased poverty rates for different groups, more single female-headed households and households with children under the age of five, disruptions such as higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. Again, for those communities that exceed the threshold it would be expected that

they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

Figures 3.4.3.1 and 3.4.3.2 provide the social vulnerability of the top commercial and recreational snapper grouper and red porgy communities. One community exceeds the threshold of one standard deviation above the mean for all three indices, Fort Pierce, Florida. Two other communities exceed the threshold of one standard deviation above the mean for any of the indices (Hialeah, Florida; Miami, Florida; and Myrtle Beach, South Carolina). These communities would be the most likely to exhibit vulnerabilities to social or economic disruption due to regulatory change.

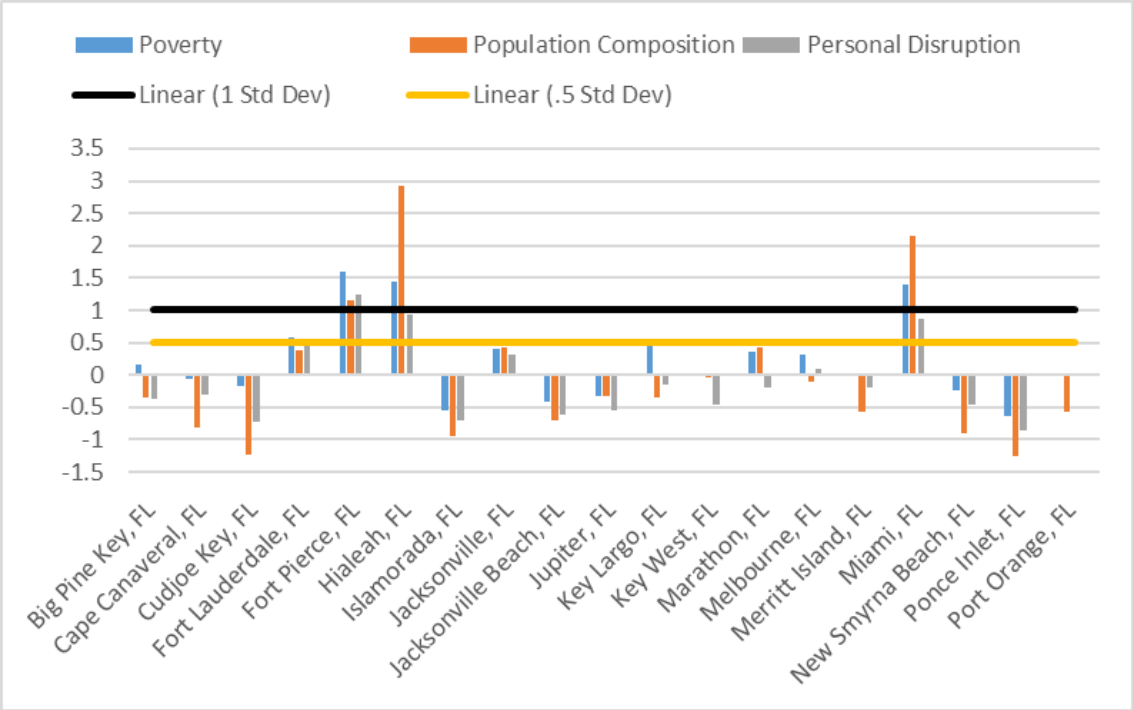

Figure 3.4.3.1. Social vulnerability indices for top snapper grouper and red porgy communities.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

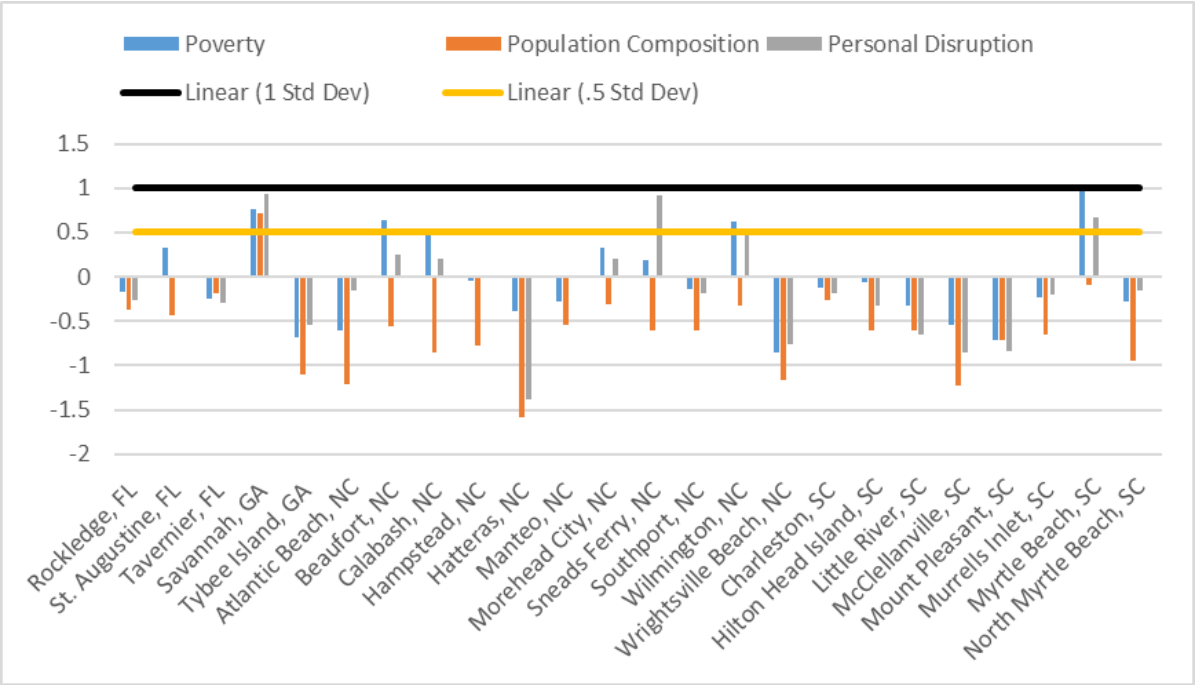

Figure 3.4.3.2. Social vulnerability indices for top snapper grouper and red porgy communities continued.
Source: SERO, Community Social Vulnerability Indicators Database 2018.

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

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. Establish a rebuilding plan for red porgy

Alternatives*

1 (No Action). No rebuilding plan is currently in place for red porgy.

2. Establish the rebuilding plan to equal the shortest possible time to rebuild in the absence of fishing mortality (T_{min}). This would equal 11 years.

3. Establish the rebuilding plan to equal T_{min} + one generation. This would equal 18 years.

4. Establish the rebuilding plan to equal T_{min} times two. This would equal 22 years.

5. Establish the rebuilding plan to equal the time estimated to rebuild the stock with a 50% probability of success while maintaining fishing mortality at 75% of the Maximum Fishing Mortality Threshold during the rebuilding period. This would equal 26 years.

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

4.1.1 Biological Effects

Expected effects to red porgy, co-occurring species, and essential fish habitat

Alternative 1 (No Action) would have adverse effects on the stock as red porgy is overfished and currently without a rebuilding plan. The red porgy stock in the South Atlantic was previously under an 18-year rebuilding plan that was expected to rebuild the stock by the end of 2017. The rebuilding plan allows fishery managers to gauge the progress, success, and shortcomings of a rebuilding program. The absence of an updated rebuilding plan may compromise the ability to set proper annual catch limits (ACL) and management measures to benefit the red porgy stock and ensure overfishing does not occur. Moreover, **Alternative 1 (No Action)** is not based upon the best scientific information available (BSIA) as it would not address the results of the latest stock assessment.

The alternatives to establish a rebuilding plan (**Alternatives 2** through **Preferred Alternative 5**), in contrast, are based on the BSIA and would likely have beneficial effects to the red porgy stock as they would establish a timeframe for rebuilding the stock. In general, prescribing less time to rebuild the stock could result in lower ACLs and more restrictive management measures, but would translate into greater biological benefits for the stock in a shorter timeframe. The rebuilding timeframe under **Alternative 2** is projected to rebuild the red porgy stock in the least amount of time; therefore, it can be expected that future biological benefits may accrue soonest, followed by **Alternative 3**, **Alternative 4**, and **Preferred Alternative 5**.

Defining the Range of Alternatives

Guidance on how to define the upper and lower bounds of a rebuilding timeframe are specified in the National Standard 1 (NS 1) Guidelines (https://www.fisheries.noaa.gov/national/laws-and-policies/national-standard-guidelines). Refer to Appendix XX (Red Porgy Projections) for revised projections prepared by the NMFS Southeast Fisheries Science Center.

In regard to the determining the minimum time for rebuilding a stock (T_{min}), NS 1 specifies that *"T_{min} means the amount of time the stock or stock complex is expected to take to rebuild to its maximum sustainable yield (MSY) biomass level in the absence of any fishing mortality. In this context, the term "expected" means to have at least a 50 percent probability of attaining the B_{msy}, where such probabilities can be calculated. The starting year for the T_{min} calculation should be the first year that the rebuilding plan is expected to be implemented."* For red porgy, according to projections originating from SEDAR 60 (Appendix XX, Table X-1), the minimum predicted time for red porgy to rebuild in the absence of any fishing mortality under long-term average recruitment is 11 years, thus T_{min} is specified as being 11 years (**Alternative 2**).

With T_{min} corresponding to greater than 10 years, NS 1 provides guidance to define the maximum time for rebuilding a stock (T_{max}) as follows; *"If T_{min} for the stock or stock complex exceeds 10 years, then one of the following methods can be used to determine T_{max}: (i) T_{min} plus the length of time associated with one generation time for that stock or stock complex* (**Alternative 3**)*; (ii) The amount of time the stock or stock complex is expected to take to rebuild to B_{msy} if fished at 75 percent of MFMT* (**Preferred Alternative 5**)*; or (iii) T_{min} multiplied by two* (**Alternative 4**)*."*

The rebuilding timeframe based on T_{min} is **Alternative 2** and the range of potential rebuilding timeframes based on T_{max} is captured in **Alternatives 3** through **5**. Year 1 for all the rebuilding timeframes would be 2022 (Refer to Chapter 2, Section 2.1.1).

Alternatives proposed under this action would not result in any biological effects, positive or negative, on co-occurring species (refer to Bycatch Practicability Analysis [BPA; Appendix G] and Section 3.2.2).

The actions in this amendment are not expected to negatively impact snapper grouper essential fish habitat (EFH). Fishing effort is not expected to significantly increase as a result of this action, nor are changes in fishing techniques or behavior expected that would affect EFH. The predicted effects on EFH are applicable to all actions in this amendment.

Expected Effects to Protected Species

The actions in this amendment would not significantly modify the way in which the snapper grouper fishery is prosecuted in terms of gear types. Therefore, there are no additional impacts on Endangered Species Act (ESA)-listed species or designated critical habitats anticipated as a result of this action (see Section 3.2.4 for a more detailed description of ESA-listed species and

critical habitat in the action area). The predicted effects on ESA-listed species and designated critical habitats are applicable to all actions in this amendment.

4.1.2 Economic Effects

A rebuilding timeframe does not impose direct economic effects, as it does not directly constrain harvest or fishing effort. There are potential indirect economic effects that can occur due to a rebuilding timeframe, as the length of the rebuilding period selected can determine how future, long term economic benefits from an improved stock, such as improved catch rates and increased ACLs; with shorter rebuilding periods potentially accruing benefits sooner than longer rebuilding periods.

Alternative 1 (No Action) would incur the lowest implied economic benefits, as there would be no rebuilding timeframe which presumably would not aid in the red porgy stock rebuilding. This alternative is not viable as it does not comply with the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) to set a rebuilding timeframe for a species that is determined to be overfished. **Alternative 2** would provide the shortest viable rebuilding period of 11 years, which would be accompanied but the highest implied long term economic benefits. **Preferred Alternative 5** would provide the longest rebuilding period of 26 years; hence, it has the lowest implied economic benefits amongst the viable alternatives. The economic effects for **Alternative 3** (18 years) and **Alternative 4** (22 years) would fall between those of **Alternative 2** and **Preferred Alternative 5**. In summary, it can be expected that implied economic benefits would be highest under **Alternative 2**, followed by **Alternative 3**, **Alternative 4**, **Preferred Alternative 5**, and **Alternative 1 (No Action)**, which is not a viable alternative.

4.1.3 Social Effects

Although defining a rebuilding timeframe is an administrative action, the timeframe will determine the severity of the management measures necessary to rebuild the red porgy resource within the allotted period. The severity of these measures will determine the magnitude of the associated social effects that are expected to accrue during the rebuilding period. Generally, the shorter the rebuilding timeframe, the more severe the harvest restrictions. The more severe the harvest restrictions, the greater the short-term negative effects on fishing communities. Commercial and recreational fishermen may be able to adjust to the restrictions by switching to other species and/or seeking other employment or recreational pursuits, thereby mitigating any potential negative social effects. However, if other species are also depleted, regulations may prevent switching to another fishery and net negative social effects are potentially more severe. If current resource users choose or are economically forced to exit the fishery due to measures implemented to achieve rebuilding, long-term benefits associated with recovery may be realized by a different set of users.

Because the most recent South Atlantic red porgy stock assessment (SEDAR 60 2020) indicates that the stock is overfished and undergoing overfishing a rebuilding timeframe must be established, as proposed in **Alternative 2** through **Preferred Alternative 5**. Therefore, **Alternative 1 (No Action)**, which would not establish a rebuilding timeframe, would require subsequent additional management action to adopt a legally compliant rebuilding plan. Overall,

if the rebuilding timeframe and subsequent management measures ensure the sustainability of the red porgy resource, as envisioned, there would be long-term positive social effects throughout the fishery in the form of consistent access to the resource. Long-term benefits would be experienced soonest under **Alternative 2**, followed by **Alternative 3**, **Alternative 4**, **Preferred Alternative 5**, and **Alternative 1 (No Action)**. Alternatively, fewer short-term negative effects on fishing communities would be seen under **Alternative 1 (No Action)**, followed by **Preferred Alternative 5**, **Alternative 4**, **Alternative 3**, and **Alternative 2**.

4.1.4 Administrative Effects

Alternative 1 (No Action) would not establish a rebuilding timeframe for the red porgy stock and would, therefore, not comply with Magnuson-Stevens Act requirements. **Alternative 2** would rebuild the red porgy in the least amount of time (11 years) followed by **Alternative 3** (18 years), **Alternative 4** (22 years), and **Preferred Alternative 5** would have the longest rebuilding timeframe considered (26 years). The shorter the amount of time required to rebuild the stock would likely require more restrictive harvest regulations for red porgy. **Alternative 1 (No Action)**, which would not establish a rebuilding timeframe, would require subsequent additional management action to adopt a legally compliant rebuilding timeframe. Therefore, it would have the greatest imposed administrative burden on NMFS. Among the action alternatives, **Alternatives 2** through **Preferred Alternative 5**, would also likely impact the administrative environment for NMFS in the form of developing, implementing, and monitoring more restrictive harvest regulations for red porgy, in addition to annually reviewing rebuilding progress.

4.2 Action 2. Revise the red porgy total annual catch limit and annual optimum yield

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

4. Revise the ACL and annual OY to 80% 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.

4.2.1 Biological Effects

Expected effects to red porgy 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 red porgy. **Alternative 1 (No Action)** would no longer be based on BSIA and, therefore, is not a viable alternative. **Alternative 1 (No Action)** would be expected to result in adverse biological effects to the red porgy 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.

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 red porgy stock. However lower catch levels than what is currently allowed, as proposed by **Preferred Alternative 2**, **Alternative 3** and **Alternative 4**, could result in increased discards of red porgy. Over the long term, reducing harvest of red porgy 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 red porgy 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.

Red porgy are often harvested incidentally when fishing for other snapper grouper species, such as vermilion snapper, gray triggerfish, red snapper, and black sea bass. 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 and Section 3.2.2).

4.2.2 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 red porgy, the revised ACLs being considered in **Preferred Alternative 2** through **Alternative 4** would be constraining on harvest and are projected to reduce landings of red porgy for both the commercial and recreational sectors.

The ACL is set equal to the ABC in **Alternative 1 (No Action)** and **Preferred Alternative 2**, with the differences between the two 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 Coastal Household Telephone Survey (CHTS) units to account for private recreational and charter landings while the updated ABC would be inclusive of Fishing Effort Survey (FES) units for these landings. Projections that allow for conversion between both units are not available, as there is no forward-looking conversion between the two units. As such, a direct comparison of **Alternative 1 (No Action)** to **Preferred Alternative 2** is not possible. This applies to comparisons of **Alternative 1 (No Action)** to **Alternatives 3** and **4** as well since these two alternatives also incorporate the updated ABC and thus FES units. As a proxy for the status quo (**Alternative 1 (No Action)**), the five-year (2015-2019) average landings of red porgy are compared to **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** to estimate the economic effects of each alternative.

Commercial

Reducing the total ACL under **Preferred Alternative 2** through **Alternative 4** would result in a smaller sector ACL for the commercial sector. As such the ACL would be constraining on the sector, thereby resulting in reduced commercial landings and subsequent revenues derived from fewer red porgy harvested commercially. According to Overstreet, Perruso, and Liese (2018), from 2014 through 2016, "trip net cash flow" from snapper grouper trips was 42% of the gross revenue on those trips, while "trip net revenue" was 23.9% of the gross revenue from those trips. "Trip net cash flow" represents the additional flow of money to the business from taking a trip. Specifically, trip net cash flow is gross revenue minus the variable costs for fuel, bait, ice, groceries, miscellaneous, and hired crew. As producer surplus (PS) is defined as gross revenue minus variable costs, trip net cash flow is the best measure of net economic benefits to the commercial harvesting sector. "Trip net revenue" represents economic profit at the trip level. Specifically, trip net revenue is gross revenue minus the above variable costs for fuel, bait, ice, groceries, miscellaneous, hired crew, as well as the opportunity cost of the owner's time as captain.

