

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

## Catch Level Adjustments and Allocations for Snowy Grouper

### Background

The South Atlantic stock of snowy grouper was first assessed through the Southeast Data, Assessment, and Review (SEDAR) process in 2004. The results of this assessment (SEDAR 4) indicated that the stock was both overfished and undergoing overfishing. In

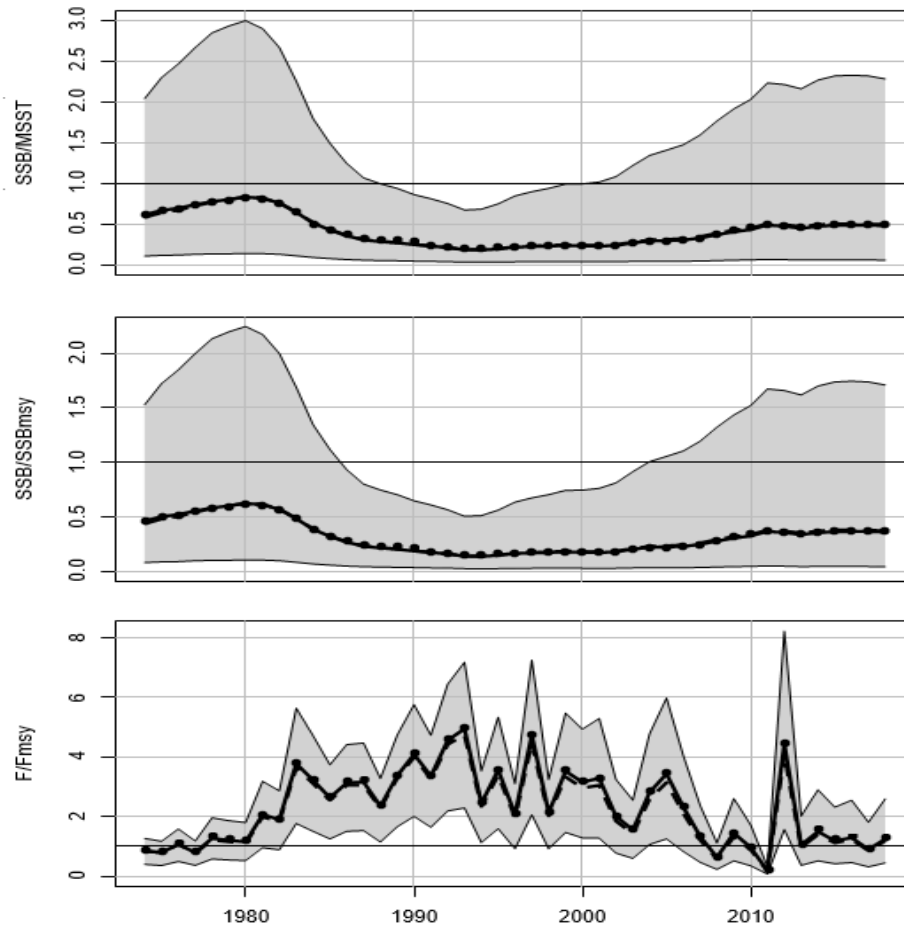
response, the South Atlantic Fishery Management Council (Council) and the National Marine Fisheries Service (NMFS) developed Amendment 13C to the Snapper Grouper Fishery Management Plan (Snapper Grouper FMP) to end overfishing. This amendment reduced the quota as well as the trip and bag limit. In 2006 a 34-year rebuilding plan was created through Amendment 15A to the Snapper Grouper FMP, with a terminal year of the rebuilding plan in 2042.

In 2013, the stock was assessed through SEDAR 36. This assessment indicated that the South Atlantic stock of snowy grouper remained overfished and was no longer experiencing overfishing. Through Regulatory Amendment 20, the Council and NMFS revised the rebuilding strategy, and modified the annual catch limits (ACL), bag limit, and recreational season.

**History of Snowy Grouper Stock Status**

Assessment	Overfished	Overfishing
SEDAR 4 (2006)	X	X
SEDAR 36 (2014)	X	
SEDAR 36 Update (2020)	X	X

The update to SEDAR 36 was completed in 2020. This assessment used revised estimates for recreational catch from the Marine Recreational Information Program (MRIP) based on the Fishing Effort Survey (FES). The results of this assessment indicated that the stock is overfished and is experiencing overfishing (**Figure 1**). The Council’s Scientific and Statistical Committee (SSC) reviewed the SEDAR 36 Update at their January 2021 meeting and determined that the assessment is based on the best scientific information available (BSIA). This assessment updated commercial and recreational landings and discards, indices of abundance, length compositions, and maximum age.



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

The Council received the results of the assessment and the SSC’s recommendations for the overfishing limit (OFL) and acceptable biological catch (ABC) at their March 2021 meeting and directed staff to begin work on a plan amendment to adjust catch levels based on the SSC

recommendations and SEDAR 36 Update. Additionally, the Council’s Snapper Grouper Advisory Panel (AP) discussed and provided recommendations on modifications to snowy grouper management measures at their April 2021 meeting. These recommendations can be found in the [Snapper Grouper AP’s meeting summary report](#).

NMFS notified the Council on June 10, 2021, that management action is necessary for snowy grouper as the stock is undergoing overfishing and remains overfished. Once the Council is notified that a stock is undergoing overfishing and overfished, the Magnuson-Stevens Fishery Conservation and Management Act requires the Council and NMFS to implement a plan amendment to end overfishing immediately. NMFS recommended that the Council end overfishing of snowy grouper and continue stock rebuilding based on the results of SEDAR 36 Update.

Assessment Link: [http://sedarweb.org/docs/suar/2020\\_SEDAR36U\\_SAR\\_November2020.pdf](http://sedarweb.org/docs/suar/2020_SEDAR36U_SAR_November2020.pdf)

## Proposed management changes in this amendment

- Adjust catch levels (annual catch limit) and revise annual optimum yield
- Revise sector allocations
- Consider other changes to management

## Objectives for this meeting

- Provide guidance on alternatives for development
- Approve the amendment for scoping

## Tentative amendment timing

March 2021	Reviewed SEDAR 36 Update results and direct staff to begin a plan amendment
September 2021	Review options/scoping paper, provide guidance to staff, and approve the amendment for scoping
<b>October/November 2021</b>	<b>Conduct scoping &amp; obtain input from AP</b>
December 2021	Review scoping & AP comments, review preliminary analyses, and provide guidance to staff
March 2022	Review modifications to the amendment
June 2022	Review modifications to the amendment, select preferred alternatives, and approve for public hearings

July/August 2022	Conduct public hearings
September 2022	Review public hearing comments and approve all actions
December 2022	Review final draft amendment and consider approval for formal review

## DRAFT Purpose and Need Statements

This Purpose and Need statement is a draft version and may change, pending Council guidance at the December 2021 meeting.

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

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

## Acceptable Biological Catch and Overfishing Limit

The SSC reviewed the snowy grouper stock assessment (SEDAR 36 Update 2020) at their January 2021 meeting. The SSC found that the assessment addressed the terms of reference appropriately, was conducted using the BSIA, was adequate for determining stock status and supporting fishing level recommendations, and addressed uncertainty consistent with expectations and available information. The SSC applied the ABC Control Rule and recommended the following ABC and OFL for snowy grouper. Recommendations are based on landings and expressed in total removals (**Table 1**). **ABC/OFL recommendations are converted to pounds gutted weight using a 1.18 NMFS conversion factor. According to SEDAR 36 Update, 95.4% of total removals of snowy grouper are landings and 4.6% are dead discards.** Landings recommendations have been calculated to account for dead discards.

**Table 1.** South Atlantic Snowy grouper OFL and ABC recommendations in pounds gutted weight (lbs gw) and numbers of fish.