The estimated change in trip gross revenue, trip net cash flow, and trip net revenue for **Preferred Alternative 2**, **Alternatives 3**, and **4** can be found in Tables 4.2.2.1, 4.2.2.2, and 4.2.2.3 respectively. The five-year (2015-2019) average fleet-wide commercial landings of red porgy (99,475 lbs gw; Table 3.3.1.4) were used as a baseline to estimate the economic effects of Action 2 on the commercial sector. Also incorporated into these calculations are assumptions of a status quo allocation of the total ACL (50% recreational: 50% commercial), an ex-vessel price of $2.41 (2019$) per lbs gw, which was the implied average ex-vessel price per lbs gw of red porgy over

the past five years of available data (2015-2019) (Table 3.3.1.4), a conversion ratio of 1.04 for whole weight to gutted weight, and that the entire commercial ACL would be landed. All dollar figures were converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis (BEA). Given the variability in ACL by year, the economic effects of Action 2 on the commercial sector depend on the year examined, but in the first year of implementation (2022) it is estimated that trip net revenue, which is used as a proxy for PS, would change by -$66,624, -$70,031, and -$73,437 from **Preferred Alternative 2**, **Alternative 3**, and **4**, respectively.

Table 4.2.2.1. Estimated change in commercial landings, trip gross revenue, trip net cash flow, and trip net revenue under **Preferred Alternative 2** compared to average landings from 2016-2019.

Year	Estimated change in landings (lbs ww)	Estimated Change in Trip Gross Revenue (2019$)	Estimated Change in Trip Net Cash Flow (2019$)	Estimated Change in Trip Net Revenue (2019$)
2022	-65,821	-$158,629	-$66,624	-$37,912
2023	-60,533	-$145,884	-$61,271	-$34,866
2024	-57,648	-$138,932	-$58,351	-$33,205
2025	-55,725	-$134,297	-$56,405	-$32,097
2026	-53,802	-$129,663	-$54,458	-$30,989
Average annual	-58,706	-$141,481	-$59,422	-$33,814

Table 4.2.2.2. Estimated change in commercial landings, trip gross revenue, trip net cash flow, and trip net revenue under **Alternative 3** compared to average landings from 2016-2019.

Year	Estimated change in landings (lbs ww)	Estimated Change in Trip Gross Revenue (2019$)	Estimated Change in Trip Net Cash Flow (2019$)	Estimated Change in Trip Net Revenue (2019$)
2022	-69,187	-$166,740	-$70,031	-$39,851
2023	-64,427	-$155,269	-$65,213	-$37,109
2024	-61,831	-$149,012	-$62,585	-$35,614
2025	-60,100	-$144,841	-$60,833	-$34,617
2026	-58,369	-$140,670	-$59,081	-$33,620
Average annual	-62,783	-$151,306	-$63,549	-$36,162

Table 4.2.2.3. Estimated change in commercial landings, trip gross revenue, trip net cash flow, and trip net revenue under **Alternative 4** compared to average landings from 2016-2019.

Year	Estimated change in landings (lbs ww)	Estimated Change in Trip Gross Revenue (2019$)	Estimated Change in Trip Net Cash Flow (2019$)	Estimated Change in Trip Net Revenue (2019$)
2022	-72,552	-$174,850	-$73,437	-$41,789
2023	-68,321	-$164,654	-$69,155	-$39,352
2024	-66,013	-$159,092	-$66,819	-$38,023
2025	-64,475	-$155,385	-$65,262	-$37,137
2026	-62,937	-$151,677	-$63,704	-$36,251
Average annual	-66,860	-$161,132	-$67,675	-$38,510

Based on the information provided in Table 3.3.1.4, red porgy landings have resulted in average annual gross revenues of $237,755 over the past five years (2019$). The economic effects on individual vessel owners from **Preferred Alternative 2** through **Alternative 4** would depend on each owner's profit maximization strategy and their dependence on red porgy. These types of individual vessel level effects cannot be determined with available models. Overall, approximately 161 vessels harvested red porgy on average each year from 2015 through 2019 (Table 3.3.1.3). The average annual gross revenues for these vessels was $68,079 (2019$) per vessel during this time (Table 3.3.1.6). **Preferred Alternative 2** through **Alternative 4** are expected to reduce annual gross revenue per vessel by $985, $1,036, and $1,086 in the first year of implementation (2022) under each alternative respectively (2019$). In terms of percent of gross revenue per vessel, this is estimated to result in a change of -1.45%, -1.52%, and -1.60%.

Total short-term economic benefits for commercial vessels would be highest under **Alternative 1 (No Action)**, followed by **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**. 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 for commercial fishing vessels.

Recreational

Reducing the total ACL under **Preferred Alternative 2** through **Alternative 4** would result in a smaller sector ACL for the recreational sector. As such the ACL would be constraining on the sector, thereby resulting in reduced recreational landings and subsequent consumer surplus (CS) derived from few red porgy harvested recreationally. As mentioned, the total ACL for **Alternative 1 (No Action)** incorporates CHTS based estimates of recreational landings while **Preferred Alternative 2** through **Alternative 4** incorporate FES based estimates of recreational landings, therefore direct comparison is not appropriate. However, the current ACL for red porgy is not constraining for the sector, therefore previous landings in FES terms can be used a proxy to measure the economic effects of **Preferred Alternative 2** through **Alternative 4** in comparison to the status quo **(Alternative 1 (No Action)**.

As such, the five-year average recreational landings of red porgy in FES terms (135,392 fish)(Table 4.2.2.4) were used as a baseline to estimate the economic effects of Action 2 on the recreational sector (Tables 4.2.2.5, 4.2.2.6, and 4.2.2.7). Also incorporated into these calculations are assumptions of a status quo allocation of the total ACL (50% recreational: 50% commercial), an average weight of 1.92 lbs ww per recreationally landed red porgy (Table 4.2.2.4) to convert the recreational sector ACL from pounds to numbers of fish, an estimated proxy CS estimate of $13 (2019$) per red porgy (Haab et al. 2012; value per fish for a second "generic snapper" kept on a trip updated to 2019 dollars), and that the entire recreational ACL would be landed. All dollar figures were converted to 2019 dollars using the annual, not seasonally adjusted GDP implicit price deflator provided by the U.S. Bureau of Economic Analysis (BEA). Given the variability in ACL by year, the economic effects of Action 2 depend on the year examined, but in the first year of implementation (2022) it is estimated that CS would change by -$1,554,327, -$1,578,020, and -$1,601,714 from **Preferred Alternative 2**, **Alternative 3**, and **4**, respectively. Total short-term economic benefits for the recreational sector would be highest under **Alternative 1 (No Action)**, followed by **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4**.

Table 4.2.2.4. The average recreational red porgy weight by year from 2015-2019.

Year	Number of Fish	Weight (lbs ww)	Average Weight (lbs ww)
2015	81,486	162,639	2.00
2016	293,808	581,889	1.98
2017	72,775	145,645	2.00
2018	201,983	387,053	1.92
2019	26,907	45,821	1.70
Mean 2015-2019	135,392	264,609	1.92

Source: MRIP_FES_rec81_20wv6_02Mar21w2014to2020LAcreel; SEFSC MRIP FES Recreational ACL file (March 2, 2021).

Table 4.2.2.5. Estimated change in recreational landings and CS under **Preferred Alternative 2** compared to average landings from 2016-2019.

Year	Estimated change in landings (numbers of fish)	Estimated Change in CS (2019$)
2022	-118,286	-$1,537,404
2023	-116,723	-$1,517,095
2024	-115,161	-$1,496,787
2025	-114,119	-$1,483,248
2026	-113,078	-$1,469,709
Average annual	-115,473	-$1,500,849

Table 4.2.2.6. Estimated change in recreational landings and CS under **Alternative 3** compared to average landings from 2016-2019.

Year	Estimated change in landings (numbers of fish)	Estimated Change in CS (2019$)
2022	-120,239	-$1,562,789
2023	-118,833	-$1,544,512
2024	-117,427	-$1,526,234
2025	-116,489	-$1,514,049
2026	-115,552	-$1,501,864
Average annual	-117,708	-$1,529,890

Table 4.2.2.7. Estimated change in recreational landings and CS under **Alternative 4** compared to average landings from 2016-2019.

Year	Estimated change in landings (numbers of fish)	Estimated Change in CS (2019$)
2022	-122,192	-$1,588,175
2023	-120,942	-$1,571,928
2024	-119,692	-$1,555,681
2025	-118,859	-$1,544,850
2026	-118,026	-$1,534,019
Average annual	-119,942	-$1,558,931

Total

The economic effects of Action 2 would greatly depend on the year examined but based on cumulative estimated reductions in recreational CS and commercial PS, it is estimated that net economic benefits would change by -$1,604,028, -$1,632,820, and -$1,661,612 in the first year of implementation (2022) from **Preferred Alternative 2**, **Alternative 3**, and **4** respectively (Table 4.2.2.8 through Table 4.2.2.10).

Table 4.2.2.8. Estimated change in CS, PS, and net economic benefits under **Preferred Alternative 2** compared to average landings from 2016-2019.

Year	Estimated Change in CS (2019$)	Estimated Change in PS (2019$)	Total Estimated Change in Net Economic Benefits (2019$)
2022	-$1,537,404	-$66,624	-$1,604,028
2023	-$1,517,095	-$61,271	-$1,578,367
2024	-$1,496,787	-$58,351	-$1,555,138
2025	-$1,483,248	-$56,405	-$1,539,653
2026	-$1,469,709	-$54,458	-$1,524,167
Average	-$1,500,849	-$59,422	-$1,560,271

Table 4.2.2.9. Estimated change in CS, PS, and net economic benefits under **Alternative 3** compared to average landings from 2016-2019**.**

Year	Estimated Change in CS (2019$)	Estimated Change in PS (2019$)	Total Estimated Change in Net Economic Benefits (2019$)
2022	-$1,562,789	-$70,031	-$1,632,820
2023	-$1,544,512	-$65,213	-$1,609,725
2024	-$1,526,234	-$62,585	-$1,588,819
2025	-$1,514,049	-$60,833	-$1,574,882
2026	-$1,501,864	-$59,081	-$1,560,945
Average	-$1,529,890	-$63,549	-$1,593,438

Table 4.2.2.10. Estimated change in CS, PS, and net economic benefits under **Alternative 4** compared to average landings from 2016-2019.

Year	Estimated Change in CS (2019$)	Estimated Change in PS (2019$)	Total Estimated Change in Net Economic Benefits (2019$)
2022	-$1,588,175	-$73,437	-$1,661,612
2023	-$1,571,928	-$69,155	-$1,641,083
2024	-$1,555,681	-$66,819	-$1,622,500
2025	-$1,544,850	-$65,262	-$1,610,112
2026	-$1,534,019	-$63,704	-$1,597,723
Average	-$1,558,931	-$67,675	-$1,626,606

4.2.3 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 sector and for-hire and private components of the 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 due to regulatory closures. However, restrictions on harvest contribute to sustainable management goals, and are expected to be beneficial to fishermen and communities in the long term. Generally, the higher the ACL the greater the short-term social benefits that would be expected to accrue if harvest is sustainable.

Under **Preferred Alternative 2** through **Alternative 4**, the ACL for red porgy 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. **Alternative 1 (No Action)** would not update the red porgy ACL based on current information and would not provide the social benefits associated with the revised (FES) MRIP estimates of recreational harvest. Additionally, **Alternative 1 (No Action)** would retain a total ACL that would not end overfishing of red porgy.

Commercial and recreational landings may vary year by year and depending on the sector allocations chosen in Action 3, there may be some years in which landings would exceed their respective ACL and AMs would be triggered. There would likely be some negative effects on recreational fishermen and for-hire and commercial businesses that target red porgy. In general, a higher ACL would lower the chance of triggering an AM and result in the lowest level of negative effects on fishing communities. Among the action alternatives, **Preferred Alternative 2** would be the most beneficial for fishermen, followed by **Alternative 3**, and **Alternative 4**. As stated above, **Alternative 1 (No Action)** is not a viable alternative because it would no longer be based on BSIA.

4.2.4 Administrative Effects

Reducing the total ACL and annual OY for red porgy 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 under each of the alternatives, the administrative effects are likely going to be minimal and similar.

4.3 Action 3. Revise the red porgy sector allocations and sector annual catch limits

4.3.1 Biological Effects

Alternatives*

1 (No Action). Apply the current allocation percentages to the revised total ACL. Total ACL is allocated 50% to the commercial sector and 50% to the recreational sector.

2. Apply the allocation formula: ACL = ((mean landings 2006-2008)*0.5)) + ((mean landings 1986-2008)*0.5). This would result in a commercial allocation of 51.43% and a recreational allocation of 48.57% using revised recreational landings estimates from the Fishing Effort Survey.

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

Expected effects to red porgy and co-occurring species

Biological effects are not expected to be substantially different between **Alternative 1 (No Action)** and **Preferred Alternative 2**, since the allocation percentages would be similar and do not affect the total ACL specified in Action 2. **Preferred Alternative 2** would allocate a slightly higher percentage to the commercial sector. Because the commercial sector tends to harvest red porgy from deeper water than the recreational sector, it is possible that a higher allocation to the commercial sector could increase overall discard mortality. Therefore, **Preferred Alternative 2** could incur negative biological effects on the red porgy stock relative to **Alternative 1 (No Action)**. However, the commercial sector has effective in-season and post-season AMs in place to prevent the commercial ACL from being exceeded.

Red porgy are often harvested incidentally when fishing for other snapper grouper species, such as vermilion snapper, gray triggerfish, red snapper, and black sea bass. 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 [Appendix G] and Section 3.2.2).

4.3.2 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 red porgy, the revised sector allocations and resulting ACLs being considered in **Alternatives 1 (No Action)** and **2** would be constraining on harvest for both sectors and shifts between sectors would create distributional economic effects by sector, depending on the allocation.

Under **Alternative 1 (No Action)**, sector allocations would remain at 50 percent of the total ACL for each sector. This allocation results in a reduction in total economic benefits being derived to both the commercial and recreational sectors under the new ACLs, but no change in net economic benefits. The economic effects of changes in the sector allocations on a pound basis under this alternative are addressed in Preferred Alternative 2 of Action 1. Under

Preferred Alternative 2, the commercial sector would receive an additional 1,072 lbs ww of red porgy in the sector ACL, while the recreational sector would receive 1,072 lbs ww less in the sector ACL. The economic effects of this alternative would depend on the year examined, but in the first year that the new total ACL is implemented (2022), the expected change in net economic benefits is a reduction in net benefits to the recreational sector of $7,257, an increase in net benefits to the commercial sector of $1,044 and a reduction in total net benefits of $6,213 (Table 4.3.2.1).

Table 4.3.2.1. Estimated net economic benefits under **Preferred Alternative 2** compared to **Alternative 1 (No Action)**.

Year	Estimated change in net economic benefits for the recreational sector (2019$)[1]	Estimated change in net economic benefits for the commercial sector (2019$)[2]	Total estimated change in net economic benefits (2019$)
2022	-$7,257	$1,044	-$6,213
2023	-$7,839	$1,127	-$6,712
2024	-$8,421	$1,211	-$7,210
2025	-$8,807	$1,266	-$7,541
2026	-$9,193	$1,323	-$7,870
Average	-$8,303	$1,194	-$7,109

[1]Based on assumptions of an average weight of 1.92 lbs ww per recreationally landed red porgy (SEFSC ACL Files) to convert the recreational sector ACL from pounds to numbers of fish, an estimated proxy CS estimate of $13 (2019$) per red porgy (Haab et al. 2012), and that the entire recreational ACL would be landed.
[2]Based on the assumptions of an ex-vessel price of $2.41 (2019$) per lbs gw, which was the average ex-vessel price per lbs gw of Red Porgy over the past five years of available data (2015-2019) (Table 3.3.1.4), a conversion ratio of 1.04 for whole weight to gutted weight, and that the entire commercial ACL would be landed.

4.3.3 Social Effects

Alternative 1 (No Action) would maintain the current sector allocation percentages and may have few social effects as both sectors would have an equal ACL. With **Preferred Alternative 2**, there would be a slight decrease in the recreational percentage compared to **Alternative 1 (No Action)**, which could have some negative social effects if recreational fishermen have a negative perception of this change due to the slight decrease in fishing opportunity and concerns about long-term social effects, especially if future actions further decreased harvest opportunities.

Many different social effects could result as allocations are further discussed, and perceptions are formed. In the past, there has been some resistance to decreasing a given sector's percentage allocation. It is difficult to predict the social effects of any allocation scheme as it would depend upon decisions made in conjunction with other related actions. A reduction in allocation for one sector may be compounded by a restrictive choice of ABC or ACL (Action 2) and AMs (Action 6). Therefore, the choice of an allocation would need to be assessed with the other actions within this amendment to determine the overall social effects and whether short-term losses are offset by any long-term biological gains. Both the commercial and recreational sectors are projected to experience closures under **Preferred Alternative 2**, even considering proposed actions that aim to reduce harvest (Action 4 and Sub-Actions 5a and 5b). While closures are

likely to result in short-term negative social effects to fishing communities associated with decreased access to the resource, ending overfishing and slowing the rate of harvest is expected to contribute to rebuilding goals for red porgy, which would be expected to contribute to the sustainability of harvest and the health of the red porgy stock and provide for long-term social benefits.

4.3.4 Administrative Effects

Administrative effects would not vary between **Alternative 1 (No Action)** and **Preferred Alternative 2** because the sector allocations are essentially the same and an in-season closure is predicted for both sectors. Administrative burdens depending on the recreational AM (Action 6) 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.

4.4 Action 4. Modify red porgy commercial management measures

4.4.1 Biological Effects

Expected effects to red porgy and co-occurring species

The biological effects of **Preferred Alternatives 2** and **3**, and their respective sub-alternatives, would not differ from **Alternative 1 (No Action)** in terms of risk of overfishing as overall harvest would be limited to the commercial ACL and split-season quotas, and AMs would be triggered if the ACL was reached.

Reducing commercial trip limits in combination with a reduction in the commercial ACL under Action 3 could extend the length of the respective commercial fishing seasons relative to **Alternative 1 (No Action)** (Table 4.4.1.1). Allowing some retention of incidentally harvested red porgy could reduce potential negative effects resulting from increased discards. Red porgy has the second highest amount of discards in the commercial vertical line component of the snapper grouper fishery, with 78% of discards attributed to "out of season" (2015-2019; Appendix G, BPA). The discard mortality rate applied to the commercial fleet in the latest red porgy assessment was 53% (SEDAR 60 2020).

Alternatives*

1 (No Action). The commercial trip limit is 60 fish from January 1 - April 30 and 120 fish from May 1 - December 31.

2. Reduce the commercial trip limit from January 1 – April 30 to:
2a. 15 fish per trip
2b. 20 fish per trip
2c. 30 fish per trip
2d. 45 fish per trip

3. Reduce the commercial trip limit from May 1 – December 31 to:
3a. 15 fish per trip
3b. 20 fish per trip
3c. 30 fish per trip
3d. 45 fish per trip
3e. 60 fish per trip

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

Table 4.4.1.1. The projected 2022 closure date of red porgy by season with different trip limit options and 95% confidence interval (CI). Note that 30% of the ACL (37,089 lbs gw) is allocated to the January-April season (season 1) and 70% to the May-December season (season 2).

Sub-alternatives	Season	ACL (lbs gw)	Trip Limit (# of Red Porgy)	Closure Date	95% CI
No Action	**1**	11,127	60 - Current	February 13	Jan 29 – Mar 25
Pref 2a	**1**	11,127	15	April 19	Mar 14 – No Closure
2b	**1**	11,127	20	March 29	Feb 27 – No Closure
2c	**1**	11,127	30	March 6	Feb 13 – No Closure
2d	**1**	11,127	45	February 20	Feb 3 – Apr 7
No Action	**2**	25,962	120 - Current	June 22	June 14 – July 4
Pref 3a	**2**	25,962	15	November 9	Sep 12 – No Closure
3b	**2**	25,962	20	September 18	Aug 13 – Dec 31
3c	**2**	25,962	30	August 9	July 21 – Sep 27
3d	**2**	25,962	45	July 18	July 7 – Aug 17
3e	**2**	25,962	60	July 8	June 29 – July 31

Under the reduced commercial ACL proposed in Action 2, **Alternative 1 (No Action)** would result in the shortest commercial fishing seasons, the largest amount of discards over the long-term, and thus the highest adverse effects to the red porgy stock among the alternatives considered. A commercial trip limit of 15 red porgy per trip in both seasons, as proposed under **Preferred Sub-alternatives 2a** and **3a**, would result in the longest predicted commercial seasons among the alternatives and sub-alternatives considered, would allow some retention of red porgy over the longest time thus minimizing discards to the largest extent, and would therefore result in the lowest adverse biological effects to the stock. Predicted season closure dates from combinations of sub-alternatives under this action can be explored using the Red Porgy Decision Tool.

In general, reductions in commercial trip limits could increase the number of discards, as fish that would normally be retained would have to be discarded under a lower trip limit. Recent retrospective analyses of commercial trip limits found that when a per-fish trip limit was reduced, fishers responded by retaining larger fish on average, diminishing the predicted percent reduction in landings (Pulver et al. 2019). Since the proposed action would reduce the per-fish trip limit, the predicted reduction in landings may be overestimated in Table 4.4.1.2. The percent of trips harvesting red porgy from 2015 through 2019 shows greater than 50% of trips harvested less than 30 fish during a trip (Figure 4.4.1.1). **Sub-alternatives 2c** and **3c** propose a trip limit of 30 fish during both fishing seasons. Even though these low trip limits would result in shorter fishing seasons than under the 15-fish trip limit (**Preferred Sub-alternatives 2a** and **3a**), matching the trip limit to what fishers are catching on an average trip may reduce discards over the long-term thus reducing adverse effects to the red porgy stock. Hence, **Sub-alternatives 2c** and **3c** would impart the highest biological benefit to the stock among the alternatives and sub-alternatives considered relative to **Alternative 1 (No Action)**.

Table 4.4.1.2. The predicted percent change in landings per trip from either the 60-red porgy (January-April) or 120-red porgy (May-December) trip limits.

Current Trip Limit (# of Red Porgy)	Potential Trip Limit (# of Red Porgy)	Predicted Change in Landings per Trip
60	15	-62%
60	20	-52%
60	30	-35%
60	45	-15%
120	15	-71%
120	20	-64%
120	30	-51%
120	45	-36%
120	60	-25%

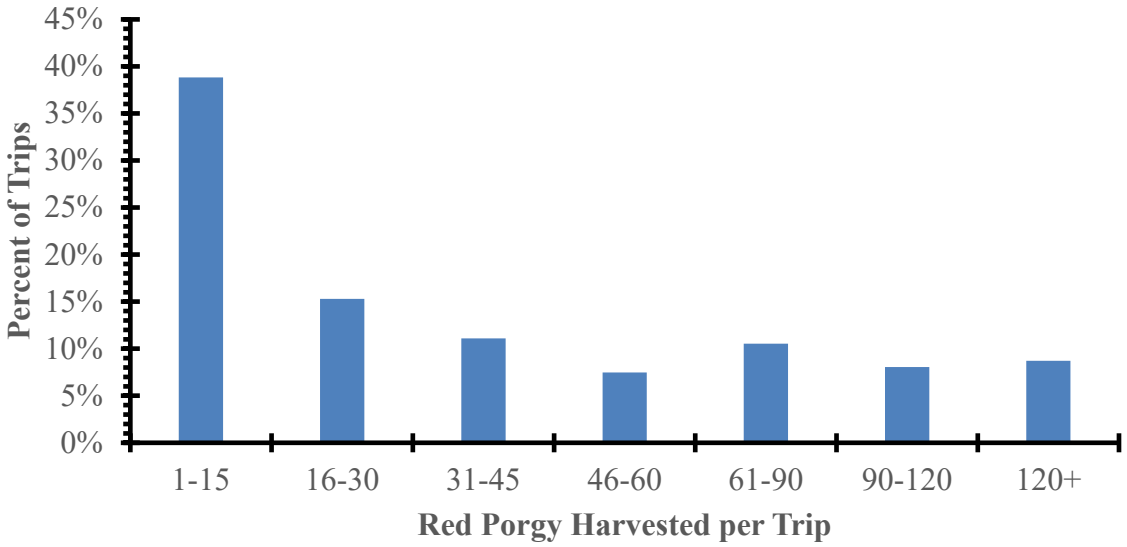

Figure 4.4.1.1. The percent of commercial trips (n=5,669) harvesting red porgy (numbers of fish) by bin from 2015 through 2019.
Source: SEFSC Commercial Logbook [May 26, 2020].

Red porgy are often harvested incidentally when fishing for other snapper grouper species, such as vermilion snapper, gray triggerfish, red snapper, and black sea bass. Substantial changes in fishing effort or behavior are not expected as a result of this action (Figure 4.4.1.1), thus the proposed commercial trip limits 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 and Section 3.2.2).

4.4.2 Economic Effects

Generally, commercial trip limits are not considered to be economically efficient because they require an increase in the number of trips and associated trip costs to land the same amount of

fish. However, the negative economic effects of this inefficiency can be offset by price support resulting from the supply limitations and the lengthening of seasons. Given the ACL for red porgy that restricts maximum harvest to sustainable levels, the alternative with the fewest number of trips that have to stop retaining red porgy because the trip limit has been reached would result in the least amount of direct negative economic effects.

Since the revised commercial sector ACL for red porgy is expected to be fully harvested regardless of the alternative or sub-alternative chosen, the total net economic effects expected to be similar amongst the alternatives. The higher trip limits being considered, particularly those in **Alternative 1 (No Action)**, **Sub-alternative 2d**, and **Sub-alternative 3b**, and **Sub-alternative 3e** may help increase net operative revenues on trips where red porgy are landed. These relatively higher trip limits would also likely result in the commercial AMs being triggered sooner, thus creating an earlier commercial harvest closure for the species (Table 4.4.1.1). Conversely, lower trip limits, such as those in **Preferred Sub-alternative 2a** and **Preferred Sub-alternative 3a**, would allow for some level of commercial red porgy harvest over a longer period but contribute less to net operating revenue on trips where red porgy are landed. In terms of potential net economic benefits **Alternative 1 (No Action)** would allow for the most benefits followed by **Sub-alternative 3e**, **3d** and **2d**, **3c** and **2c**, **3b** and **2b**, and **Preferred Sub-alternatives 3a** and **2a**.

4.4.3 Social Effects

In general, a commercial trip limit may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded, but trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away. However, it is likely that fishermen who have targeted red porgy in recent years also target other species and may be able to adjust their businesses to adapt to regulatory changes.

Under the ACLs proposed in Action 2 and Action 3, commercial landings of red porgy in the South Atlantic are likely to trigger AMs. Reducing the commercial trip limit could extend the length of the respective commercial fishing seasons (Table 4.4.1.1) and reduce the negative short-term effects of shorter seasons (Section 4.2.3). **Preferred Sub-alternatives 2a** and **3a** would result in the largest reduction in landings and **Alternative 1 (No Action)** would result in no reduction in landings. When combined with **Preferred Alternative 2** for Action 3, those reductions are estimated to be 62% and 71% in season one and season two, respectively (Table 4.4.1.2) with seasonal closures projected to occur on April 19th (season one) and November 9th (season two) (Table 4.4.1.1). Social effects depend on how commercial fishing communities are affected by a lower trip limit and a longer season or a higher trip limit and a shorter season and the likelihood of commercial harvest being open during times of the year when it is profitable to target red porgy.

Majority of trips landing red porgy harvested less than 30 fish during a trip (Figure 4.4.1.1). **Sub-alternatives 2c** and **3c** propose a trip limit of 30 fish during both fishing seasons. While those low trip limits result in shorter fishing seasons, matching the trip limit to what fishermen are already catching on an average trip may reduce the negative social effects associated with a lower trip limit. Slowing the rate of harvest and contributing to rebuilding goals for red porgy

would be expected to contribute to the sustainability of harvest and the health of the red porgy stock and provide for long-term social benefits. In terms of potential social benefits **Alternative 1 (No Action)** would allow for the most benefits followed by **Sub-alternative 3e**, **3d** and **2d**, **3c** and **2c**, **3b** and **2b**, and **Preferred Sub-alternatives 3a** and **2a**.

4.4.4 Administrative Effects

Alternative 1 (No Action), and **Preferred Alternative 2** and **3** would not substantially change the administrative environment from its current state. Currently, there is a commercial quota monitoring system in place for red porgy that is utilized to monitor landings against the commercial ACL. To date, NMFS has not needed to close the commercial sector based on the current ACL. However, based on predicted landings for the updated ACLs in Action 2 and 3, it is likely NMFS would need to prepare and issue closure notices during both fishing seasons. With an in-season quota closure, there is potential that the landings do not reach 100% of the ACL. In that circumstance, guidance from the Council to NMFS has recommended that harvest for snapper grouper species should reopen if landings are less than 95% of the ACL, and the projected number of days to meet the ACL is two or more days. Therefore, NMFS would have to monitor the landings and prepare a reopening notice.

Since the yearly quota is divided into two fishing seasons, there is potential that fishery managers may have to prepare four in-season notices (i.e., closure notice and reopening notice for each of two seasons). Additionally, enforcement personnel would be burdened with an increase in potential harvest closures, which they would have to monitor. Outreach materials for each in-season action would take the form of fishery bulletins and updates to NMFS Southeast Regional Office's web site. The probability of an in-season closure increase with increasing trip limits, therefore, **Alternative 1 (No Action)** would impose the most administrative burden, followed by combinations of **Sub-alternatives 2d**, **2c**, **2b** and **3e**, **3d**, **3c**, and **3b**. **Preferred Sub-alternatives 2a** and **3a** would impose the least administrative burden of the proposed alternatives.

4.5 Action 5. Modify red porgy recreational management measures

4.5.1 Sub-Action 5a. Bag Limits

4.5.1.1 Biological Effects

Alternatives*

1 (No Action). The recreational bag limit is 3 fish per person per day, or 3 per trip.

2. Reduce the recreational bag limit to 1 per person per day or per trip.

3. Reduce the recreational bag limit to 2 per person per day or per trip.

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

Expected effects to red porgy and co-occurring species

Bag limits and seasonal closures are designed to reduce fishing effort in the form of the number of targeted fishing trips or time spent pursuing a species. Under **Alternative 1 (No Action)**, data show that most recreational trips from 2015 through 2019 landed, on average, 0 to 1 red porgy (Figure 4.5.1.1). A reduction in the recreational bag limit to 1 fish per person per day or per trip, as proposed under **Preferred Alternative 2**, would result in an overall average reduction of 29% for the recreational sector, with the highest reduction for the private recreational mode. A bag limit of 2 fish, as proposed under **Alternative 3**, would result in a 9% reduction in red porgy landings (Table 4.5.1.1). Biological benefits to the red porgy stock would be highest under **Preferred Alternative 2** as a 1-fish bag limit would theoretically result in less harvest. However, given the distribution of the recreational catch (Figure 4.5.1.1) and a revision to the recreational ACL to a level that ends overfishing under Action 2, a reduction in the bag limit would have negligible biological benefits to the stock. If the proposed bag limit reductions were to increase discarding of red porgy, however, biological effects on the stock could be negative.

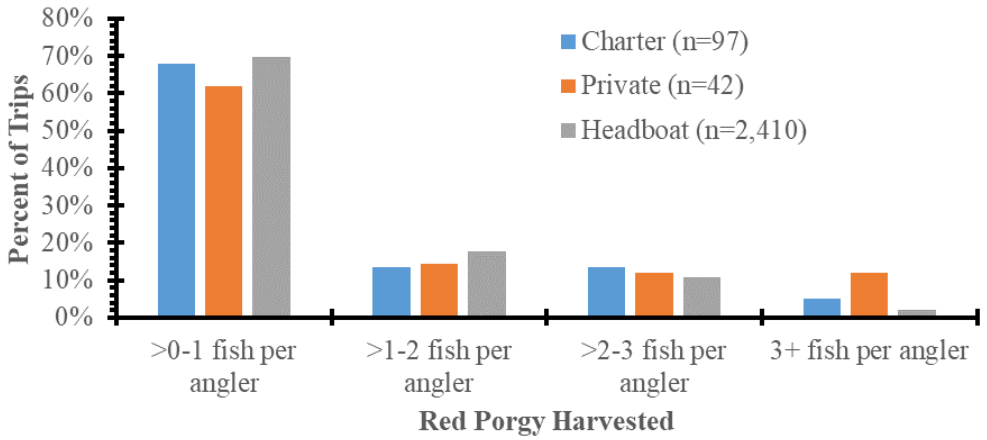

Figure 4.5.1.1. The percent of trips harvesting red porgy for private, charter, and headboat modes by bin from 2015 through 2019.
Sources: MRIP-FES survey data available at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads. SRHS CRNF file [July 10, 2020].

Table 4.5.1.1. The percent reduction in red porgy landings by for each potential bag limit by mode and overall with 95% confidence interval. Note the total percent reduction is weighted by the contribution of each mode's landings to overall red porgy landings.

Mode	Preferred alternative 2 (1 fish)	Alternative 3 (2 fish)
Charter	12% (7-23%)	4% (2-8%)
Private	32% (21-42%)	10% (4-17%)
Headboat	28% (27-30%)	6% (5-7%)
Overall	29% (22-36%)	9% (4-12%)

Season lengths were projected with cumulative landings and upper and lower 95% confidence intervals for the recreational ACL of 37,500 lbs ww. The predicted closure date for the recreational ACL proposed under Action 2 spans from May 7 for the 3-red porgy bag limit (**Alternative 1 (No Action)**) to May 19 for the 1-red porgy per angler bag limit (**Preferred Alternative 2**). Bag limit alternatives can be explored using the Red Porgy Decision Tool. **Preferred Alternative 2** could potentially allow harvest of red porgy for an additional 12 days over **Alternative 1 (No Action)** under the proposed new recreational ACL (Action 2). Note that there is considerable uncertainty in the predictions indicated by the large confidence intervals.

The most restrictive bag limit alternative (**Preferred Alternative 2**) would be expected to impart the most biological benefit to the red porgy stock as it would result in the greatest reduction in potential harvest of the alternatives considered. However, under the proposed recreational ACL under Action 2, none of the alternatives are predicted to allow recreational harvest to continue year-round. Also, if bag limits are too restrictive or recreational harvest is eliminated, regulatory discards would increase resulting in negative biological effects on the red porgy stock. Alternatives under this sub-action do not consider a change in the recreational fishing year and assume a fishing year that begins on January 1. Red porgy spawn in late winter and early spring (Section 3.2.1) and reducing fishing mortality during the spawning season would have positive biological effects on the stock. As such, none of the proposed alternatives under this sub-action would benefit the stock directly.

4.5.1.2 Economic Effects

Generally, angler satisfaction increases with the number of fish that can be harvested and the size of the fish. The smaller the bag limit the greater the probability that the satisfaction from an angler trip could be affected. Anglers tend to land two or fewer red porgy on a single trip (Figure 4.5.1.1). Therefore, leaving the bag limit at 3 fish per person per day (**Alternative 1 (No Action)**) that would allow more than an average of 2 fish per person (**Alternative 3**) is expected to have minimal economic effects on a trip, while setting the bag limit at 1 fish per person (**Preferred Alternative 2**) would have noticeably larger negative economic effects on a trip-level. Conversely, more restrictive retention limits would allow for longer open harvest seasons. Since the revised recreational sector ACL for red porgy is expected to be fully harvested regardless of the alternative chosen, the total net economic effects are expected to be similar amongst the alternatives. Furthermore, since red porgy are rarely targeted (Section 3.3.2.2), it is assumed that a reduction in the bag limit will not affect for-hire fishing trips in the South

Atlantic region therefore there are no estimated changes in PS provided for the recreational sector.

4.5.1.3 Social Effects

In general, the social effects of modifying the recreational bag or vessel limit would be a trade-off between longer seasons under lower bag limits, and the negative effects on recreational fishing opportunities because the bag limit is too low. While **Preferred Alternative 2**, **Alternative 3**, and **Alternative 4** would limit recreational fishing opportunities for red porgy and change the recreational fishing experience by restricting the number of red porgy that can be kept, the season would also likely be longer because the rate of harvest would be slower.

Different levels of recreational fishing opportunities under each alternative could affect recreational anglers and for-hire businesses targeting red porgy. The social effects of bag limits can be associated with how many and at what times of year the recreational catch may be retained. Additionally, any long-term negative biological effects on the stock due to recreational landings from higher bag limits, or dead discards due to lower bag limits, would also likely result in negative effects of recreational fishing opportunities in future years.