OFL RECOMMENDATIONS					
Year	Removals (lbs ww)	Removals (lbs gw)	Removals (numbers of fish)	Landings (lbs gw)	Landings (numbers of fish)
2023	194,000	164,407	21,000	156,844	20,034

2024	193,000	163,559	20,000	156,035	19,080
2025	192,000	162,712	20,000	155,227	19,080
2026	188,000	159,322	20,000	151,993	19,080
ABC RECOMMENDATIONS					
Year	Removals (lbs ww)	Removals (lbs gw)	Removals (numbers of fish)	Landings (lbs gw)	Landings (numbers of fish)
2023	148,000	125,424	16,000	119,954	15,624
2024	150,000	127,119	16,000	121,272	15,624
2025	152,000	128,814	16,000	122,889	15,624
2026	152,000	128,814	16,000	122,889	15,624

The current ABC and the total ACL for snowy grouper is 218,848 pounds (lbs) whole weight (ww) (185,464 lbs gw) (Regulatory Amendment 20, SAFMC 2015). Commercial and recreational sector ACLs are currently monitored using different metrics. The commercial sector ACL is monitored using weight and the recreational sector ACL is monitored using numbers of fish. Few snowy grouper are observed in the recreational fishery and the low sample size can cause annual variation in the estimated average weight for snowy grouper. Council staff recommend continuing to track the recreational sector ACL in numbers of fish. The recreational ACL was converted to numbers of fish using projected annual average weights. Though the ABC in numbers of fish is consistent throughout the projection timeframe, average weight as well as ABCs and ACLs measured by weight are expected to increase as the stock rebuilds.

## Alternatives for Proposed Actions

### 1. Revise the total annual catch limit and annual optimum yield for snowy grouper to reflect the updated acceptable biological catch level

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

**Alternative 2.** The total annual catch limit and annual optimum yield for snowy grouper is equal to the **updated** acceptable biological catch level. The updated acceptable biological catch level is inclusive of recreational estimates from the Marine Recreational Information Program’s Fishing Effort Survey.

**Alternative 3.** The total annual catch limit and annual optimum yield for snowy grouper is equal to 95% of the **updated** acceptable biological catch level. The updated acceptable biological catch level is inclusive of recreational estimates from the Marine Recreational Information Program’s Fishing Effort Survey.

**Alternative 4.** The total annual catch limit and annual optimum yield for snowy grouper is equal to 90% of the **updated** acceptable biological catch level. The updated acceptable biological catch level is inclusive of recreational estimates from the Marine Recreational Information Program’s Fishing Effort Survey.

**Alternative 5.** The total annual catch limit and annual optimum yield for snowy grouper is equal to 80% of the **updated** acceptable biological catch level. The updated acceptable biological catch level is inclusive of recreational estimates from the Marine Recreational Information Program’s Fishing Effort Survey.

**Table 2.** The total ACL for snowy grouper under Alternatives 1 (No Action) – 5 in gutted weight

Note: Given the timing of amendment development, new catch levels would likely be effective during 2023 fishing year. Number of fish remain the same throughout the time period because it is assumed that fish moving through age classes gain weight therefore increasing the available poundage, however this does not increase the number of fish.

Alternative	Pounds Gutted Weight			
	2023	2024	2025	2026*
Alternative 1 (No Action)**	185,464	185,464	185,464	185,464
Alternative 2***	119,954	121,272	122,889	122,889
Alternative 3***	113,956	115,208	116,745	116,745
Alternative 4***	107,959	109,145	110,600	110,600
Alternative 5***	95,963	97,018	98,311	98,311

\*The 2026 ACL will remain in place until modified

\*\*Current ABC=ACL and this represents CHTS estimates where appropriate for recreational data.

\*\*\*Represents FES estimates where appropriate for recreational data.

## Discussion

- New ACLs are needed since the SSC recommended new OFL and ABC values.
- The Council has specified OY=ACL=ABC for most snapper grouper species. National Standard 1 guidelines state that although a Council can establish an annual OY, it must establish a long-term OY.
- Current ACL specifications:
  - The commercial ACL is currently specified in pounds (lbs) gutted weight (gw).
  - The commercial trip limit is specified in lbs gw. The conversion between lbs whole weight (ww) and lbs gw is 1.18 (NMFS Conversion).
  - The recreational ACL is currently specified in number of fish. The recreational bag limit is specified in numbers of fish and reported in numbers of fish.
  - The projections from the SEDAR assessment include both numbers and pounds of fish.

- Commercial landings of snowy grouper in the South Atlantic averaged 106.6% percent of the commercial ACL from 2015 through 2020. Commercial closures have occurred each year from 2015-2020 (**Table 3**). The commercial split season, which sought to extend the commercial season by allocating 70% of the commercial ACL to January-June and 30% of the commercial ACL to July-December, was effective February 2020 through Regulatory Amendment 27.

**Table 3.** The percentage of the commercial ACL landed each year from 2015-2020.  
Note: The commercial split season was first effective in 2020.

Year	Season(s) and Closures	ACL (lbs gw)	% ACL
2020	Jan 1 - Jun 30, Jul 1 - Dec 31 (closure 12/12/20)	153,935	100.5
2019	Jan 1 - Dec 31 (closure: 8/3/19)	144,315	105.2
2018	Jan 1 - Dec 31 (closure: 7/24/18)	144,315	101.8
2017	Jan 1 - Dec 31 (closure: 6/22/17)	135,380	100.3
2016	Jan 1 - Dec 31 (closure: 6/14/16)	125,760	118.8
2015	Jan 1 - Dec 31 (closure: 7/6/2015, re-opened 8/20/2015, 9/22/15)	115,451	112.7

Source: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/index.html)

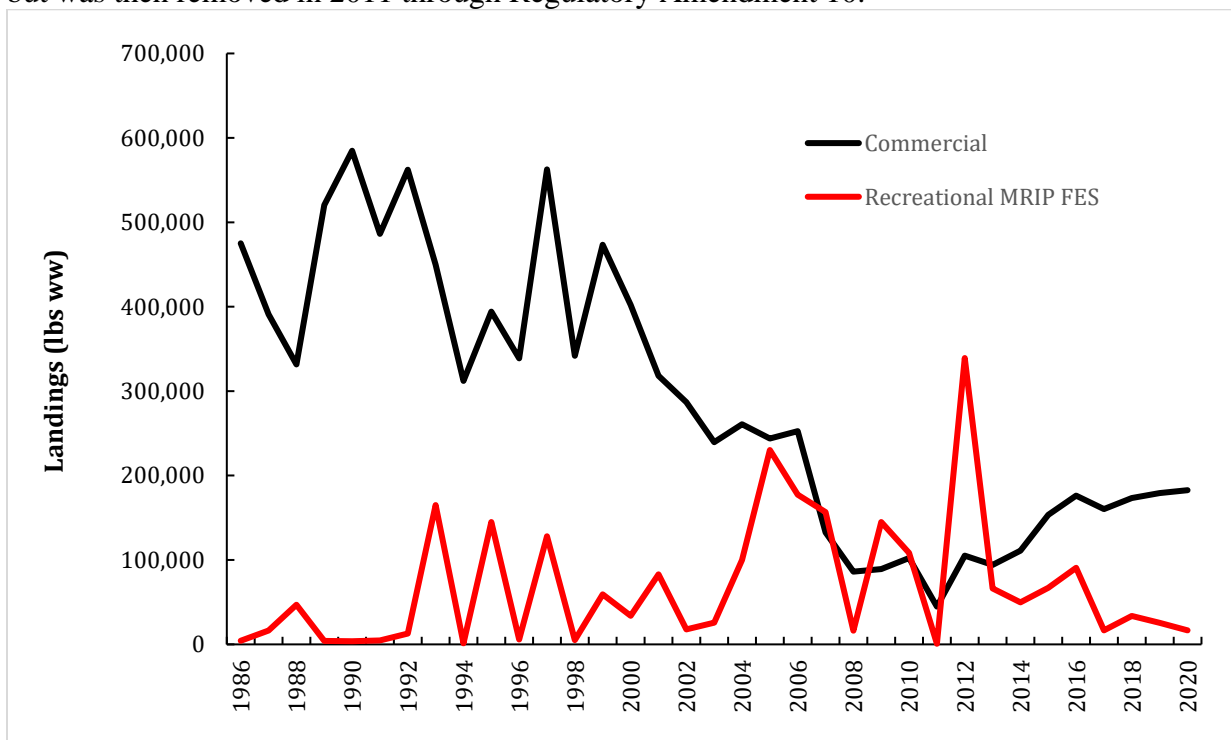
- Recreational landings of snowy grouper in the South Atlantic averaged 63.8% of the recreational ACL from 2015 through 2020 based on CHTS landings (**Table 4**). The snowy grouper recreational bag limit was reduced to 1 fish per vessel per day in October 2006 (Amendment 13C) to constrain harvest below the ACL.

**Table 4.** The percentage of the recreational ACL landed each year from 2015-2020.  
Note: Since the ACLs through 2020 were established using CHTS data, CHTS landings were used to determine the % ACL used each year from 2015-2020.

Year	Season and Closures	ACL (numbers of fish; MRIP CHTS)	% ACL
2020	May 1 – Aug 31	5,315	24.6
2019	May 1 – Aug 31	5,315	36.6
2018	May 1 – Aug 31	4,983	55.5
2017	May 1 – Aug 31	4,819	40.6
2016	May 1 – Aug 31	4,483	140.8
2015	May 1 – Aug 31 (closure: 9/1/15)	4,152	84.7

Source: [http://sero.nmfs.noaa.gov/sustainable\\_fisheries/acl\\_monitoring/index.html](http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/index.html)

- **Figure 2** below shows snowy grouper commercial and recreational landings (lbs ww) by year from 1986 through 2020. Commercial landings are in black. Recreational landings estimates based on the MRIP FES survey are shown in red. In 2011, the 240 ft deepwater closure was put into place through Amendment 17B for six species including snowy grouper but was then removed in 2011 through Regulatory Amendment 10.



**Figure 2.** Snowy grouper commercial and recreational landings (lbs ww) by year from 1986 through 2020. Commercial landings are in black. Recreational MRIP FES estimates are in red. Sources: SEFSC Commercial ACL Datasets (Commercial ACL File October 9, 2020 and the ACL file provided April 5, 2021 for landings from 2014-2020); SEFSC Recreational MRIP FES ACL file (May 11, 2021).

- Based on **Alternative 2** (ABC=ACL=OY), the following decreases from the current ACL will be observed (**Table 5**):

**Table 5.** The difference and percent difference from the current ACL based on **Action 1 Alternative 2**. Current total ACL is 185,464 lbs gw. Current commercial ACL is 153,935 lbs gw. Recreational landings are not shown because new ACL will be based on FES landings, whereas the previous ACL is based on CHTS landings.

	Total ACL (currently 185,464 lbs gw)		Commercial ACL (153,935 lbs gw)
Year	Difference from current ACL (lbs gw)	Percent Difference from current ACL	Difference from current Commercial ACL (lbs gw)*



2023	-65,510	-42.9%	-54,373
2024	-64,192	-41.9%	-53,279
2025	-62,575	-40.6%	-51,937
2026+	-62,575	-40.6%	-51,937

\*Assumes current commercial allocation of 83% of the total ACL

### Advisory Panel Action:

- Provide comments on the range of options currently developed in **Action 1**. Are these additional alternatives that should be considered?

**COUNCIL DIRECTION TO STAFF:** Keep recreational in numbers of fish

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

The revised sector annual catch limits in Alternatives 1 (No Action) through 4 reflect the revised total annual catch limit in Alternative 2 of Action 1. The revised total annual catch limit includes recreational landings from the Marine Recreational Information Program using the Fishing Effort Survey method used in the latest assessment (SEDAR 36 Update 2020).

**Alternative 1 (No Action).** Retain the current recreational sector and commercial sector allocations as 17% and 83%, respectively, of the revised total annual catch limit for snowy grouper. Apply these percentages to the revised total annual catch limit. The percentages are based on the average landings from 1986 to 2005 using the landings dataset used in Regulatory Amendment 20 that included recreational estimates from the Marine Recreational Information Program’s Coastal Household Telephone Survey.

**Alternative 2.** Allocate 12.5% of the revised total annual catch limit for snowy grouper to the recreational sector and 87.6% of the revised total annual catch limit for snowy grouper to the commercial sector. This allocation is based on average landings from 1986 to 2005 using a revised dataset that is inclusive of Marine Recreational Information Program Fishing Effort Survey estimates.

**Alternative 3.** Allocate 26.6% of the revised total annual catch limit for snowy grouper to the recreational sector and 73.4% of the revised total annual catch limit for snowy grouper to the commercial sector. This allocation is based on applying the formula of sector annual catch limit = ((mean landings 2006-2008)\*0.5) + ((mean landings 1986-2008)\*0.5) to a revised dataset that is inclusive of Marine Recreational Information Program Fishing Effort Survey estimates.

**Table 6.** Recreational sector allocations for snowy grouper based on the revised total ACL from Preferred Alternative 2 in Action 1. Number of fish remain the same throughout the time period because it is assumed that fish moving through age classes gain weight therefore increasing the available poundage, however this does not increase the number of fish.

Year	Recreational Allocation of the Total ACL	Recreational ACL (Numbers of fish)	Recreational ACL (lbs gw)
<b>Alternative 1 (No Action)</b>			
2023	17%	2,656	20,392
2024		2,656	20,616
2025		2,656	20,891
2026*		2,656	20,891
<b>Alternative 2</b>			
2023	12.5%	1,953	14,994
2024		1,953	15,159
2025		1,953	15,361
2026*		1,953	15,361
<b>Alternative 3</b>			
2023	26.6%	4,156	31,908
2024		4,156	32,258
2025		4,156	32,688
2026*		4,156	32,688

\*The 2026 ACL will remain in place until modified.

Note: Average weight for 2021 = 12.1190073 pounds whole weight (14.3 lbs gw)

**Table 7.** Commercial sector allocations for snowy grouper based on the revised total ACL from Preferred Alternative 2 in Action 1. The commercial season is split into two seasons. Season 1 is from January 1 – June 31 and it receives 70% of the total commercial ACL. Season 2 is from July 1 – December 31 and it receives 30% of the total commercial ACL.

Year	Commercial Allocation of the Total ACL	Commercial ACL (lbs gw)	Commercial Season 1 (lbs gw) 70%	Commercial Season 2 (lbs gw) 30%
<b>Alternative 1 (No Action)</b>				
2023	83%	99,562	69,693	29,869
2024		100,656	70,459	30,197
2025		101,998	71,399	30,599
2026*		101,998	71,399	30,599
<b>Alternative 2</b>				
2023	87.6%	109,038	76,327	32,711
2024		110,236	77,165	33,071
2025		111,706	78,194	33,512
2026*		111,706	78,194	33,512

Alternative 3				
2023	73.4%	88,046	61,632	26,414
2024		89,014	62,310	26,704
2025		90,201	63,141	27,060
2026*		90,201	63,141	27,060

\*The 2026 ACL will remain in place until modified.

Note: Average weight for 2021 = 12.1190073 pounds whole weight (14.3 lbs gw)

## Discussion

- Allocations need to be reviewed because recreational landings were updated in the new assessment. Recreational landings will be estimated using the MRIP FES method rather than the previous Coastal Household Telephone Survey (CHTS).
- Sector allocations for snowy grouper were implemented through Amendment 15B to the Snapper Grouper FMP (SAFMC 2006) (commercial 95%, recreational 5%) using average commercial and recreational landings for the period 1986-2005.
- SEDAR 36 (2013) updated the landings for these years, including adjusting to account for the change from the Marine Recreational Fisheries Statistics Survey (MRFSS) to the MRIP CHTS. The resulting change in the methodology used to estimate recreational landings caused a shift in allocation to 83% commercial and 17% recreational. These revised allocations were implemented in (2015) through Regulatory Amendment 20.
- The current sector allocation formula was adopted through the Comprehensive ACL Amendment (SAFMC 2011) for unassessed Snapper Grouper species. The same formula has also been used to allocate the total ACL for some assessed species (i.e. golden tilefish). The allocation formula was not used to determine snowy grouper allocations.
- If **Alternative 1 (No Action)** is selected for this action, the sector ACLs would be adjusted based on the revised total ACL and the existing sector allocation percentages (83% commercial and 17% recreational).
- For Alternatives 2-4, the total ACL listed in the tables is representative of Alternative 2 (ACL=ABC) for Action 1. The revised total annual catch limit includes recreational landings based on the MRIP FES method and reflect stock assessment results of SEDAR 36 Update.
- The commercial snowy grouper ACL is currently allocated between two seasons with 70% of the commercial ACL allocated to season 1 (Jan- Jun) and 30% to season two (Jul-Dec).