Social benefits from improved recreational fishing opportunities would result from a bag limit that has the largest portion of the year open to recreational harvest, with the highest number of fish per person. **Alternative 1 (No Action)** would be the most beneficial to recreational fishermen in the short-term but could detract from measures to rebuild the red porgy stock. The most restrictive recreational bag limits (**Preferred Alternative 2**), which is projected to reduce catch by 29% overall, may eliminate some recreational fishing opportunities for for-hire and private recreational anglers (Table 4.5.1.1). Less restrictive recreational limits in **Alternative 3** and **Alternative 1 (No Action)** would improve benefits to the recreational sector and associated businesses but would also substantially shorten the fishing season under the recreational ACL. The length of the fishing season would ultimately depend on how the proposed bag limits interact with the proposed fishing seasons (Sub-Action 5b).

4.5.1.4 Administrative Effects

Administrative effects would not vary much between **Alternative 1 (No Action)**, **Preferred Alternative 2**, and **Alternative 3**. Recreational bag limits are already being monitored for enforcement and compliance. Minor administrative burdens related to deviating from **Alternative 1 (No Action)** would be related to distributing information, education, and enforcement.

4.5.2 Sub-Action 5b. Recreational fishing season

4.5.2.1 Biological Effects

Alternatives*

1 (No Action). Recreational harvest is allowed year-round until the recreational annual catch limit is met or is projected to be met.

2. Establish a recreational fishing season during January through April.

3. Establish a recreational fishing season during May through June.

4. Establish a recreational fishing season during July through August.

5. Establish a recreational fishing season during June through August.

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

Expected effects to red porgy and co-occurring species

Alternative 1 (No Action) would keep the recreational season start date as January 1. Predicted season length for the recreational sector is dependent on which preferred alternative is selected in Sub-Action 5a (bag limit). In the South Atlantic, red porgy spawn from January through May and spawning activity peaks from January through March. Although recreational landings are generally low in the months of January through April (Figure 4.5.2.1), **Alternative 1 (No Action)** would impart the most adverse effects to spawning red porgy among the alternatives considered. Red porgy are not in the top 10 of total numbers of discards in the recreational sector, but the landings to discard ratios for all recreational modes are high (63% charter to 106% headboat; Appendix G, BPA). The discard mortality rate applied to the recreational fleet in the latest red porgy update assessment was 41% (SEDAR 60 2020). **Alternative 2** would impart the same effects as **Alternative 1 (No Action)**.

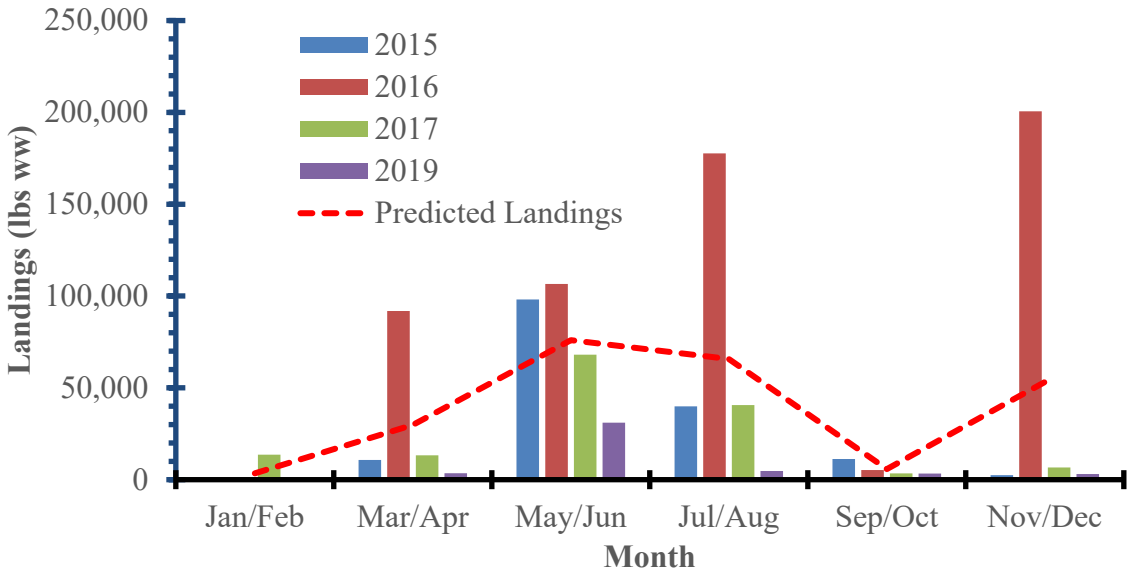

Figure 4.5.2.1. South Atlantic red porgy recreational landings by two-month wave and predicted future landings. Source: SEFSC MRIP FES Recreational ACL Dataset [September 16, 2020].

Preferred Alternatives 3 and **4** combined would allow harvest of red porgy during four months, spanning two MRIP waves. These two alternatives would allow fishing during months of highest recreational fishing effort, highest predicted red porgy landings, and could reduce regulatory discards. **Preferred Alternatives 3** and **4** would also prohibit harvest during the red porgy spawning season, thus protecting spawning fish. Under the proposed 1-fish per angler bag limit (Sub-Action 5a), the recreational ACL is expected to be met by June 11 with a May 1 start date (Table 4.5.2.1). Under **Alternative 5**, the fishing season would start in June, mid-way through Wave 3. Under this alternative, the recreational ACL is predicted to be met on July 14 under the preferred 1-fish per angler bag limit. Alternatives can be further explored using the Red Porgy Decision Tool. Biological effects would be similar among **Preferred Alternatives 3** and **4** and **Alternative 5** since they would all shift fishing effort away from when red porgy are spawning.

Table 4.5.2.1. The projected closure dates of red porgy for different bag limit and fishing season options with 95% confidence interval (CI).

ACL (lbs gw)	Bag Limit	Fishing Season	Closure Date	Season Length (95% CI)
35,026	3-fish	Jan 1 – Dec 31	May 3	Mar 23 – Jun 22
35,026	2-fish	Jan 1 – Dec 31	May 6	Mar 26 – Jun 27
35,026	1-fish	Jan 1 – Dec 31	May 15	Apr 5 – No Closure
35,026	3-fish	Jan 1– Apr 30	No Closure	Mar 23 – No Closure
35,026	2-fish	Jan 1– Apr 30	No Closure	Mar 26 – No Closure
35,026	1-fish	Jan 1– Apr 30	No Closure	Apr 5 – No Closure
35,026	3-fish	May 1 – Aug 31	May 30	May 21 – Jun 22
35,026	2-fish	May 1 – Aug 31	June 2	May 23 – Jun 27
35,026	1-fish	May 1 – Aug 31	June 11	May 29 – No Closure
35,026	3-fish	Jun 1 – Aug 31	June 30	Jun 21 – No Closure
35,026	2-fish	Jun 1 – Aug 31	July 3	Jun 23 – No Closure
35,026	1-fish	Jun 1 – Aug 31	July 14	Jun 29 – No Closure

4.5.2.2 Economic Effects

Generally, prolonged time periods when recreational harvest is allowed can result in increased economic benefits. Allowing the recreational harvest to close once the sector ACL is met or projected to be met (**Alternative 1 (No Action)**) can help ensure that the ACL is harvested each year and all associate economic benefits from that harvest to recreational anglers is incurred. Conversely, this also creates unpredictability in season length and when harvest will close. Establishing a fishing season helps increase predictability of the time period in which harvest would be allowed. This may create economic benefit if harvest during the spawning season is curtailed (**Preferred Alternative 3**, **Preferred Alternative 4**, and **Alternative 5**), thereby leading to greater rebuilding of the red porgy stock and associated long-term economic benefits. Conversely, 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 **Alternative 2**, **Preferred Alternative 3**, **Preferred Alternative 4**, and **Alternative 5** to have lower economic benefits than **Alternative 1 (No Action)**. Nevertheless, all of the alternatives in **Sub-Action 5b**, with the

exception of **Alternative 2**, are projected to result in fully harvesting the recreational sector ACL, thus the economic effects would be similar from a CS perspective. There would be an expected reduction in CS from **Alternative 2** since the recreational ACL would not be full harvested. Since red porgy are rarely targeted (Section 3.3.2.2), it is assumed that a reduction in the fishing season from **Alternatives 2** through **5** would not affect for-hire fishing trips in the South Atlantic region therefore there are no estimated changes in PS provided for the recreational sector.

4.5.2.3 Social Effects

Imposing a recreational season could change the level of access to red porgy during periods when they are available and when participation in the red porgy 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 **Alternative 2** compared to **Alternative 1 (No Action)** would depend on when recreational effort is the highest for red porgy, and how the proposed recreational limits in **Sub-Action 5.1** would work under the proposed ACLs in Actions 2 and 3. Generally, access to red porgy for recreational participants will depend on the season length specified. **Alternative 2** proposes a four-month season, while **Preferred Alternative 3** and **Preferred Alternative 4** propose two-month seasons, respectively. While **Alternative 2** proposes the longer season, participation in the red porgy portion of the snapper grouper fishery from January through April has been historically low (Figure 4.5.2.1). While shorter, **Preferred Alternative 3** and **Preferred Alternative 4**, would allow recreational anglers and for-hire businesses access to red porgy when participation has been highest and when combined are equal to the season length proposed to **Alternative 2**. Additionally, **Preferred Alternative 3** and **Preferred Alternative 4** would prohibit harvest during the red porgy spawning season. Contributing to rebuilding goals for red porgy would be expected to contribute to the sustainability of harvest and the health of the red porgy stock and provide for long-term social benefits. **Alternative 5** would also prohibit harvest during red porgy spawning season but proposes a shorter season (three months) than combined **Preferred Alternative 3** and **Preferred Alternative 4**. Considering the proposed recreational allocation (**Preferred Alternative 2**, Action 3), proposed recreational bag limit (**Preferred Alternative 2**, Sub-Action 5a), and peak harvest of red porgy, **Preferred Alternatives 3 and 4** are anticipated to result in highest social benefits for South Atlantic fishing communities, followed by **Alternative 5**, **Alternative 2** and **Alternative 1 (No Action)**. However, social benefits for individual communities highly engaged in the recreational red porgy fishery (Section 3.4) will vary based on when participation in the fishery is the highest in that community.

4.5.2.4 Administrative Effects

Administrative burdens associated with recreational fishing seasons would be related to distributing information, education, and enforcement.

4.6 Action 6. Modify red porgy recreational accountability measures

4.6.1 Biological Effects

Expected effects to red porgy 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.

Under **Alternative 1 (No Action)**, an in-season closure would likely be triggered due to the proposed reduction in the recreational ACL. Analyses for Sub-Action 5 predict the recreational ACL would be met by May 19 (Section 4.5.1.1). In addition, because red porgy 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. In other fisheries, such as Gulf of Mexico recreational red snapper, this approach has shown the potential to lead to a derby mentality. Because red porgy are not a targeted species, this derby mentality may not be realized in the South Atlantic, however. Preferred alternatives under Sub-action 5a would establish a recreational season of May 1 through August 31. Analyses show the recreational ACL would likely be met by mid-May. Hence, the May-August timeframe would be the "book-ends" within which recreational harvest of red porgy would be allowed based on how long NMFS determines the season can last. Under this scenario, if the recreational ACL were 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.

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 Red Porgy 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 (date) and end on the date NMFS projects the recreational ACL will be met.

3. When the recreational ACL is changed, use a single year of landings, beginning with the most recent, then a two-year average, then a three-year average. Thereafter, use a progressive running three-year average to trigger the recreational AM.

If the recreational ACLs are constant and the 3-year landings average exceeds the ACL, reduce the length of the following fishing season by the amount necessary to prevent the ACL from being exceeded the following year.

3a. Use the arithmetic mean to calculate landings average.
3b. Use the geometric mean to calculate landings average.

4. If the recreational and total ACL are 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. Do not reduce if the Regional Administrator determines, using the best available science, that it is not necessary.

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

Alternative 3 would have the least likelihood of being triggered and could result in delaying the AM from being implemented for several years, allowing the recreational sector to exceed its ACL in a single year (see Section 4.6.2). This alternative would likely result in the greatest negative biological impacts to the stocks as it could allow overfishing to occur and continue for some time before it is corrected. Under this scenario rebuilding efforts could be compromised.

Alternative 4 would correct for recreational overages of the ACL but would not implement a mechanism to prevent the ACL from being exceeded since it would remove the current in-season AM. As such, **Alternative 4** could have negative biological effects to the red porgy stock.

Biological benefits to the red porgy stock would be greatest under **Alternative 1 (No Action)**, followed by **Alternatives 2**, **4**, and **3**.

4.6.2 Economic Effects

Recreational AMs typically consist of corrective measures that create short-term indirect negative economic effects by curtailing harvest and fishing activity when harvest has exceeded the sector ACL, thus potentially affecting net revenues of for-hire operations and CS on recreational fishing trips. In the long-term, these measures also help reduce the risk of overfishing a stock to the point of depletion, which results long-term economic benefits through sustained harvest and fishing activity as well as the for-gone need for more stringent restrictive management measures that may be needed to rebuild a depleted stock.

Alternative 1 (No Action) would implement 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. 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 harvest of red porgy 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. This could accelerate rebuilding of the red porgy stock which would result in long-term economic benefits.

Alternative 3 would likely have the least likelihood of being triggered, as it uses a three-year mean that would reset when the sector ACL is changed. Depending on landings and whether a change to the sector ACL is put in place, this alternative could delay the AM from being implemented for several years, allowing the recreational sector to exceed its ACL in a single year. There is also no safeguard in place to prevent the total ACL from being exceeded for more than one year. This could result in short-term economic benefits for the recreational sector and long-term potential economic costs to fishery participants. Both **Sub-alternative 3a** and **3b** use three-year timelines for triggering an AM which could help mitigate the likelihood of a restrictive AM being put in place due to anomalies in the recreational data and would also allow the fishery to potentially continue to operate after a single year of particularly high landings that revert to long-term average levels the following year. Conversely, since there is no in-season

AM to prevent or slow down landings in excess of the sector ACL or total ACL, there is the potential that a single year of extremely high recreational landings could influence the arithmetic mean (**Sub-Alternative 3a**), or to a lesser extent the three-year geometric mean (**Sub-Alternative 3b**) in such a way that a shortened recreational season would remain in place for multiple years until these long-term metrics would revert below the threshold for the AM trigger. In such a scenario, this would lead to negative economic effects for the recreational sector in comparison to **Alternative 1 (No Action)** that does not solely rely on the use of multi-year metrics for triggering an AM. The economic effects of the described would likely mirror those of **Alternative 2**, since a fishing season would be applied to the recreational fishery.

The economic effects of **Alternative 4** would likely be similar to those of **Alternative 3**, but the AM for this alternative would be triggered with a single year of landings and thus has a lower threshold to go into place. Once the AM is triggered, a reduction in the fishing season would closely mirror the economic effects of **Alternative 2**.

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**, **Sub-alternative 3a**, and **Sub-alternative 3b**.

4.6.3 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. While these negative effects are usually short term, they may at times induce other indirect effects that can have a lasting effect on a community.

Alternative 1 (No Action) would not modify the current recreational AMs for red porgy (a combination of an in-season closure and a season length reduction provision) and would be the most beneficial in the long term for the stock and for sustainable fishing opportunities. However, 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 (**Alternative 1 (No Action)** and **Alternative 3**) 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 red porgy 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 red porgy 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. **Alternative 3** would modify the AM and the AM trigger. The AM trigger itself should not have

any negative social effects but could impose negative effects indirectly if the trigger initiates management action that is unnecessary at the time or delays management action when it is necessary. **Alternative 3** proposes using the arithmetic mean to calculate average landings over the past three years (**Sub-alternative 3a**) or the geometric mean over the past three years (**Sub-alternative 3b**), which could be beneficial if for some reason landings in one or more years were artificially high or low due to anomalies in harvesting behavior or stock status. However, without an in-season closure, high landings may continue to influence the three-year mean and a shortened season would remain in place for multiple years making the social effects of **Alternative 3** similar to those for **Alternative 2**. **Alternative 4**, would reduce the following fishing season in response to landings exceeding the recreational and stock ACL, but it does not include an in-season closure to prevent the ACL from being exceeded. As such, the fishing season may vary significantly from year to year due to changes in fishing behavior or environmental conditions. Inconsistent fishing seasons can make it challenging for private anglers and for-hire business to plan their fishing activities through the long-term.

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 **Sub-alternative 3a**, and **Sub-alternative 3b**.

4.6.4 Administrative Effects

Administrative burdens such as data monitoring, rulemaking, outreach, and enforcement would be similar for **Alternative 1 (No Action)**, **Alternative 2**, and **Alternative 4**. **Alternative 2** would require a season announcement notice in the *Federal Register* annually prior to the season start date selected in Sub-action 5b. If triggered, **Alternative 4**, would also require a season announcement notice for a reduced season length. Administrative effects would be most burdensome under **Alternative 3** because it is complicated and would result in additional time and costs.

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

5.1 Action 1. Establish a rebuilding timeframe for Red porgy

Alternatives*

1 (No Action). No rebuilding timeframe currently in place for Red Porgy.

2. Establish the rebuilding timeframe to equal the shortest possible time to rebuild in the absence of fishing mortality (T_{min}). This would equal 11 years.

3. Establish the rebuilding timeframe to equal T_{min} + one generation. This would equal 18 years.

4. Establish the rebuilding timeframe to equal T_{min} times two. This would equal 22 years.

5. Establish the rebuilding timeframe to equal the time estimated to rebuild the stock with a 50% probability of success while maintaining fishing mortality at 75% of the Maximum Fishing Mortality Threshold (MFMT) during the rebuilding period. This would equal 26 years.

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

5.1.1 Snapper Grouper Advisory Panel (AP) Comments and Recommendations

The South Atlantic Fishery Management Council's (Council) Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP provided the following recommendations:
Keep the fishery open as long as possible to continue data collection. A longer rebuilding period is preferred.

5.1.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement AP convened via webinar on February 1, 2020. The AP received a briefing on Amendment 50 and had no comments or recommendations.

5.1.3 Scientific and Statistical Committee (SSC) Comments and Recommendations

The SSC will receive update in October 2021

5.1.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments specific to establishing a rebuilding plan were received.