## Advisory Panel Action:

- Provide comments on the range of options currently developed in **Action 2**

### 3. Reduce the snowy grouper commercial trip limit

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

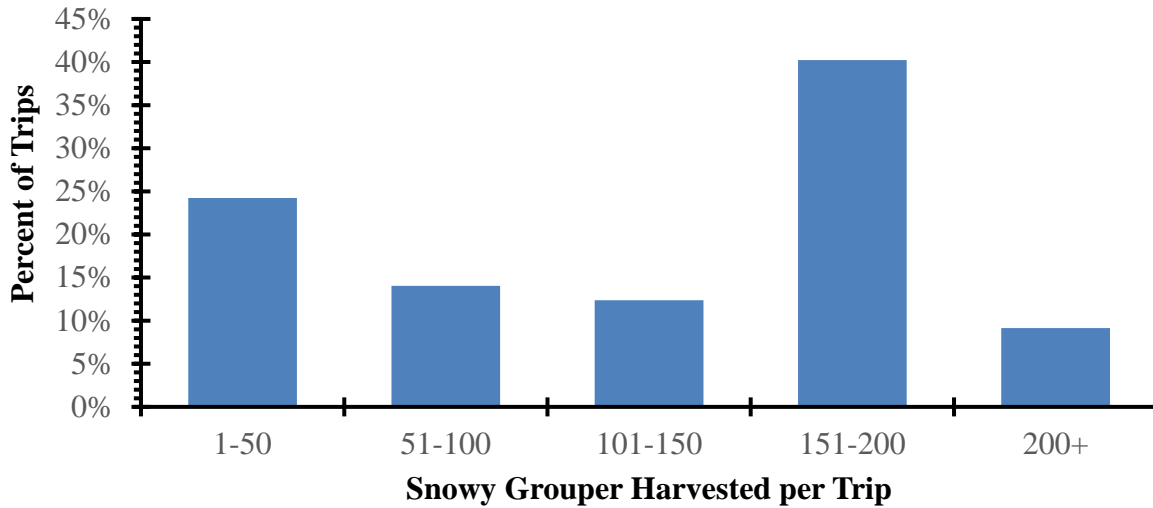
**Alternative 2.** Reduce the commercial trip limit for snowy grouper to 150 pounds gutted weight.

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

#### Discussion

**COUNCIL DIRECTION TO STAFF:** Include 150 lbs and 100 lbs gw options OR consideration of a commercial spawning season closure under Action 3 for AP discussion.

- The current commercial trip limit for snowy grouper is 200 lbs gw. Regulatory Amendment 20 implemented the current trip limit in 2015. The previous trip limit was 100 lbs gw.
- The current commercial season for snowy grouper is split into two seasons. Season one is from January 1st through June 30th. The second season is from July 1st to December 31st. The 2021 commercial ACL is pounds gutted weight is 153,935 lbs (gw). Currently, 70% (107,754 lbs gw) of the total commercial ACL is allocated to season one and 30% (46,181 lbs gw) for season two. Regulatory Amendment 27 implemented the split seasons in February 2020.
- Greater than 40% of the trips harvesting snowy grouper are estimated to have landed between 151 through 200 lbs gw (**Figure 3**; also see **Appendix I**). Trips estimated to have harvested greater than 200 lbs gw were normalized to 200 lbs gw when estimating potential trip limit reductions. Estimated reductions from projected landings for potential trip limits are shown in **Table 8**.

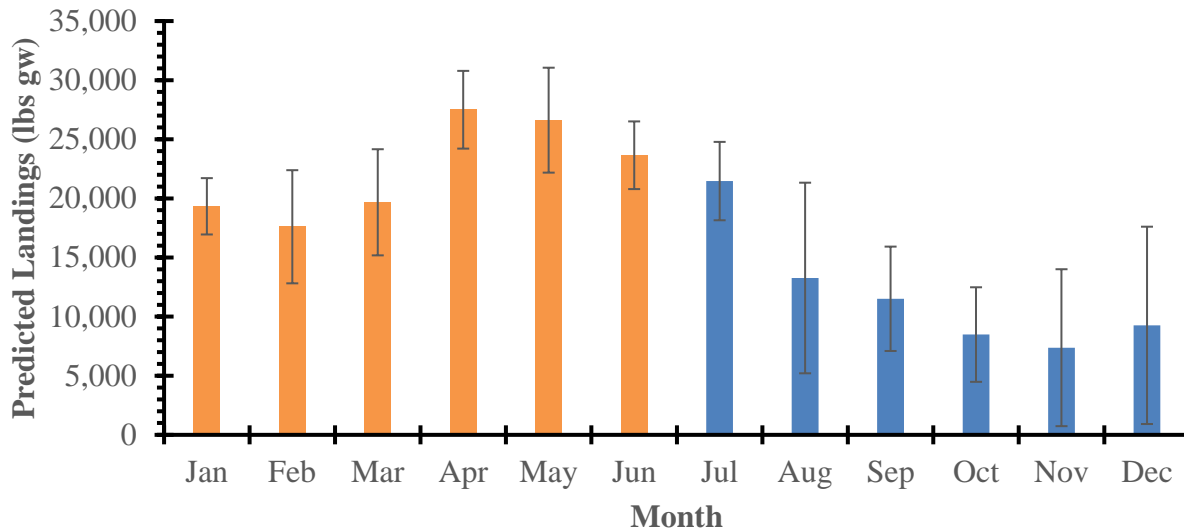


**Figure 3.** The percent of commercial trips (n=3,249) harvesting snowy grouper by bin from 2016 through 2019. Source: SEFSC commercial logbook [May 6, 2021].

**Table 8.** The predicted percent change in snowy grouper commercial landings per trip from the current 200-lb gw trip limit.

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

- Commercial landings for South Atlantic snowy grouper were obtained from the SEFSC commercial ACL file (4/5/21). Future landings were predicted by taking an average of the most recent three years of data for each month, as the most recent data are believed to be the best approximation of future harvest (**Figure 4**).



**Figure 4.** The predicted monthly snowy grouper commercial landings (lbs gw) based on current trip limits with 95% confidence interval. Source: SEFSC commercial ACL file [April 5, 2021].

**Advisory Panel Action:**

- Provide comments on whether modifying the commercial trip should be considered.

**4. Establish a commercial spawning season closure**

- Farmer et al. note that snowy grouper spawn from January through October. The authors considered peak spawning (based on gonadosomatic index) to occur May through August.

**Farmer et al. Table 6.** Timing of spawning (gray shading) and peak spawning (black shading) for exploited Atlantic Ocean reef fish stocks off the southeastern United States. Months in bold denote core SERFS core fishery-independent sampling months.

Stock	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Citation
Gray triggerfish					■	■	■	■					[10]
Greater amberjack	■			■	■	■							[7]
White grunt			■	■	■	■	■	■	■				[14, 17]
Cubera Snapper							■	■	■				WDH, pers. comm.
Red snapper	■				■	■	■	■	■	■			[17, 18]
Vermilion snapper					■				■				[2, 17]
Blueline tilefish				■	■	■	■	■	■	■			[6]
Tilefish			■	■	■	■	■	■	■	■			[4, 17]
Black sea bass	■	■	■	■	■	■	■	■	■	■	■	■	[15, 17]
Gag	■				■								[13, 17]
Red grouper		■	■	■	■	■							[1]
Scamp (NC)					■	■	■	■					[12]
Scamp (FL)					■				■				[5]
Scamp (29.95–32.95°N)		■	■	■	■	■	■	■	■				[8, 17]
Snowy grouper	■		■	■	■	■	■	■	■	■			[16, 19]
Speckled hind					■	■	■	■	■	■			[20]
Warsaw Grouper					■	■							[11, 17]
Red porgy	■	■	■	■	■						■	■	[3, 17]

- Heyman et al. and Kolmos et al. indicate that snowy grouper spawning occurs January through October and April through September respectively.