5.1.5 Council's Rationale

To be completed after public hearings

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

5.2 Action 2. Revise the red porgy total annual catch limit and annual optimum yield

5.2.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Council's Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP did not provide specific comments or recommendations on total ACL or annual OY.

5.2.2 Law Enforcement AP Comments and Recommendations

5.2.3 SSC Comments and Recommendations

5.2.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments specific to revising the total annual catch limit and annual optimum yield were received.

5.2.5 South Atlantic Council's Rationale

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

5.3 Action 3. Revise the red porgy sector allocations and sector annual catch limits

5.3.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Council's Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP did not provide specific comments or recommendations on sector allocations or ACLs.

5.3.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement Advisory Panel convened via webinar on February 1, 2020. The AP received a briefing on Amendment 50 and had no comments or recommendations.

5.3.3 SSC Comments and Recommendations

5.3.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments were offered during the webinar hearings. One comment was submitted online recommending no reduction to the commercial annual catch limit.

5.3.5 South Atlantic Council's Rationale

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

5.4 Action 4. Modify red porgy commercial management measures

5.4.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Council's Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP provided the following recommendations:

- Consider conducting analyses with a closure (both sectors) that coincides with the Shallow Water Grouper closure and a reduction in trip and bag trip limits
- For the commercial sector, Red Porgy may need to be managed under a bycatch allowance.
- Abundance of Red Snapper could be impacting the Red Porgy population.
- Abundance of Red Porgy has declined inshore partly because of increase in effort. Commercial fishermen still find large fish in deep water when fishing for Vermilion Snapper.
- For the commercial fishery, open in May with a low trip limit to keep the season open as long as possible.
- It is important to the AP to keep the commercial fishery open, even at reduced level. Also important for data collection.
- Determine the peak spawning months for Red Porgy and adjust the spawning season closure accordingly.

MOTION 2: FOR THE COMMERCIAL SECTOR CONSIDER A RANGE OF TRIP LIMIT OPTIONS (25-60 FISH). CONSIDER CLOSURE ONLY DURING PEAK SPAWNING. APPROVED BY AP

5.4.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement Advisory Panel convened via webinar on February 1, 2020. The AP received a briefing on Amendment 50 and had no comments or recommendations.

5.4.3 SSC Comments and Recommendations

5.4.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments were offered during the webinar hearings. One comment was received recommending setting commercial trip limits at appropriate levels for new quota allocations to avoid extended closures and excessive regulatory discards and a 12-inch size limit to reduce regulatory discards and collect better data.

5.4.5 South Atlantic Council's Rationale

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

5.5 Action 5. Modify red porgy recreational management measures

5.5.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Council's Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP provided the following recommendations:

- Consider conducting analyses with a closure (both sectors) that coincides with the Shallow Water Grouper closure and a reduction in trip and bag trip limits.
- For the charter/headboat industry, probably better to keep a per person limit rather than per vessel limit for tracking purposes.
- Consider open recreational season during summer (June-August) to give the recreational sector the opportunity to have red porgy as a species that could be retained during the peak months for recreational fishing.

MOTION 3: RECOMMEND CLOSING THE RECREATIONAL FISHERY FOR RED PORGY IN SYNCHRONY WITH THE SHALLOW WATER GROUPER SPAWNING SEASON CLOSURE. WHEN RED PORGY IS OPEN:

- 1 FISH PER ANGLER PER TRIP
- 2 FISH PER ANGLER PER TRIP

APPROVED BY AP

5.5.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement Advisory Panel convened via webinar on February 1, 2020. The AP received a briefing on Amendment 50 and had no comments or recommendations.

5.5.3 SSC Comments and Recommendations

5.5.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments were offered during the webinar hearings and no comments were received specific to recreational management measures.

5.5.5 South Atlantic Council's Rationale

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

5.6 Action 6. Modify red porgy recreational accountability measures

5.6.1 Snapper Grouper AP Comments and Recommendations

The South Atlantic Council's Snapper Grouper Advisory Panel (AP) convened via webinar on November 4-6, 2020, and on April 21-23, 2021. The AP did not provide specific comments or recommendations on recreational accountability measures.

5.6.2 Law Enforcement AP Comments and Recommendations

The Law Enforcement Advisory Panel convened via webinar on February 1, 2020. The AP received a briefing on Amendment 50 and had no comments or recommendations.

5.6.3 SSC Comments and Recommendations

5.6.4 Public Comments and Recommendations

Scoping hearings were held on February 3 and 4, 2021 via webinar. No comments were offered during the webinar hearings and no comments were received specific to recreational accountability measures.

5.6.5 South Atlantic Council's Rationale

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

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.[15] For the proposed actions found in Amendment 50 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

Fishery managers implemented the first significant regulations pertaining to snapper grouper species in 1983 through the Snapper Grouper FMP (SAFMC 1983). Listed below are other past, present, and reasonably foreseeable actions occurring in the South Atlantic Region. These actions, when added to the proposed management measures, may result in cumulative effects on the biophysical and socio-economic environment. The complete history of management of the snapper grouper fishery can be found in Appendix C (History of Management) of Regulatory Amendment 33 to the Snapper Grouper FMP (SAFMC 2020).

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

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

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).

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.

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

Amendment 51 to the Snapper Grouper FMP would address the results of the latest stock assessment for the snowy grouper stock in the South Atlantic region. Snowy grouper was determined to be overfished and undergoing overfishing.

Amendment 53 to the Snapper Grouper FMP would address 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.

ABC Control Rule Amendment?

Reasonably Foreseeable Future Actions
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. Development of this amendment is currently on hold.

Regulatory Amendment 31 to the Snapper Grouper FMP could include actions to revise recreational accountability measures to allow more flexibility in managing recreational fisheries. Development of this framework amendment is currently on hold.

Expected Impacts from Past, Present, and Future Actions
The intent of Amendment 50 is to modify management of South Atlantic red porgy. Actions include establishing a rebuilding plan, and revising annual catch limits (ACL), sector allocations, recreational accountability measures (AM), and management measures for the commercial and recreational sectors. Development of Amendment 50 is a response to the most recent stock assessment for South Atlantic red porgy (SEDAR 60 2020). The proposed actions in

Amendment 50 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 red porgy. However, the proposed actions would end overfishing and establish a plan to rebuild the stock.

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 South Atlantic fisheries, though the extent of these effects on the snapper grouper fishery 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 Fifth Assessment Report also provides a compilation of scientific information on climate change (November 2, 2014). 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). 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 combination of warmer water and expansion of salt marshes inland with sea-level rise may increase productivity of estuarine-dependent species in the short term. However, in the long term, this increased productivity may be temporary because of loss of fishery habitats due to wetland loss (Kennedy et al. 2002). 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 2014).

Climate change may impact snapper grouper species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur. In the near term, it is unlikely that the management measures contained in Regulatory Amendment 26 would compound or exacerbate the ongoing effects of climate change on snapper grouper species.

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
Manny Antonaras	SERO/OLE	Deputy Special Agent in Charge
Myra Brouwer	SAFMC	Deputy Director for Management/IPT Lead
Chip Collier	SAFMC	Deputy Director for Science and Statistics
David Dale	SERO/Habitat	Regional EFH Coordinator
Rick DeVictor	SERO/SF	South Atlantic Branch Chief
Shepherd Grimes	NOAA GC	General Counsel
John Hadley	SAFMC	Economist
Frank Helies	SERO/SF	Fishery Biologist/IPT Lead
Denise Johnson	SERO/SF	Economist
Nikolai Klibansky	SEFSC	Fishery Biologist
Akbar Marvasti	SEFSC	Economist
Patrick O'Pay	SERO/PR	Biologist
Christina Package-Ward	SERO/SF	Social Scientist
Roger Pugliese	SAFMC	Senior Fishery Biologist
Jeff Pulver	SERO/SF	Data Analyst
Cameron Rhodes	SAFMC	Outreach Specialist
Scott Sandorf	SERO/SF	Technical Writer and Editor
Noah Silverman	SERO	NEPA Coordinator
Monica Smit-Brunello	NOAA GC	General Counsel
Matthew Walia	SERO/OLE	Compliance Liaison Analyst
Christina Wiegand	SAFMC	Social Scientist

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

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

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

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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. Regulatory Impact Review

Appendix C. Regulatory Flexibility Analysis

Introduction

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

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

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

The need for and objectives of, the proposed action are presented in Section 1.5 and are incorporated herein by reference. The Magnuson-Stevens Act provides the statutory basis for this proposed rule.

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

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

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

The rule concerns commercial and recreational fishing for red porgy in the South Atlantic exclusive economic zone (EEZ). Both anglers (recreational fishers) and commercial fishing businesses would be directly affected by this rule; however, anglers are not considered small entities as that term is defined in 5 United States Code (U.S.C.) 601(6), whether fishing from for-hire fishing, private or leased vessels. Therefore, estimates of the number of anglers affected by the rule and impacts on them are not provided here. For-hire fishing businesses would be

indirectly affected, and because the effects on for-hire fishing businesses are indirect, they fall outside the scope of the RFA.

The rule would directly apply to businesses that operate in the commercial fishing industry and particularly, those that operate commercial fishing vessels that harvest red porgy in the South Atlantic EEZ. Any commercial fishing vessel that harvests red porgy in those waters must have a valid trip-unlimited or trip-limited (225 lbs) snapper grouper permit specifically assigned to that vessel. The permit is a limited access permit. After a snapper grouper permit expires, it can be renewed or transferred up to one year after the date of expiration. However, if it is not renewed or transferred within that one-year period, the permit is permanently removed.

The number of snapper grouper permits has declined annually (Table C.1). Thirty (5.25%) unlimited and 13 (10.74%) 225-lb permits were eliminated from 2015 to 2019. More recently as of June 14, 2021, there are 616 commercial vessels with a snapper grouper permit: 519 vessels with a trip-unlimited permit and 97 with a trip-limited permit. An estimated 492 unique businesses hold the 616 permits, and 96.34% of those businesses reside in the South Atlantic states, and approximately 71% reside in Florida/Georgia (FL/GA), approximately 19% reside in North Carolina (NC) and approximately 6% in South Carolina (SC).

Table C.1. Number of snapper grouper (SG) permits by trip limit and state where permit holders reside, 2015-2019.

Year	Unlimited	225-lb	Total	FL/GA	NC	SC	Other
2015	571	121	692	515	116	52	9
2016	565	116	681	504	115	52	10
2017	554	114	668	486	123	53	6
2018	549	110	659	471	127	56	5
2019	541	108	649	468	127	49	5
Change 2015-19	**-30**	**-13**	**-43**	**-47**	**+9**	**-3**	**4**
June 14, 2021	519	97	616	443	108	42	23

Source: NMFS SERO Permit Counts as of June 15, 2021.

Most commercial vessels with a snapper grouper permit do not report landings of red porgy (RP), and the number that have declined from 2015 through 2019. On average, 24% (161) of SG permitted vessels report red porgy landings annually (Table C.2).

The average 161 SG permitted vessels that land red porgy annually combine to land an average of 99,475 lbs gw of the species (Table C.2) with a dockside value of $237,755 (2019 dollars ($)) annually (Table C.3). On average, the vessels' combined landings of red porgy account for 2.16% of their combined landings of all species by dockside value (approximately $10.96 million). The average SG permitted vessel that annually lands red porgy has a total annual revenue of $68,538 (2019 $) from all landings, and $1,485 (2019 $) from landings of red porgy (Table C.4).

Table C.2. Number of SG permitted vessels, number and percentage of SG permitted vessels that reported red porgy (RP) landings, and their reported landings (lbs gw) of red porgy, 2015-2019.

Year	SG Permitted Vessels	SG Permitted Vessels with RP Landings	Percentage of SG Permitted Vessels with RP Landings	RP Landings (lbs gw) by SG Permitted Vessels
2015	692	159	22.98%	125,735
2016	681	146	21.44%	102,208
2017	668	166	24.85%	102,327
2018	659	174	26.40%	98,036
2019	649	158	24.35%	77,319
Average		**161**	**24.00%**	**99,475**

Source: NMFS SERO Permit Counts for number of vessels with permit (June 15, 2021) and SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) for vessels that land RP.

Table C.3. Total dockside revenue (2019 dollars) from red porgy, jointly caught and other species landed by SG permitted vessels that landed red porgy, 2015-2019.

Year	Revenue from RP Landings (2019 $)	Revenue from Jointly Caught Species (2019 $)	Revenue from Other Trips (2019 $)	Total Revenue from All Trips (2019 $)
2015	$287,426	$4,910,895	$6,953,932	$12,152,253
2016	$239,341	$4,416,917	$6,232,044	$10,888,302
2017	$251,034	$4,754,611	$5,790,432	$10,796,077
2018	$233,225	$4,742,284	$5,421,978	$10,397,487
2019	$177,748	$4,452,867	$5,938,658	$10,569,273
Average	**$237,755**	**$4,655,515**	**$6,067,409**	**$10,960,678**

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Table C.4. Average annual dockside revenue (2019 dollars) per vessel from red porgy and all landings for SG permitted vessels that reported landing red porgy, 2015-2019.

Year	Average Revenue from RP Landings per SG Permitted Vessel (2019 $)	Average Revenue from All Landings per SG Permitted Vessel (2019 $)
2015	$1,808	$76,429
2016	$1,639	$74,577
2017	$1,512	$65,037
2018	$1,340	$59,756
2019	$1,125	$66,894
Average	**$1,485**	**$68,539**

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

Red porgy landings account for approximately 2.0% of the average permitted vessel's total annual dockside revenue (from all landings) for those vessels that report landing red porgy in Florida/Georgia ($1,407 annually from RP) and North Carolina ($1,038 annually from RP) (2019 dollars). For those SG permitted vessels that land red porgy in South Carolina ($1,660 annually from RP), the stock accounts for approximately 2.5% of their average annual total dockside revenue. Annual total dockside revenue for the average SG permitted vessel that lands red porgy in Florida/Georgia is approximately $70,356, whereas the average SG permitted vessel with landings of the stock in North Carolina and South Carolina has annual total dockside revenue of $52,945 and $84,713 (2019 dollars), respectively (Table C.5).

Table C.5. Average annual dockside revenue (2019 dollars) per SG-permitted vessel from landings of red porgy and other species by state of landings, 2015-2019.

Year	Average Annual Revenue per Vessel with RP Landings in FL/GA	Average Annual Revenue per Vessel with RP Landings in NC	Average Annual Revenue per Vessel with RP Landings in SC
2015	$89,138	$52,225	$85,863
2016	$71,640	$57,347	$97,074
2017	$61,698	$53,564	$83,945
2018	$57,572	$49,879	$71,387
2019	$71,734	$51,712	$85,295
Average	**$70,356**	**$52,945**	**$84,713**

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (April 2021) and BEA GDP deflator (April 2021).

NMFS expects all of the businesses that operate the above vessels primarily operate in, but not necessarily exclusively in, the commercial fishing industry. 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 (North American Industry Classification System (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 affiliates), and has combined annual receipts not in excess of $11 million for all its affiliated operations worldwide. As shown in Tables C.4 and C.5, the average annual total revenue for a snapper-grouper vessel that reports landings of red porgy is substantially less than that. None of the permitted vessels that landed red porgy from 2015 through 2019 had annual revenue close to or greater than $11 million. Moreover, additional analysis indicates none of the businesses have combined revenues that reach that figure. Therefore, all of the businesses that operate commercial vessels that harvest red porgy in the South Atlantic EEZ are small.

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

The proposed actions would not impose additional reporting or record-keeping requirements on small businesses. Action 1, **Preferred Alternative 5,** would establish a rebuilding timeframe, which would have an indirect effect on small businesses.

Action 2, **Preferred Alternative 2**, would revise the total annual catch limit (ACL) and optimum yield (OY), which are currently 328,000 lbs ww/315,384 lbs gw (**Alternative 1 (No Action)**).[16] Under **Preferred Alternative 2**, the total ACL and OY would be 75,000 lbs ww in 2022 and increase to 95,000 lbs ww by 2026, where it would remain until modified in the future. The total ACL applies to the commercial and recreational sectors combined. Action 2 would have an indirect effect on small businesses, which is dependent on Action 3.

Action 3, **Preferred Alternative 3**, would allocate 51.43% of the total ACL to the commercial sector and 48.57% to the recreational sector. Currently, under **Alternative 1 (No Action)**, 50% of the total ACL is allocated to the commercial sector and 50% to the recreational sector. Under **Preferred Alternative 3**, the commercial ACL would decrease from 120,603 lbs gw to 110,713 lbs gw (Table C.6). Currently, the commercial ACL is split into two seasons with 30% allocated to season 1 (January through April) and 70% allocated to season 2 (May through December). **Preferred Alternative 3** would not allocate the commercial ACL into two seasons. The commercial season is closed if commercial landings reach or are projected to reach the commercial ACL. From 2015 through 2019, commercial landings of red porgy did not reach the commercial ACL and the commercial season was not closed early[17] (Table C.7). Commercial landings declined continuously during that 5-year period, but there was a slight rebound in 2020 (Table C.7).

Table C.6. Baseline total and proposed total ACL, baseline commercial ACL and proposed commercial ACL, and proposed change to commercial ACL (Actions 2 and 3).

Year	Baseline Total ACL (lbs gw)	Proposed Total ACL (lbs gw)	Baseline Commercial ACL (lbs gw)	Proposed Commercial ACL (lbs gw)	Proposed Change Commercial ACL (lbs gw)
2022	315,384	72,115	157,692	37,089	-120,603
2023	315,384	77,884	157,692	40,056	-117,636
2024	315,384	83,654	157,692	43,023	-114,669
2025	315,384	87,500	157,692	45,001	-112,691
2026 & later	315,384	91,346	157,692	46,979	-110,713

Table C.7. Baseline commercial ACL and commercial ACL landings, 2015 – 2019.

Year	Baseline Commercial ACL	Baseline Commercial ACL Landings
2015	164,000 lbs ww/157,692 lbs gw	146,549 lbs ww/140,912 lbs gw
2016	164,000 lbs ww/157,692 lbs gw	118,152 lbs ww/113,608 lbs gw
2017	164,000 lbs ww/157,692 lbs gw	116,774 lbs ww/112,283 lbs gw
2018	164,000 lbs ww/157,692 lbs gw	114,192 lbs ww/109,800 lbs gw
2019	164,000 lbs ww/157,692 lbs gw	82,844 lbs ww/79,657 lbs gw
Average		**115,702 lbs ww/111,252 lbs gw**

Source: NMFS SERO LAPPS commercial ACL.

[16] One pound whole weight generates 0.961536585 pound gutted weight.
[17] These are landings from both state and federal waters.

If average annual commercial ACL landings from 2015 through 2019 represent future baseline landings from 2022 through 2026, Action 3, **Preferred Alternative 3** would generate an average annual reduction of commercial ACL landings of 68,822 lbs gw (Table C.8). The average dockside price during that 5-year period was $2.35/lb gw (2019 dollars). At that price, if the average 161 permitted vessels with red porgy landings account for all landings of red porgy, they would collectively have annual losses of dockside revenue of $161,733 or individually have an average reduction of $1,005 (2019 dollars) per vessel. Such a loss of dockside revenue represents 1.47% of the average permitted vessel's annual dockside revenue from all landings. However, that assumes all commercial ACL landings of red porgy are by permitted vessels, and they are not.

Table C.8. Proposed Commercial ACL, average annual commercial ACL landings and reduction from average annual landings.

Year	Proposed Commercial ACL (lbs gw)	Average Annual Landings (lbs gw)	Reduction from Average Annual Landings
2022	37,089	111,252	-74,163
2023	40,056	111,252	-71,196
2024	43,023	111,252	-68,229
2025	45,001	111,252	-66,251
2026	46,979	111,252	-64,273
Average	**42,430**	**111,252**	**-68,822**

Commercial ACL landings of red porgy are of fish harvested from both state and federal waters. Commercial landings of red porgy reported by SG permitted vessels are also of red porgy harvested from both state and federal waters; however, only those permitted vessels are allowed to harvest red porgy from the South Atlantic EEZ. Commercial landings reported by SG permitted vessels represent, on average, approximately 91% of commercial ACL landings from 2015 through 2019 (Table C.9). However, in 2020, SG permitted vessels' reported landings of red porgy harvested from the South Atlantic EEZ accounted for approximately 68% of commercial ACL landings.

Table C.9. Baseline commercial ACL for red porgy, baseline commercial landings of RP reported by SG permitted vessels, and percentage of commercial ACL landings by permitted vessels, 2015 – 2019.

Year	Commercial ACL Landings (lbs gw) of Red Porgy	Commercial Landings of RP Reported by SG Permitted Vessels (lbs gw)	Percent Commercial ACL Landings by SG Permitted Vessels
2015	140,912	125,735	89.23%
2016	113,608	102,208	89.97%
2017	112,283	102,327	91.13%
2018	109,800	98,036	89.29%
2019	79,657	77,319	97.06%
Average	**111,252**	**101,125**	**91.34%**

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings per permitted vessels.

If the 161 permitted vessels that land red porgy annually account for 91.34% of the ACL landings, then the permitted vessels would collectively have average annual reductions of red porgy landings of 62,862 lbs gw (91.34% of 68,822 lbs gw) under Action 3, **Preferred Alternative 3**. The corresponding loss of dockside revenue would be $147,727 collectively or $918 per vessel, assuming an average dockside price of $2.35/lb gw (2019 dollars). That $918 loss represents 1.34% of the average permitted vessel's annual dockside revenue from all landings. However, commercial landings are not equally divided across the states. On average, Florida/Georgia accounts for 28.73% of annual landings by weight and North Carolina and South Carolina account for 35.38% and 35.90%, respectively. Consequently, the average losses would be $870 per vessel for the average 49 vessels that land red porgy in Florida, $747 per vessel for the average 70 vessels that land the species in North Carolina, and $1,251 per vessel for the average 42 vessels that land red porgy in South Carolina.

Action 4 would revise the commercial trip limits for red porgy in the South Atlantic EEZ. Currently and since February 26, 2020 (**Alternative 1 (No Action)**, the trip limit is 60 fish from January 1 through April 30 (Season 1) and 120 fish from May 1 through December 31 (Season 2). [18] **Preferred Alternative 2, Preferred Sub-alternative 2a**, would set the commercial trip limit during Season 1 to 15 fish, and **Preferred Alternative 3, Preferred Sub-alternative 3a**, would set the trip limit during Season 2 to 15 fish. From 2015 through 2019, commercial harvest of red porgy in the South Atlantic EEZ was prohibited from January 1 through April 30; which is effectively a commercial trip limit of zero. However, from May 1 through December 31 of every year during that 5-year period, the commercial trip limit was 120 fish.

The average red porgy landed in North Carolina weighs 1.65 lbs gw, in South Carolina weighs 2.12 lbs gw, and in either Georgia and Florida weighs 2.00 lbs gw. Using those averages, a 15-fish limit equates to 24.75 lbs gw of red porgy in North Carolina, 31.80 lbs gw in South Carolina, and 30.00 lbs gw in Florida/Georgia (Table C.10). A 60-fish limit equates to 99.00 lbs gw in North Carolina, 127.20 lbs gw in South Carolina, and 120.00 lbs gw in Florida/Georgia.

Table C.10. Combined weight (lbs gw) of average-sized red porgy landed by number of red porgy (fish) landed per trip by state.

State	15 Fish (lbs gw)	60 Fish (lbs gw)	120 Fish (lbs gw)
FL/GA	30.00	120.00	240.00
NC	24.75	99.00	198.00
SC	31.80	127.20	254.40

The above averages are used to estimate baseline landings per trip during Seasons 1 and 2. Because of the prohibition on commercially harvesting red porgy from January through April from January 1, 2015, to February 26, 2020, landings per trip during March and April of 2020 are used to evaluate baseline trips and landings per trip during March and April of Season 1. The resulting March and April figures are then doubled to produce estimates of the baseline number

[18] NMFS inadvertently neglected to remove the prohibition (trip limit of zero) in the final rule that was implemented on February 26, 2020. It corrected the final rule and the correction became effective on November 19, 2020.

of trips and landings for the entirety of Season 1. Baseline landings per trip during Season 2 are evaluated using landings from May through December from 2015 through 2019.

Season 1

During the months of March and April of 2020, SG permitted vessels made 67 trips that landed red porgy in Florida/Georgia, made 80 trips that landed red porgy in North Carolina, and made another 53 trips that landed red porgy in South Carolina (Table C.11). Majorities of those trips landed more than 15 fish.

Table C.11. Number of trips by number of red porgy landed by SG permitted vessels and percentage of trips by number of red porgy landed per trip by state, March-April 2020.

State	1 to 15 Fish	Over 15 Fish	All	Percent 1 to 15 Fish	Percent Over 15 Fish
FL/GA	26	41	67	38.81%	61.19%
NC	37	43	80	46.25%	53.75%
SC	11	42	53	20.75%	79.25%

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for trips with red porgy landings.

From approximately 40% to 52% of permitted vessels that landed red porgy in 2020 had landings of red porgy from March through April (Table C.12). From approximately 17% to 41% of the vessels had landings over 15 fish during March and April.

Table C.12. Number and percentage of permitted vessels that reported landing red porgy in March and April and all of 2020 by state.

State	March-April 1 to 15 Fish	March-April Over 15 Fish	All Months	Percentage March-April 1 to 15 Fish	Percentage March-April Over 15 Fish
FL/GA	16	7	42	52.38%	16.67%
NC	7	17	57	40.35%	29.82%
SC	3	13	32	46.88%	40.63%

1. Number of distinct vessels. The sum of vessels that land one to 15 fish and more than 15 fish may be greater than the number of distinct vessels because a vessel may have at least two trips with one trip landing one to 15 fish and the other landing more than 15 fish.
Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for vessels with red porgy landings.

The average weight (lbs gw) of red porgy landings per trip for all trips during those two months varied from 42 lbs gw in North Carolina to 78 lbs gw in South Carolina (Table C.13). However, for those trips that landed over 15 fish, the average weight varied from 70 lbs gw to 94lbs gw.

Table C.13. Average weight (lbs gw) of baseline red porgy landings per trip by number of red porgy landed per trip by state, March-April.

State	1 to 15 Fish (lbs gw)	Over 15 Fish (lbs gw)	All (lbs gw)
FL/GA	10	93	61
NC	10	70	42
SC	16	94	78

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings (lbs gw) per trip.

Action 4, **Preferred Alternative 2**, **Preferred Sub-alternative 2a**, would set the commercial trip limit during Season 1 to 15 fish, which would be equivalent to an average of 30 lbs gw in Florida/Georgia, 24.75 lbs gw in North Carolina and 31.8 lbs gw in South Carolina. The current trip limit during Season 1 is 60 fish. The average trip that lands over 15 red porgy during March and April would lose 63 lbs gw in Florida/Georgia, 45 lbs gw in North Carolina, and 62 lbs gw in South Carolina (Table C.14).

Table C.14. Average reduction of red porgy landings (lbs gw) per trip from Preferred Sub-alternative 2a by state by number of red porgy landed per trip and percentage reduction, March - April.

State	1 to 15 Fish (lbs w)	Over 15 Fish (lbs gw)	Percent Reduction (Over 15 Fish)
FL/GA	0	63	67.74%
NC	0	45	64.29%
SC	0	62	65.96%

With an average dockside price of $2.35/lb gw (2019 dollars), the average loss of dockside revenue per trip would vary from $106 to $148 for those trips that currently land more than 15 fish during Season 1 (Table C.15). The average loss of revenue per vessel would range from $267 to $867 (2019 dollars) during March and April. If those losses are doubled to account for the entirety of Season 1, the average revenue losses per vessel would be $1,734 for 7 permitted vessels that land red porgy in Florida/Georgia, $535 for the 17 permitted vessels that land the species in North Carolina, and $941 for the 13 permitted vessels that land red porgy in South Carolina.

Table C.15. Number of trips that would have reductions in RP landings, average reductions in RP landings (lbs gw) per trip and average revenue losses (2019 dollars) per trip or per vessel, March – April.

State	Number of Trips with Reduction in RP Landings	Average Loss of RP Landings (lbs gw) per Trip	Average Revenue Loss per Trip (2019 $)	Average Revenue Loss per Vessel (2019 $)
FL/GA	41	63	$148	$867
NC	43	45	$106	$267
SC	42	62	$146	$471

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings per permitted vessels and BEA GDP deflator (April 2021).

Season 2

Action 4, **Preferred Alternative 3**, **Preferred Sub-alternative 3a**, would reduce the commercial limit during Season 2 from 120 to 15 fish. From 2015 through 2019, an annual average of up to 52 vessels made 293 trips that landed red porgy in Florida/Georgia during Season 2 (May through December) and 68.60% of those trips landed more than 15 fish[19] (Tables C.16 and C.17). During that same 5-year period, an annual average of 70 vessels made 590 trips that landed red porgy in North Carolina during Season 2 and 52.88% of those trips landed more than 15 fish. Also, an annual average of up to 42 vessels made 362 trips that landed the species in South Carolina during Season 2 and 66.85% landed more than 15 fish.

During the 5-year period from 2015 through 2019, on average 29 (approximately 56%) permitted vessels had landings of red porgy in Florida/Georgia during Season 2 that exceeded 15 fish (Table C.17). Also during that time, an annual average of 47 permitted vessels landed more than 15 fish per trip in North Carolina and 36 permitted vessels landed more than 15 fish per trip in South Carolina.

Table C.16. Average annual number of trips by number of red porgy landed and percentage of trips by number of red porgy landed per trip by state, May - December, 2015-2019.

State	1 to 15 Fish	Over 15 Fish	All	Percent 1 to 15	Percent over 15
FL/GA	92	201	293	31.40%	68.60%
NC	278	312	590	47.12%	52.88%
SC	120	242	362	33.15%	66.85%

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings of permitted vessels.

Table C.17. Average annual number and percentage of SG permitted vessels that reported landing red porgy by number of fish per trip, May - December and average annual number vessels with RP landings by state, 2015-2019.

State	May-Dec 1- 15 Fish	May-Dec Over 15 Fish	All Year[1]	Percentage May-Dec 1 to 15 Fish	Percentage May-Dec Over 15 Fish
FL/GA	25	29	52	48.08%	55.77%
NC	25	47	70	35.71%	67.14%
SC	10	36	42	23.81%	85.71%

1. Because some vessels have landings of red porgy in both categories (1 to 15 fish and over 15 fish), the sum of the two categories exceeds the actual number of vessels that landed red porgy during the season.
Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings of permitted vessels.

The average weight (lbs gw) of red porgy landings per trip for all trips during those eight months varied from 57 lbs gw in North Carolina to 111 lbs gw in Florida/Georgia (Table C.18).

[19] As stated before, the average weight of a red porgy landed in Florida/Georgia is 2.00 lbs gw, landed in North Carolina is 1.65 lbs gw. And landed in South Carolina is 2.12 lbs gw. So, 15 fish per trip equates to 30.00 lbs gw in FL/GA, 24.75 lbs gw in NC, and 31.80 lbs gw in SC.

However, for those trips that landed over 15 fish, the average weight varied from 100 lbs gw to 157 lbs gw.

Table C.18. Average weight (lbs gw) of baseline red porgy landings per trip by number of red porgy landed per trip by state, May – December, 2015 - 2019.

State	1 to 15 Fish (lbs w)	Over 15 Fish (lbs gw)	All (lbs gw)
FL/GA	11	157	111
NC	9	100	57
SC	14	135	95

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings of permitted vessels.

Preferred Alternative 3, Preferred Sub-alternative 3a, would set the commercial trip limit during Season 2 to 15 fish, which would be equivalent to an average of 30 lbs gw in Florida/Georgia, 24.75 lbs gw in North Carolina and 31.8 lbs gw in South Carolina. From 2015 through 2019 from May through December the commercial trip limit was 120 fish, and it is presently at 120 fish during Season 2. The average trip that currently lands over 15 red porgy in Florida/Georgia would lose 127 lbs gw of red porgy, while the average trips that land over 15 red porgy in North Carolina and South Carolina would lose respectively 75 lbs gw and 103 lbs gw, respectively (Table C.19).

Table C.19. Average reduction of red porgy landings (lbs gw) per trip from Preferred Sub-alternative 3a by state by number of red porgy landed per trip, May - December.

State	1 to 15 Fish (lbs w)	Over 15 Fish (lbs gw)	Percent Reduction Over 15 Fish
FL/GA	0	127	80.89%
NC	0	75	75.00%
SC	0	103	76.30%

With an average dockside price of $2.35/lb gw (2019 dollars), the annual average of 29 vessels that land over 15 red porgy per trip during Season 2 in Florida/Georgia would have average individual reductions of $2,069 (Table C.20). Similarly, the average annual 47 vessels that land over 15 fish per trip in North Carolina and 38 vessels that land over 15 fish per trip in South Carolina during Season 2 would have an average revenue loss of $1,170 and $1,627 per vessel, respectively (Table C.20).

Table C.20. Number of trips that would have reductions in RP landings, average reductions in RP landings and average revenue losses (2019 $) per trip or per vessel, May – December (Season 2).

State	Number of Trips with Reduction in RP Landings	Average Loss of Landings (lbs gw) per Trip	Average Revenue Loss per Trip (2019 $)	Average Revenue Loss per Vessel (2019 $)
FL/GA	201	127	$298	$2,069
NC	312	75	$176	$1,179
SC	242	103	$242	$1,627

Source: SEFSC Socioeconomic Panel (Jan21) accessed by the SEFSC Economic Query System (May 2021) for commercial landings per permitted vessels and BEA GDP deflator (April 2021).

Actions 5 and 6 would have direct effects on anglers (recreational fishers), and no direct effects on small businesses. Therefore, descriptions of those actions and analysis of their impacts are neither required nor provided here.

Significance of economic impacts on a substantial number of small entities

The impacts of each of the proposed actions on permitted vessels that report landings of red porgy are summarized in Table C.21. The maximum total average impact for the 7 vessels that report landings of red porgy in Florida/Georgia during Season 1 would be $4,673 per vessel annually, which is the sum of the average annual impacts of Actions 3 and 4. Similarly, the maximum average annual impact for the 17 permitted vessels that report landings of the species in North Carolina during Season 1 would be $2,461 per vessel; and the maximum average annual impact for the 13 vessels that land red porgy in South Carolina during Season 1 would be $3,413 per vessel (Table C.22). Those figures represent 6.64% of average annual revenue for 14.29% of the vessels that land red porgy in Florida/Georgia, 4.65% of average annual revenue for 24.29% of vessels that land the species in North Carolina, and 4.03% of average annual revenue for 30.95% of vessels that land red porgy in South Carolina. The minimum total average impact would reduce average annual revenue for the vessels that land red porgy from 1.24% to 1.48% (Table C.22).

Table C.21. Summary of average annual adverse impacts per vessel by state by action.

Action	Brief Description	FL/GA	NC	SC
1	Rebuilding Timeframe	No direct impact		
2	Total OY & ACL	No direct impact		
3	Commercial ACL	$870 per vessel for 49 (100%) vessels	$747 per vessel for 70 (100%) vessels	$,1251 per vessel for 42 (100%) vessels
4	Season 1 Trip Limit	$1,734 per vessel for 7 (14.29%) vessels	$535 per vessel for 17 (24.29%) vessels	$535 per vessel for 13 (30.95%) vessels
	Season 2 Trip Limit	$2,069 for 29 vessels	$1,179 per vessel for 47 vessels	$1,627 per vessel for 38 vessels
5	Recreational bag limit	No direct impact		

Table C.22. Maximum and minimum average annual impacts per vessel for percentage of vessels that land red porgy and those impacts as percentage of average annual revenue per vessel.

State	Maximum Average Impact	Percent of Average Number Vessels	Percent of Average Revenue	Minimum Average Impact	Percent of Average Number Vessels	Percent of Average Revenue
FL/GA	$4,673	14.29%	6.64%	$870	100.00%	1.24%
NC	$2,461	24.29%	4.65%	$747	100.00%	1.41%
SC	$3,413	30.95%	4.03%	$1,251	100.00%	1.48%

Description of significant alternatives

Action 3, **Alternative 3**, which was considered but not selected, would remove sector allocations and manage the resource under the total ACL. By removing the sector allocations, annual landings of red porgy would be increasingly from the commercial sector because the commercial sector harvests red porgy at a faster rate. Although highly unlikely, the commercial sector could land 100% of the total ACL.[20] The adverse impact of **Alternative 3** on small businesses would likely be smaller than that of **Preferred Alternative 2**, which would allocate the total ACL to the commercial (51.43%) and recreational (48.57%) sectors.