**Heyman et al. Table 3.** Spawning season of 28 species of marine and coastal fish species from the U.S. Gulf of Mexico (GOM). Grey indicates the extent of the spawning season while black indicates the peakspawning months. The red outlines indicate seasonal fisheries closures for A) the recreational sector and B) the commercial sector.

Commercial Seasonal Closures

Family	Common Name	J	F	M	A	M	J	J	A	S	O	N	D
Epinephelidae	Speckled Hind				Grey	Grey	Grey	Grey	Grey	Grey			
Epinephelidae	Goliath Grouper						Black	Black	Black	Black	Black		
Epinephelidae	Red Grouper		Black	Black	Black	Black	Black						
Epinephelidae	Nassau Grouper	Black	Black										Black
Epinephelidae	Yellowedge Grouper		Black	Black	Black	Black	Black	Black	Black	Black	Black		
Epinephelidae	Warsaw Grouper			Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	
Epinephelidae	Snowy Grouper	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey	
Epinephelidae	Black Grouper	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Epinephelidae	Yellowmouth Grouper	Grey	Grey	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black
Epinephelidae	Gag	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Epinephelidae	Scamp	Grey	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Epinephelidae	Yellowfin Grouper	Grey	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Lutjanidae	Mutton Snapper				Black	Black	Black	Black	Black	Black	Black	Black	Black
Lutjanidae	Red Snapper				Black	Black	Black	Black	Black	Black	Black	Black	Black
Lutjanidae	Cubera Snapper				Black	Black	Black	Black	Black	Black	Black	Black	Black
Lutjanidae	Vermilion Snapper				Black	Black	Black	Black	Black	Black	Black	Black	Black
Balistidae	Gray Triggerfish						Black	Black	Black	Black	Black	Black	Black
Carangidae	Greater Amberjack			Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Carangidae	Almaco Jack				Black	Black	Black	Black	Black	Black	Black	Black	Black
Labridae	Hogfish	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Malacanthidae	Tilefish	Grey	Grey	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black
Scombridae	King Mackerel				Black	Black	Black	Black	Black	Black	Black	Black	Black
Scombridae	Spanish Mackerel				Black	Black	Black	Black	Black	Black	Black	Black	Black
Paralichthyidae	Southern Flounder	Grey	Grey	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black
Sciaenidae	Black Drum	Grey	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black
Sciaenidae	Red Drum								Black	Black	Black	Black	Black
Sciaenidae	Spotted Seatrout				Black	Black	Black	Black	Black	Black	Black	Black	Black
Sparidae	Sheepshead		Black	Black	Black	Black	Black	Black	Black	Black	Black	Black	Black

Heyman et al. Figure 7. Spawning proportion by month.

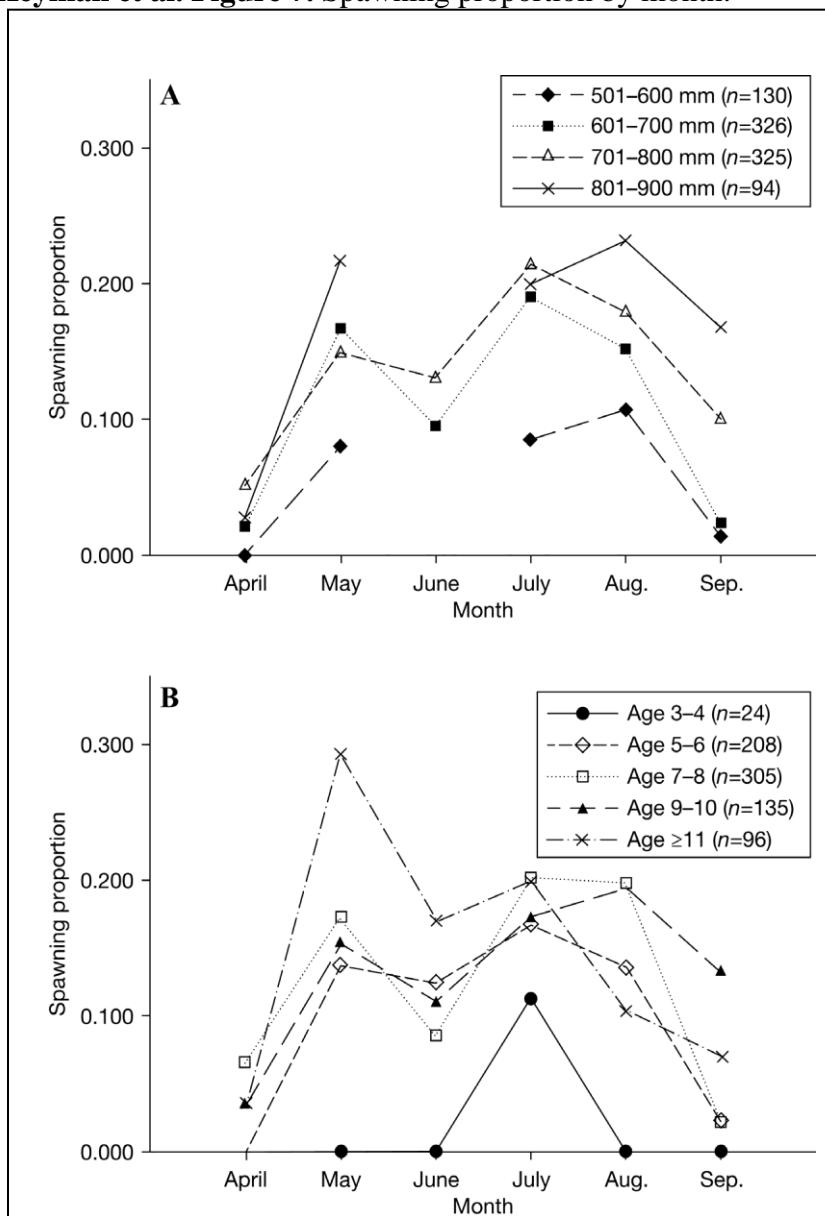


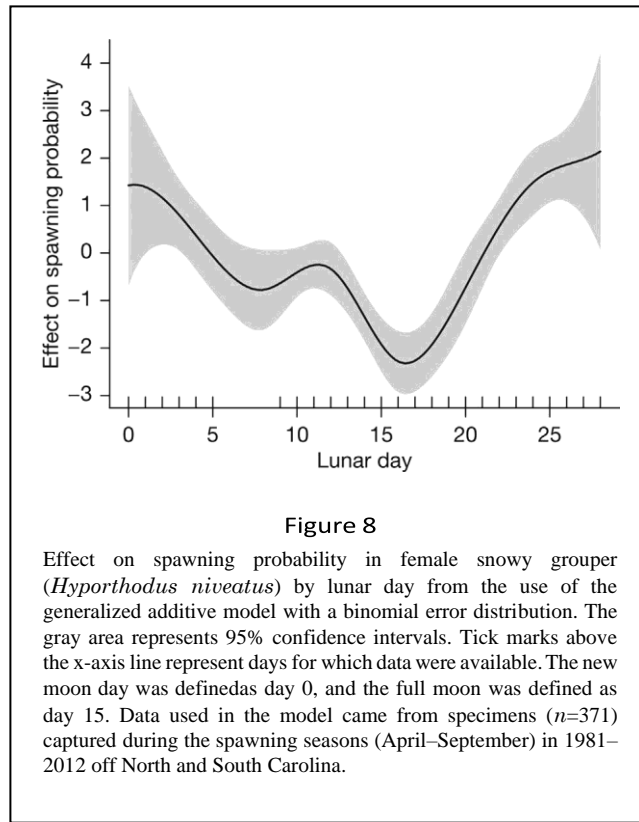
Figure 7

Proportion of adult female (active and inactive) snowy grouper (*Hyporthodus niveatus*) that were spawning daily, (A) by 100-mm bin for total lengths and (B) by age group (2-year groups for fish 3–10 years old and a terminal group for fish with ages  $\geq 11$  years). Note that 2 data points for the month of June in panel A were omitted because of low sample sizes (number of adult females in each group  $[n] < 10$ ). Specimens were collected off North and South Carolina during spawning season (April–September) in 1979–2012.

- Kolmos et al. indicate that spawning is closely related to the cycle of the moon, with increased effect on spawning probability observed during the new moon.