Action 4, **Preferred Alternative 2**, **Sub-alternatives 2b**, **2c** and **2d** and **3b** would establish higher commercial trip limits during Season 1 than the 15-fish limit of **Preferred Sub-alternative 2a**, and those higher limits would have smaller average adverse impacts per trip than the preferred sub-alternative; however, a higher trip limit would result in the commercial ACL being reached sooner. Similarly, **Preferred Alternative 3**, **Sub-alternatives 3b**, **3c**, **3d** and **3e** would establish commercial trip limits during Season 2 that are higher than the 15-fish limit that would be established by **Preferred Sub-alternative 3a**, and those higher limits would have smaller average adverse impacts per trip than the preferred sub-alternative. However, higher trip limits during Season 2 would also result in the commercial ACL being reached sooner and the open season reduced.

[20] Assuming there are no recreational landings of red porgy, which is highly unlikely.

Appendix D. Essential Fish Habitat and Ecosystem Based Fishery Management

Appendix E. Actions and Alternatives Removed from Consideration

To be completed

Action. Revise the red porgy recreational annual catch target

Alternative 1 (No Action). The red porgy recreational annual catch target is 117,555 pounds whole weight and is determined using the existing formula (annual catch target = recreational annual catch limit x (1-mean Proportional Standard Error over the previous 5 years)).

Alternative 2. Revise the red porgy recreational annual catch target based on a revised recreational annual catch limit and updated proportional standard error estimates for 2015-2019.

Year	Rec ACT (lbs ww)	Rec ACT (numbers)
2022	20,753	13,005
2023	22,413	14,112
2024	24,073	14,942
2025	25,180	15,772
2026	26,287	16,325

Note: the average PSE for 2015-2019 is 44.66%. Estimates based on rec ACL=50% (Alternative 1 of Action 3) of total ACL (Alternative 2 in Action 2).

Alternative 3. Remove the existing recreational annual catch target and do not specify a new recreational annual catch target for red porgy.

Discussion:

Recreational annual catch targets (ACT) are not currently used to trigger regulatory action in the South Atlantic and are not codified in the regulations. Removing recreational ACTs for all snapper grouper species will be explored in another amendment to the Snapper Grouper FMP.

Action 2. Revise the red porgy total annual catch limit and annual optimum yield

Alternative 5. Revise the total annual catch limit and annual optimum yield for red porgy and set equal to zero. The 2022 annual catch limit and annual optimum yield would remain in place until modified.

Discussion:

Alternative 5 would set the ACL equal to zero. This alternative would be necessary if Alternative 2 is selected as preferred in Action 1 – rebuilding plan.

Action 3. Revise the red porgy sector allocations and sector annual catch limits

Alternative 4. Remove sector allocations and manage under the total annual catch limit.

Year	Total ACL (lbs ww)
2022	75,000
2023	81,000
2024	87,000
2025	91,000
2026+	95,000

Discussion:

Sub-action 5a. Recreational Bag and Vessel Limits

Alternative 3. Establish a recreational vessel limit for private recreational and charter vessels for Red Porgy as:

Sub-alternative 3a. 6 fish per vessel per day or per trip, whichever is more restrictive.
Sub-alternative 3b. 12 fish per vessel or per trip, whichever is more restrictive.
Sub-alternative 3c. 18 fish per vessel or per trip, whichever is more restrictive.

Alternative 4. Establish a vessel limit for headboats for red porgy as:

Sub-alternative 4a. 20 fish per vessel.
Sub-alternative 4b. 40 fish per vessel.
Sub-alternative 4c. 60 fish per vessel.

Discussion:

Appendix F. Data Analyses

Updated on July 23, 2021

Analyses for Amendment 50
Jeff Pulver – Southeast Regional Office LAPP/DM Branch

Analyses are for the potential 2022 Annual Catch Limit (ACL) of 72,155 pounds (lbs) gutted weight (gw) with 51.43% allocated to the commercial sector and 48.57% to the recreational sector.

Commercial Trip Limits

The Southeast Fisheries Science Center (SEFSC) Commercial Logbook dataset (5/26/20) was used to examine trip limits in the commercial sector of the South Atlantic red porgy fishery. Currently, the fishery has a 60-red porgy trip limit from January-April that was implemented in 2020 and a 120-red porgy trip limit from May-December that was implemented in 2006. Regulatory Amendment 27 became effective February 26, 2020 opening the January through April fishing season for the first time since 1999. From 2015 through 2019, the Commercial Logbook had 5,669 trips recorded that harvested red porgy in the South Atlantic. The Commercial Logbook provides trip-level landings in pounds, but the potential red porgy trip limits are in numbers of fish. Because landings are in pounds, it was also necessary to evaluate Commercial Trip Interview Program (TIP, accessed September 2020) data to determine potential impacts of the trip limit alternatives. The TIP data is not a comprehensive sample of the fish landed on a given trip, and thus cannot be directly used for determination of trip limit impacts. Instead, TIP data can be used to calculate a mean individual weight from representative samples from commercial trips intercepted to estimate the number of fish landed in Commercial Logbook reported trips. Data were stratified by state using data from 2015-2019, and Florida and Georgia data were pooled because no Georgia TIP data were available. The mean weights in pounds whole weight were determined from TIP data using measured weights when available in either round (whole) or gutted weight with the head on, using a conversion factor of 1.04 for gutted to whole weight. When measured weights were unavailable, meristic conversions were used to convert measured length (total, standard, or fork length) to total length in mm, and then to convert total length to whole weight in pounds using conversion factors found in Table 1 of the SEDAR-1 Update (2006). These conversions were not updated in SEDAR 60 (2020), the most recent red porgy stock assessment. The mean weight of commercially harvested red porgy used to convert landings in pounds to numbers of fish were 1.72 for North Carolina, 2.20 for South Carolina, and 2.08 for Florida and Georgia. The percent of trips harvesting red porgy from 2015 through 2019 shows greater than 50% of trips are estimated to have harvested less than 30 fish during a trip (Figure F.1). Trips estimated to have harvested greater than 120 red porgy were normalized to 120 fish when estimating potential trip limit reductions. Estimated reductions from projected landings for potential trip limits are shown in Table F.1. Recent retrospective analyses of commercial trip limits found that when a per-fish trip limit was reduced, fishers responded by retaining larger fish on average diminishing the predicted percent reduction in landings (Pulver et al. 2019). Because the amendment is looking to reduce the per-fish trip limit, the predicted reduction in landings may be overestimated in Table F.1.

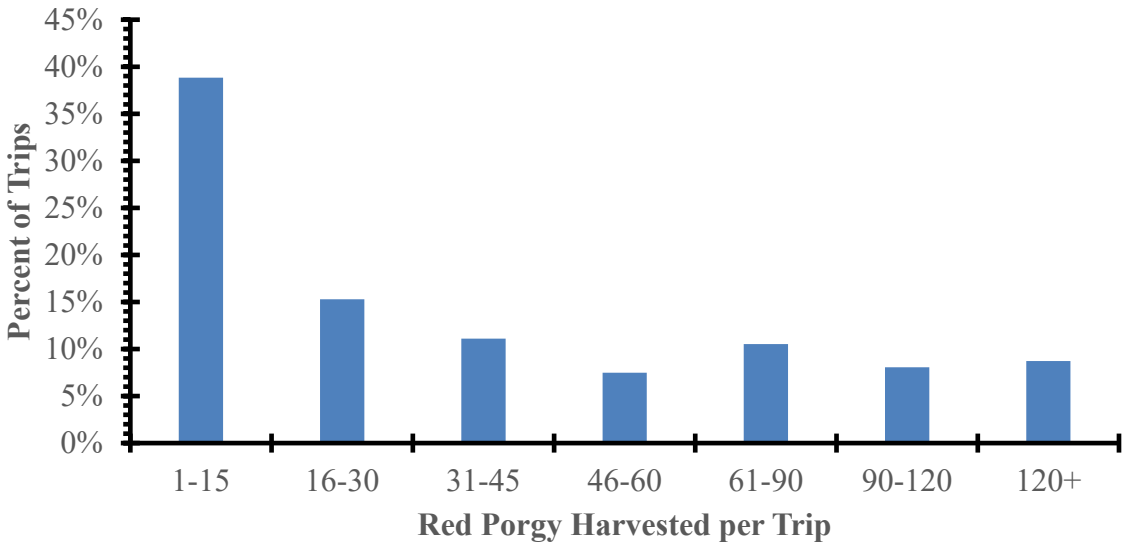

Figure F.1. The percent of commercial trips (n=5,669) harvesting red porgy (numbers of fish) by bin from 2015 through 2019. Source: SEFSC Commercial Logbook [May 26, 2020].

Table F.1. The predicted percent change in landings per trip from either the 60-red porgy (January-April) or 120-red porgy (May-December) trip limits.

Current Trip Limit (# of red porgy)	Potential Trip Limit (# of red porgy)	Predicted Change in Landings per Trip
60 – Season 1	45	-15%
60 – Season 1	30	-35%
60 – Season 1	20	-52%
60 – Season 1	15	-62%
120 – Season 2	60	-25%
120 – Season 2	45	-36%
120 – Season 2	30	-51%
120 – Season 2	20	-64%
120 – Season 2	15	-71%

Commercial Season Length

Landings data for South Atlantic red porgy were obtained from the SEFSC commercial ACL datasets (4/5/21; 6/7/21). Future landings were determined by taking an average of the most recent three years of complete data for each month, as the most recent data are believed to be the best approximation of future harvest (Figure F.2). Two years of landings for January through April were extrapolated from mean May 2018-2019 landings using the mean ratio of May to January-April landings from 1986-1999 (the final year the fishery was open January-April until 2020). There were likely confounding effects due to social distancing measures, but in the first year the January through April season was open March 2020 preliminary landings were approximately 8,175 lbs gw and April landings were approximately 5,050 lbs gw. Preliminary January through April 2021 landings were obtained on June 7, 2021 and were used with the other two years of estimated landings for the monthly estimates. The variances from the ratios and

recent landings were summed for the January through April landings prediction. Season lengths were projected using daily catch rates with upper and lower 95% confidence intervals for the commercial ACL with the different trip limit options (Table F.2).

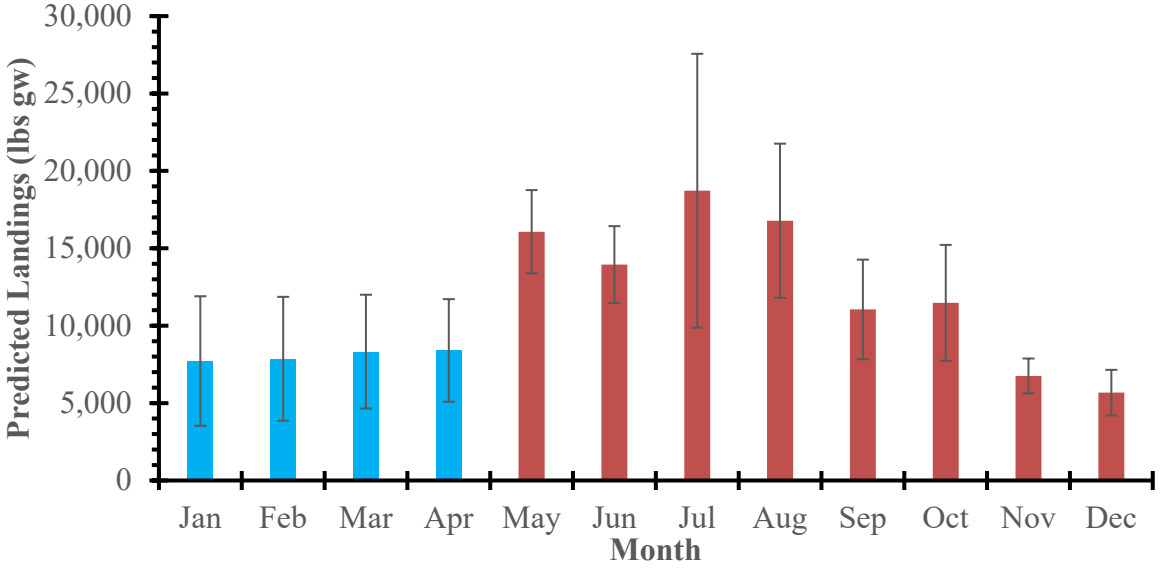

Figure F.2. The predicted monthly red porgy landings (lbs gw) based current trip limits and 95% confidence interval. Source: SEFSC Commercial ACL file [April 5, 2021; June 7, 2021].

Table F.2. The projected 2022 closure date of red porgy by season with different trip limit options and 95% confidence interval (CI). Note that 30% of the ACL (37,089 lbs gw) is allocated to the January-April season and 70% to the May-December season.

Season	ACL (lbs gw)	Trip Limit (# of red porgy)	Closure Date	Season Length (95% CI)
January 1 – April 30	11,127	60 - Current	February 13	Jan 29 – Mar 25
January 1 – April 30	11,127	45	February 20	Feb 3 – Apr 7
January 1 – April 30	11,127	30	March 6	Feb 13 – No Closure
January 1 – April 30	11,127	20	March 29	Feb 27 – No Closure
January 1 – April 30	11,127	15	April 19	Mar 14 – No Closure
May 1 – December 31	25,962	120 - Current	June 22	Jun 14 – Jul 4
May 1 – December 31	25,962	60	July 8	Jun 29 – Jul 31
May 1 – December 31	25,962	45	July 18	Jul 7 – Aug 17
May 1 – December 31	25,962	30	August 9	Jul 21 – Sep 27
May 1 – December 31	25,962	20	September 18	Aug 13 – Dec 31
May 1 – December 31	25,962	15	November 9	Sep 12 – No Closure

Recreational Bag Limit

The number of red porgy caught per angler on a given trip was collected by the Marine Recreation Information Program (MRIP) and the Southeast Region Headboat Survey (SRHS) using data from 2015 through 2019 (Figure F.3). Analyses could only examine catch per trip and not per person per day due to data limitations. The most recent five years of data was used

instead of three years due to low sample sizes for the private mode. The MRIP system classifies recreational catch into three categories:

- Type A - Fish that were caught, landed whole, and available for identification and enumeration by the interviewers.
- Type B - Fish that were caught but were either not kept or kept but not available for identification.
    - Type B1 - Fish that were caught and filleted, released dead, given away, or disposed of in some way other than Types A or B2.
    - Type B2 - Fish that were caught and released alive.

Type A and B1 catches were used for bag limit analyses. Type A catch represents the total catch of all anglers on a fishing trip. However, some or all of the anglers contributing to the A catch are also interviewed to report type B1 catch, and those may be recorded on an individual basis.

The B1 catch was aggregated for each fishing party and the total catch per angler was then determined by summing the total Type A and Type B1 catch (AB1) for each trip and then dividing it by the number of anglers in the fishing party. Percent reductions in harvest were estimated for bag limits ranging from one to two red porgy per angler from the current 3-red porgy per angler in place since 2006. If AB1 catch per angler was greater than the bag limit being analyzed and less than or equal to the three-red porgy per angler bag limit, the value was re-set to the new bag limit ($AB1_{bag\ limit}$), otherwise no changes to the catch were made. Four outliers with high harvest per angler were normalized to three fish per angler for the analysis.

The following formulas were used to estimate reductions in harvest resulting from bag limits:

$$\textit{If AB1 catch} <= \textit{bag limit, then harvest} = A + B1$$
$$\textit{If AB1 catch} > \textit{bag limit, then harvest} = AB1_{bag\ limit}$$

Reductions for SRHS bag limits were calculated in a similar manner as described above, except no B1 catch data were available. If the catch per angler was greater than the bag limit being analyzed, the value was re-set to the bag limit, as described above. If the catch per angler was less than the bag limit being analyzed, then no change to the catch was made. Percent reductions associated with bag limits were estimated relative to the status quo of the 3-fish bag limit, by mode of fishing and overall (Table F.3**)**. The impact of bag limits varied by mode: the largest reductions were observed in the private mode with smaller reductions observed in the charter and headboat modes. Confidence intervals were obtained by bootstrapping trips (n=1,000) and recalculating predicted reduction in landings by mode.

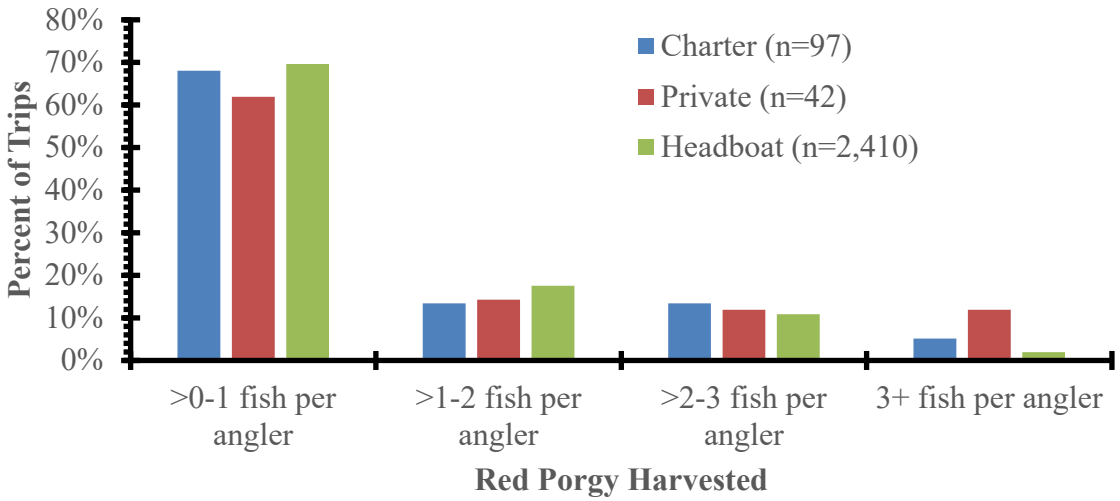

Figure F.3. The percent of trips harvesting red porgy for private, charter, and headboat modes by bin from 2015 through 2019. Sources: MRIP FES survey data available at https://www.fisheries.noaa.gov/recreational-fishing-data/recreational-fishing-data-downloads. SRHS CRNF file [July 10, 2020].