**Kolmos et al. Figure 8.** Lunar cycle effect on spawning probability.

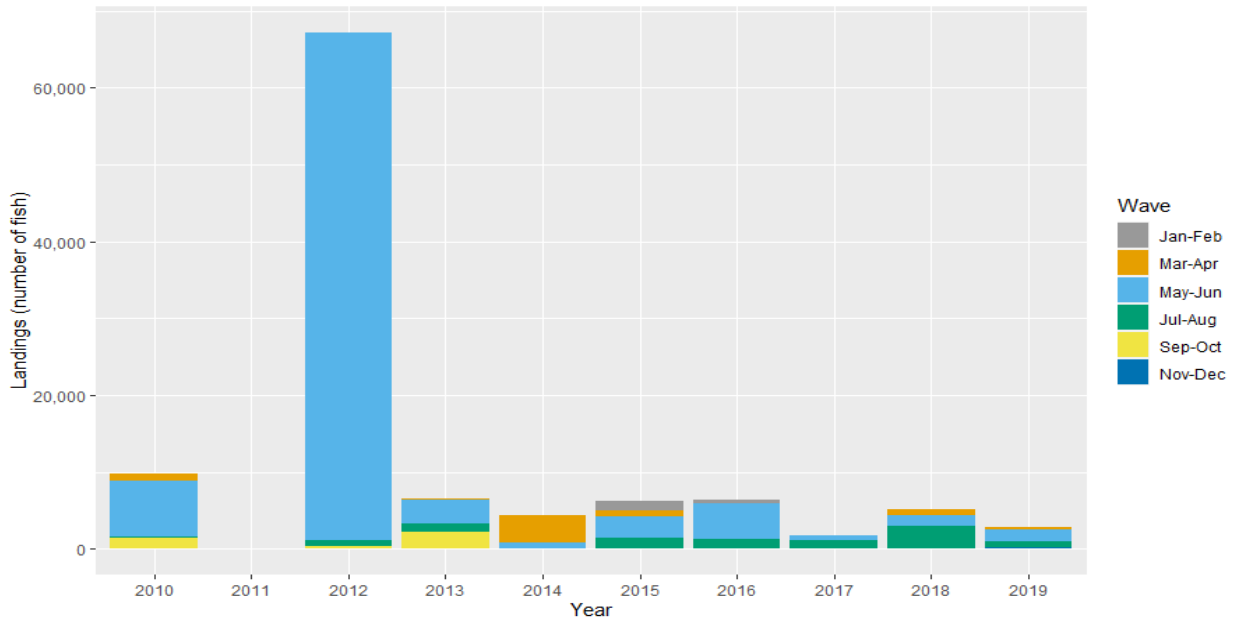


### AP Action:

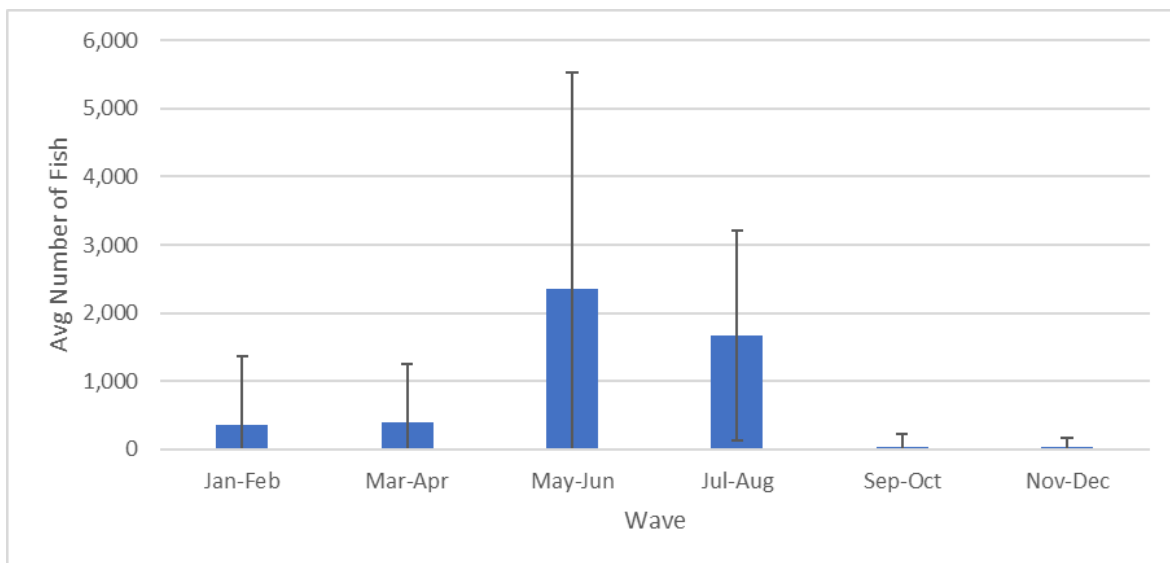
- Provide comments on whether a commercial spawning season closure should be considered.

### 5. Modify recreational management measures?

- The current recreational season for snowy grouper is May 1<sup>st</sup> through August 31<sup>st</sup> and recreational harvest is limited to one snowy grouper per vessel per day.
- The annual recreational landings of snowy grouper have been less than 10,000 fish every year from 2010 to 2019 except 2012 when landings were over 60,000 fish. Charter and private recreational trips (estimated through MRIP) averaged 89% of the total recreational landings over the ten-year timeframe. Recreational landings of snowy grouper from 2010 to 2019 tended to be highest in May - June (wave 3) or July - August (wave 4) (**Figure 5**, 2011 included a deepwater closure for part of the year). From 2015 to 2019, the average landings were highest during the snowy grouper recreational fishing season May through August (**Figure 6, Table 9**). Landings were reported in January through April and most of these landings (55%) occurred in 2015, prior to the season being enacted.



**Figure 5.** Recreational landings of snowy grouper (number of fish) by year and wave from 2010 to 2019 for the South Atlantic region. Landings include trips reported from Key West, FL up to the Virginia and North Carolina border.



**Figure 6.** Average number of snowy grouper landed in recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe County, FL. Blue bars represent the average landings and lines represent the 95% confidence interval.

**Table 9.** Average number of snowy grouper landed by the recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe County, FL. The confidence interval was developed based on the standard deviation of the five years.

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

- Based on the landings in **Table 9**, the following recreational season lengths would be predicted:

**Table 10.** The predicted recreational season length based on landings from 2015-2019 for each potential allocation scenario. Allocations are based on ACL=ABC for Action 1.

Action 2 Alternative	Recreational Allocation	Recreational ACL (Numbers of Fish)	Predicted Season Length*
Alternative 1 (No Action)	17%	2,656	1 wave
Alternative 2	12.5%	1,953	1 wave
Alternative 3	26.6%	4,156	2 waves

### Advisory Panel Action:

- Provide comments on whether modifying recreational management measures should be considered.

**COUNCIL DIRECTION TO STAFF:** Have the AP discuss any other recreational management measures other than a stamp/endorsement program, which is being considered along with recommendations from the Recreational Working Group.

## 6. Modify snowy grouper recreational accountability measures

**COUNCIL DIRECTION TO STAFF:** Review the recreational post-season accountability measures.

**Alternative 1 (No Action).** If recreational landings reach or are projected to reach the recreational annual catch limit, recreational harvest of snowy 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 snowy grouper are overfished, the length of the

recreational fishing season and the recreational annual catch limit are reduced by the amount of the recreational annual catch limit overage.

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

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

## Discussion

- Current accountability measures:
  - If commercial landings for snowy grouper, as estimated by the SRD, reach or are projected to reach the commercial ACL (commercial quota) specified in §622.190(a)(1), the AA will file a notification with the Office of the Federal Register to close the commercial sector for the remainder of the fishing year.
  - If recreational landings for snowy grouper, as estimated by the SRD, reach or are projected to reach the recreational ACL, the AA will file a notification with the Office of the Federal Register to close the recreational sector for the remainder of the fishing year regardless if the stock is overfished, unless NMFS determines that no closure is necessary based on the best scientific information available. On and after the effective date of such notification, the bag and possession limits for snowy grouper in or from the South Atlantic EEZ are zero.
- Snowy grouper currently has a recreational in-season accountability measure; however this is not practical due to the season length and the timeliness of recreational data availability.

## Advisory Panel Action:

- Provide comments on whether modifying recreational accountability measures should be considered.

## Literature Cited

Heyman, W. D., Grüss, A., Biggs, C. R., Kobara, S., Farmer, N. A., Karnauskas, M., Lowerre-Barbieri, S., & Erisman, B. (2019). Cooperative Monitoring, assessment, and management of fish spawning aggregations and associated fisheries in the U.S. Gulf of Mexico. *Marine Policy*, *109*, 103689. <https://doi.org/10.1016/j.marpol.2019.103689>

Kolmos, K., Wyanski, D., White, B., & Mikell, P. P. (2019). Temporal changes in the life history of Snowy Grouper (*Hyporthodus niveatus*) off North and South Carolina, and factors that influence spawning dynamics. *Fishery Bulletin*, *117*(4), 308–321. <https://doi.org/10.7755/fb.117.4.4>

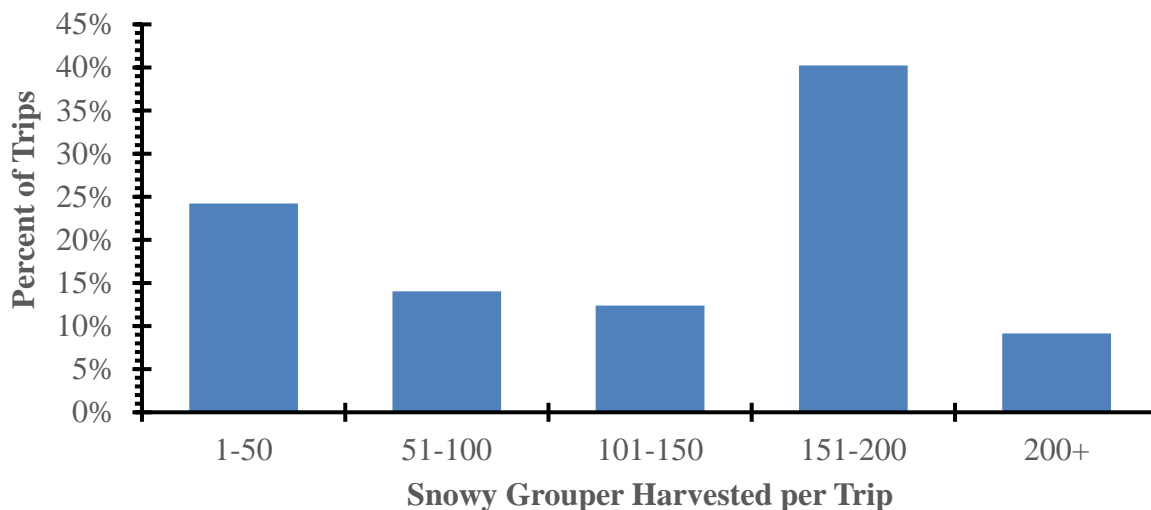
# Appendix

## Appendix I. Commercial ACL Analysis

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

### *Commercial Trip Limits*

The Southeast Fisheries Science Center (SEFSC) commercial logbook data (5/6/21) was used to examine trip limits in the South Atlantic snowy grouper commercial fishery. Currently, the fishery has a 200-lb gw trip limit that was implemented in August 2015. From 2016 through 2019, the commercial logbook had 3,249 trips recorded that harvested snowy grouper in the South Atlantic. Greater than 40% of the trips harvesting snowy grouper are estimated to have landed between 151 through 200 lbs gw (**Figure A-1**). Trips estimated to have harvested greater than 200 lbs gw were normalized to 200 lbs gw when estimating potential trip limit reductions. Estimated reductions from projected landings for potential trip limits are shown in **Table A-1**.



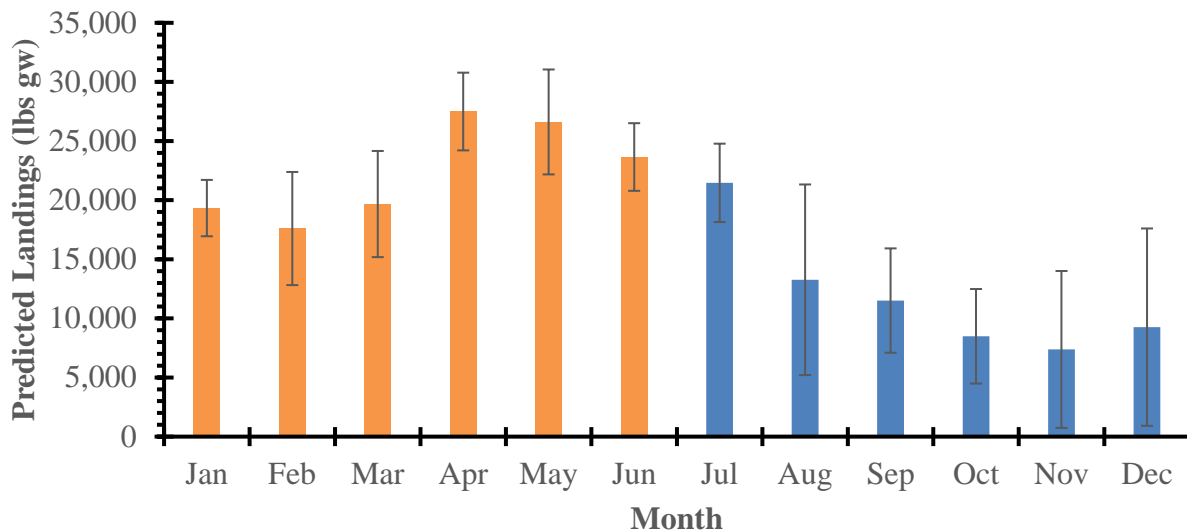
**Figure A-1.** The percent of commercial trips (n=3,249) harvesting snowy grouper by bin from 2016 through 2019. Source: SEFSC commercial logbook [May 6, 2021].

**Table A-1.** The predicted percent change in landings per trip from the current 200-lb gw trip limit.

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

### *Commercial Season Length*

Landings for South Atlantic snowy grouper were obtained from the SEFSC commercial ACL file (4/5/21). Future landings were predicted by taking an average of the most recent three years of data for each month, as the most recent data are believed to be the best approximation of future harvest (**Figure A-2**). Due to fishery closures in recent years, it was necessary to go back to 2010 for some monthly landings later in the calendar year. All monthly landings prior to August 2015 (when the trip limit was increased from 100 to 200-lb gw) were adjusted using to account for the management change. For months with a closure that had the fishery open for the majority of the days, the landings were expanded using the ratio of total days in the month to those when the fishery was open. Season lengths were projected using daily catch rates with upper and lower 95% confidence intervals with the different trip limit options (**Table A-2**).



**Figure A-2.** The predicted monthly snowy grouper landings (lbs gw) based on current trip limits with 95% confidence interval. Source: SEFSC commercial ACL file [April 5, 2021].

**Table A-2.** The projected 2023 closure dates with an ACL of 99,562 lbs gw for snowy grouper by season with different trip limit options and 95% confidence interval (CI). Note that 70% of the ACL is allocated to the January through June season and 30% to the July through December season.

Season	ACL (lbs gw)	Trip Limit (gw)	Closure Date	Season Length (95% CI)
January 1 – June 30	69,693	200-lb	April 15	Apr 2 – May 1
January 1 – June 30	69,693	150-lb	April 29	Apr 15 – May 19
January 1 – June 30	69,693	100-lb	June 3	May 14 – No Closure
July 1 – December 31	29,869	200-lb	August 20	Aug 8 – Sep 28
July 1 – December 31	29,869	150-lb	September 2	Aug 16 – Nov 21
July 1 – December 31	29,869	100-lb	October 8	Sep 5 – No Closure

## Appendix II. Recreational ACL Analysis

Landings data match landings data included in SEDAR 36 Update working paper 2020–S36Update–WP01 and were similar to the FES monitoring file (MRIP\_FES\_rec81\_21wv1\_11May21w2014\_2020LACreel).