Table F.3. The percent reduction in red porgy landings by for each potential bag limit by mode and overall with 95% confidence interval. Note the total percent reduction is weighted by the contribution of each mode's landings to overall red porgy landings.

Mode	2-red porgy bag limit	1-red porgy bag limit
Charter	4% (2-8%)	12% (7-23%)
Private	10% (4-17%)	32% (21-42%)
Headboat	6% (5-7%)	28% (27-30%)
Overall	9% (4-12%)	29% (22-36%)

Recreational Season Length

Landings data for South Atlantic red porgy were obtained from the SEFSC recreational ACL dataset (9/16/20). The current ACL is being tracked using MRIP Coastal Household Telephone Survey (CHTS) equivalent landings. However, this analysis uses MRIP Fishing Effort Survey (FES) data to match the same currency (MRIP FES) as the most recent assessment (SEDAR 60). The data set also contains landing from the SRHS. Future landings were determined from taking an average of the landings from 2015 through 2017 and 2019. Landings from 2018 were excluded due to a proportional standard error (PSE) greater than 75 indicating a very imprecise estimate. Recreational landings are collected in two-month increments called waves (e.g., January and February = wave 1, March and April = wave 2, etc.). Landings and a prediction of future landings by wave are shown in Figure F.4. Season lengths were projected with cumulative landings and upper and lower 95% confidence intervals for the preferred recreational ACL of 35,026 lbs gw. The predicted closure dates with a January 1 fishing start date span from May 3 for the 3-red porgy per angler bag limit to May 15 for the 1-red porgy per angler bag limit (Table F.4). The predicted closure dates with a May 1 fishing start date span from May 30 for

the 3-red porgy per angler bag limit to June 11 for the 1-red porgy per angler bag limit (Table F.4). There is considerable uncertainty in the predictions indicated by the large confidence intervals. The recreational decision tool has the option of opening or closing waves for projecting season length with the different bag limit options.

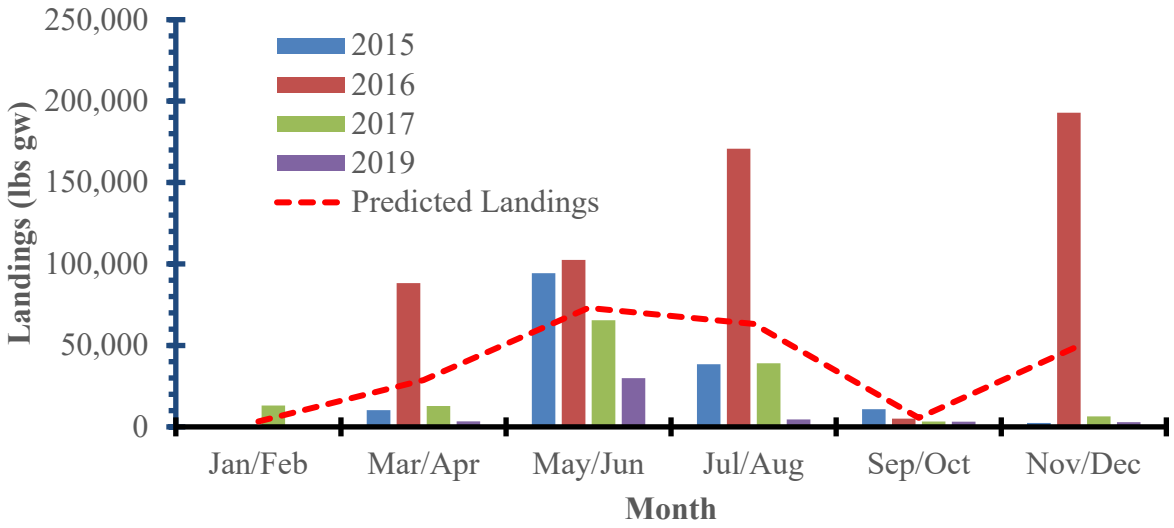

Figure F.4. South Atlantic red porgy recreational landings by two-month wave and predicted future landings. Source: SEFSC MRIP FES Recreational ACL Dataset [September 16, 2020].

Table F.4. The projected closure dates of red porgy for different bag limit and fishing season options with 95% confidence interval (CI).

ACL (lbs gw)	Bag Limit	Fishing Season	Closure Date	Season Length (95% CI)
35,026	3-fish	Jan 1 – Dec 31	May 3	Mar 23 – Jun 22
35,026	2-fish	Jan 1 – Dec 31	May 6	Mar 26 – Jun 27
35,026	1-fish	Jan 1 – Dec 31	May 15	Apr 5 – No Closure
35,026	3-fish	Jan 1– Apr 30	No Closure	Mar 23 – No Closure
35,026	2-fish	Jan 1– Apr 30	No Closure	Mar 26 – No Closure
35,026	1-fish	Jan 1– Apr 30	No Closure	Apr 5 – No Closure
35,026	3-fish	May 1 – Aug 31	May 30	May 21 – Jun 22
35,026	2-fish	May 1 – Aug 31	June 2	May 23 – Jun 27
35,026	1-fish	May 1 – Aug 31	June 11	May 29 – No Closure
35,026	3-fish	Jun 1 – Aug 31	June 30	Jun 21 – No Closure
35,026	2-fish	Jun 1 – Aug 31	July 3	Jun 23 – No Closure
35,026	1-fish	Jun 1 – Aug 31	July 14	Jun 29 – No Closure

Decision Tools

Decision tools were developed for both the recreational and commercial sectors to examine different management options when predicting season length in R statistical software (Figures F.5 and F.6). The recreational decision tool allows users to close different months with different bag limits to examine the effect on predicted season length. The commercial decision tool

allows users to look at different trip limit options and examine the effect on predicted season length.

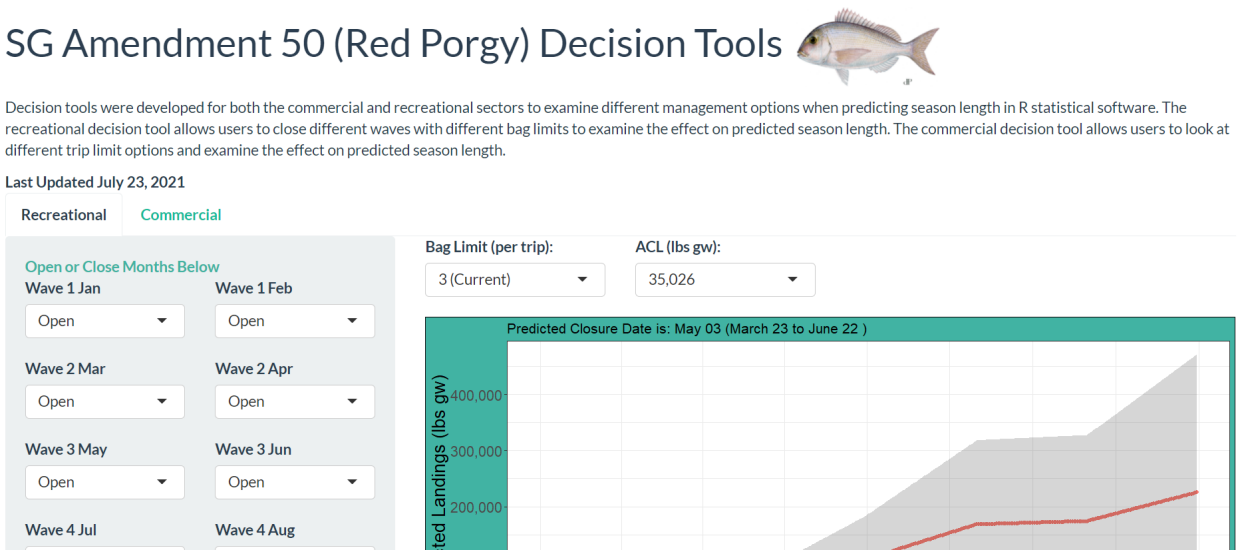

Figure F.5. A screenshot of the recreational decision tool developed in R statistical software.

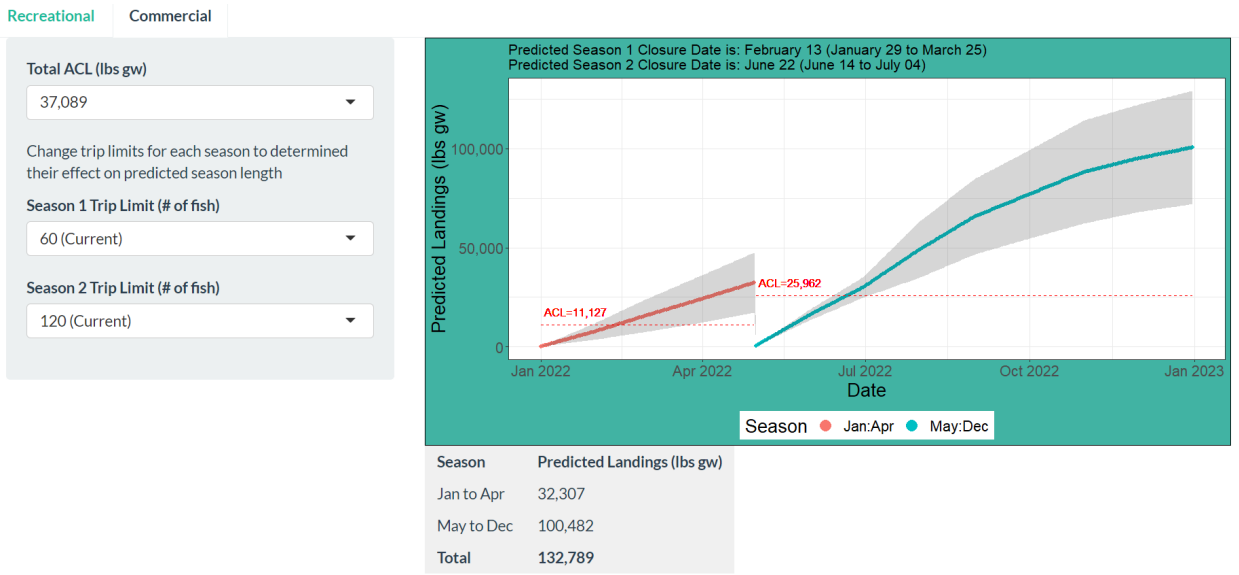

Figure F.6. A screenshot of the commercial decision tool developed in R statistical software.

References

Pulver, J. R., J. A. Stephen, M. F. Larkin, and A. M. Gray. 2019. Retrospective analyses of commercial trip limit efficacy in the Southeastern USA. Marine and Coastal Fisheries, 11:414-419.

SEDAR (Southeast Data, Assessment and Review) 1 Update. 2006. Stock Assessment Report: South Atlantic Red Porgy. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC.

SEDAR 60. 2020. Stock Assessment Report: South Atlantic Red Porgy. SEDAR, 4055 Faber Place Drive, Suite 201, North Charleston, SC.

Appendix G. Bycatch Practicability Analysis

Background

Amendment 50 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 red porgy. Actions include establishing a rebuilding plan, and revising annual catch limits (ACL), sector allocations, recreational accountability measures (AM), and management measures for the commercial and recreational sectors. Development of Amendment 50 is a response to the most recent stock assessment for South Atlantic red porgy (SEDAR 60 2020). 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.[21] 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.

[21] 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). 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
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.

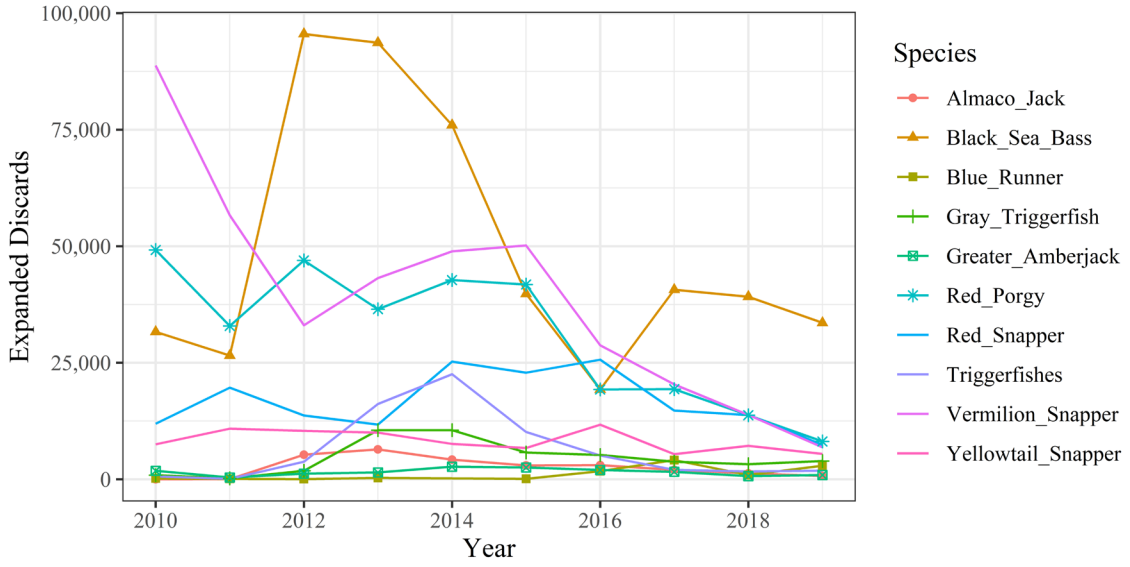

Figure G.1.1.1. Expanded self-reported commercial discards (numbers of fish) for the top ten species discarded during snapper grouper trips (defined as trips with >50% of landings from snapper grouper stocks) from 2010-2019 for all gear types.
Source: SEFSC Coastal Logbook (accessed May 2020) and Discard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

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.1.1.2). 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 amount of discards in the commercial vertical line component of the snapper grouper fishery, with 78% of discards attributed to "out of season."

Table G.1.1.2. 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).

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.1.1.3). Red snapper, tomtate, yellowtail snapper, and grunt species were in the top ten for all modes.

Table G.1.1.3. 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.1.1.4). 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.1.1.4. 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).

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 establish a rebuilding plan for South Atlantic red porgy. The Council selected **Alternative 5** as the preferred alternative, which proposes a rebuilding timeframe that would end in 2047. Establishing a rebuilding plan does not directly affect bycatch; thus, no changes in bycatch are expected for Action 1.

Action 2 would revise the total annual catch limit (ACL) and annual optimum yield (OY) for red porgy to reflect the updated acceptable biological catch (ABC) level provided by the Council's SSC. All of the proposed ACLs would lead to a reduction in harvest of red porgy. The Council selected **Alternative 2** as the preferred alternative, which proposes a total ACL that is equal to the ABC. Lower catch levels than what is currently allowed, as proposed by **Preferred Alternative 2**, could result in increased regulatory discards of red porgy. However, fishing effort or behavior is not expected to change for the snapper grouper fishery; thus, no changes in bycatch are expected for Action 2.

Action 3 would revise the sector allocations for red porgy and sector ACLs to reflect the updated ABC level provided by the Council's SSC. The Council selected **Alternative 2** as the preferred alternative, which proposes a 51.43:48.57 split between the commercial and recreational sectors, respectively. This allocation scenario modestly increases the commercial sector allocation from the status quo. The proposed allocations are not expected to result in changes to fishing activity or behavior; thus, no changes in bycatch are expected for Action 3.

Action 4 would modify commercial management measures for red porgy. The Council selected **Sub-alternative 2a** and **3a** as the preferred alternatives, which propose a 15 fish per trip limit for each split season. These trip limits would constrain harvest and could lead to increased regulatory discards. However, this action essentially creates a "bycatch allowance" so commercial fishermen could retain small numbers of red porgy over the longest amount of time and could minimize discards of incidentally harvested red porgy when targeting other species such as gray triggerfish and vermilion snapper. Red porgy have a moderate estimated release mortality rate so some negative population effects would be expected if the fishery experiences an increase in discards. While increased discards of red porgy are expected, there is no anticipated change to fishing activity or behavior in the snapper grouper commercial sector and thus no changes in bycatch are expected for Action 4.

Action 5 would modify recreational management measures for red porgy. The Council selected **Alternative 2** as the preferred option for Sub-Action 5a, which would reduce the recreational bag limit to 1 fish per person per day or trip. This bag limit could result in increased regulatory discards, however, most recreational fishing trips harvest one or less red porgy per person. The Council also selected **Alternatives 3** and **4** as the preferred options for Sub-Action 5b, which would establish a recreational fishing season of May through August. These preferred alternatives would allow fishing during months of highest recreational fishing effort, highest

predicted red porgy landings, and could reduce regulatory discards. The truncated fishing season could increase regulatory discards in the other months of the year, however, fishing activity or behavior in the snapper grouper recreational sector is not expected to substantially change, thus no changes in bycatch are expected for Action 5.

Action 6 would revise the recreational AMs for red porgy. 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. The Council selected Alternative XX as the preferred option. Because red porgy are incidentally harvested while recreational fishers target snapper grouper species and no anticipated change to fishing activity or behavior are expected; thus no changes in bycatch are expected for Action 6.

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 red porgy, including actions that could reduce bycatch and bycatch mortality of red porgy and other snapper grouper species, are outlined in Section 1.6 of 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, dehookers 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 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 future 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 2019c) 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° 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. Work on this amendment is currently on hold.

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

The ecological effects of bycatch mortality are the same as fishing mortality from directed fishing efforts. If not properly managed and accounted for, either form of mortality could potentially reduce stock biomass to an unsustainable level. Release mortality rates for the snapper grouper fishery are widely variable 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 the 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 deep water (Campbell et al. 2014; Pulver 2017; Rudershausen et al. 2014; Stephen and Harris 2010; Wilson and Burns 1996). Red porgy can be captured over a broad depth range or transition to different depth zones throughout their life history, so release mortality rates can be variable.

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)	48.3%	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	39%	SEDAR 41 (2017)
Red Snapper	Recreational - Charter & Headboat	41%	SEDAR 41 (2017)
Red Snapper	Commercial	48%	SEDAR 41 (2017)
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. 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° 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 50 is not expected to result in substantial changes in bycatch of other fish species. The snapper grouper fishery is characterized by a high amount 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 fishing activity or behavior; 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, 86 FR 3028; January 14, 2021).

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 dolphin wahoo 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 50 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 dolphin wahoo 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 50 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 50 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 50 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 50, 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 50 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 50 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.

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