### ***Data***

Marine Recreational Information Program (MRIP) samples included trips that landed from North Carolina through the Florida Keys as reported in SEDAR 36 Update. The raw intercept data files were downloaded from the MRIP webpage and included trips for sub-region 6 (South Atlantic) plus Monroe County (State =Florida and County = Monroe). Data available included trips back to 1981. Headboat from the Southeast Region Headboat Survey (SRHS) are available to 1974 and were provided by the survey staff. MRIP landings data match landings data included in SEDAR 36 Update working paper 2020–S36Update–WP01 (Matter and Nuttall 2020) and total recreational landings were similar (within 20 fish each year) to the FES monitoring file (MRIP\_FES\_rec81\_21wv1\_11May21w2014\_2020LACreel).

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

The analysis included trips for Monroe County, FL where regulations differ between South Atlantic and Gulf of Mexico. Some of these trips may have been conducted in the Gulf of Mexico waters, where snowy grouper is included in a 4 grouper aggregate per person. The bag limit for the South Atlantic is one per vessel. It appears the trips were included in the assessment based on comparison of the data set used for this analysis and Table 1 from the SEDAR 36 Update Assessment working paper on recreational data (Matter and Nuttall 2020). Therefore, these trips were included in the seasonal analysis even though changes to SAFMC regulations would not change the landings of Snowy Grouper on the trips.

### ***Review of Recreational Data Available for Snowy Grouper***

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

### ***Analysis***

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

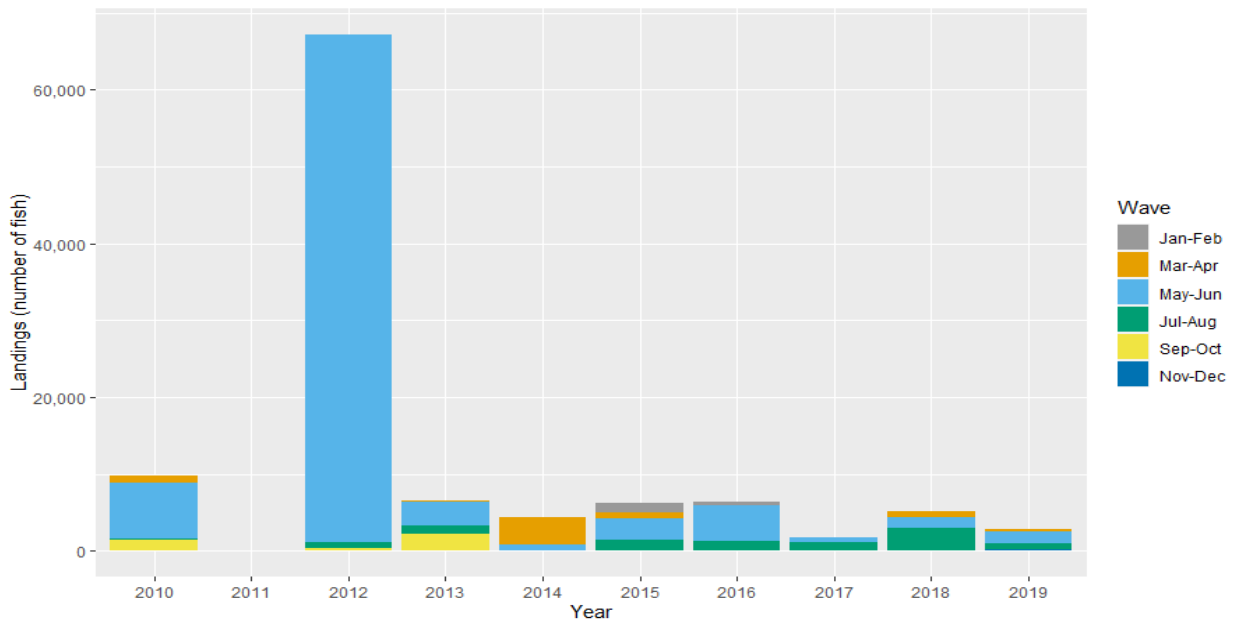


## Results

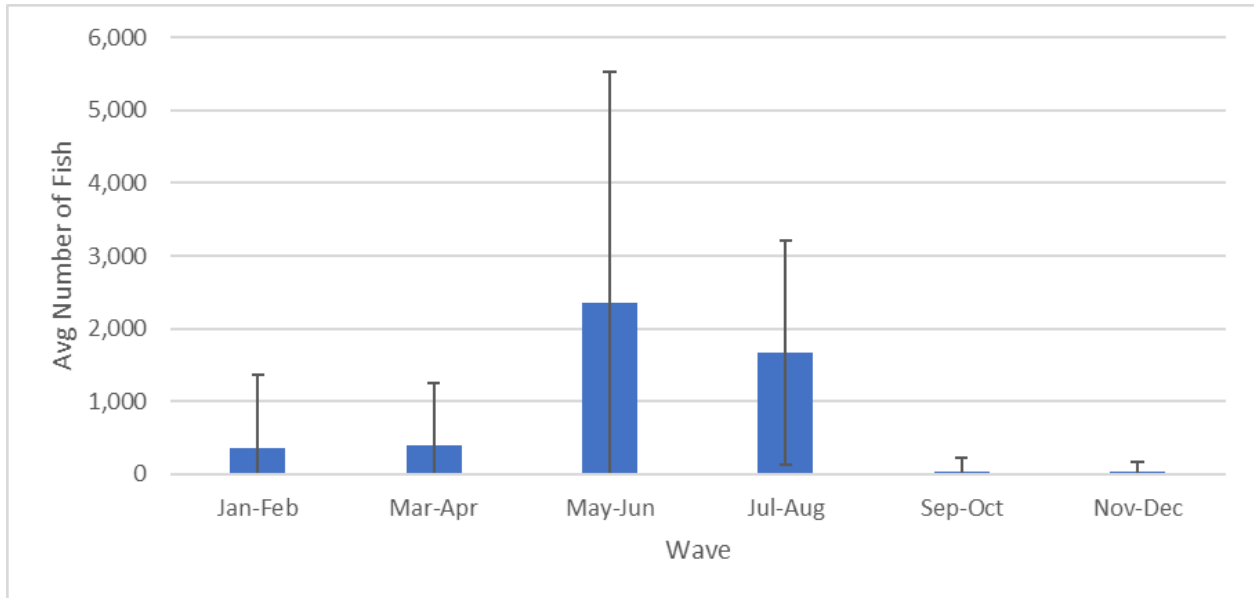
The annual recreational landings of Snowy Grouper have been less than 10,000 fish every year from 2010 to 2019 except 2012 when landings were over 60,000 fish. Charter and private recreational trips (estimated through MRIP) averaged 89% of the total recreational landings over the ten-year timeframe.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

Recreational landings of Snowy Grouper from 2010 to 2019 tended to be highest in May - June wave or July - August wave (**Figure A-3**, 2011 included a deepwater closure for part of the year). There were rarely landings from November through February. Prior to the establishment of the recreational season for Snowy Grouper (2015), landings were most common in May through August but were reported in the March – April wave and September – October wave. From 2015 to 2019, the average landings were highest during the Snowy Grouper recreational fishing season May through August (**Figure A-4, Table A-3**). Landings were reported in January through April and most of these landings (55%) occurred in 2015, prior to the season being enacted.

There are extremely large confidence intervals based on the standard deviations. This indicates there will be significant uncertainty in estimating any impact from changing the recreational season. The confidence interval for all waves except wave 4 (July – August) are set to a minimum of zero to avoid negative numbers (**Table A-3**).



**Figure A-3.** Recreational landings of Snowy Grouper (number of fish) by year and wave from 2010 to 2019 for the South Atlantic region. Landings include trips reported from Key West, FL up to the Virginia and North Carolina border.



**Figure A-4.** Average number of Snowy Grouper landed in recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe County, FL. Blue bars represent the average landings and lines represent the 95% confidence interval.

**Table A-3.** Average number of Snowy Grouper landed by the recreational sector by wave from the South Atlantic from 2015 to 2019. The landings included trips reported from Monroe County, FL. The confidence interval was developed based on the standard deviation of the five years.

Wave	Average	Confidence Interval	Avg Number Per Month
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Sep-Oct	45	0 - 230	22.5
Nov-Dec	30	0 - 163	15.0

**Literature Cited**

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