Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Rebuilding strategy, annual catch limits, and management measures for snowy grouper

Environmental Assessment Regulatory Impact Review Regulatory Flexibility Act Analysis

December 1, 2014

Definitions, Abbreviations, and Acronyms Used in the Document

ABC	acceptable biological catch
ACL	annual catch limits
AM	accountability measures
ACT	annual catch target
B	a measure of stock biomass in either weight or other appropriate unit
$\mathbf{B_{MSY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{MSY}
$\mathbf{B_{OY}}$	the stock biomass expected to exist under equilibrium conditions when fishing at F_{OY}
$\mathbf{B_{CURR}}$	the current stock biomass
CPUE	catch per unit effort
DEIS	draft environmental impact statement
EA	environmental assessment
EEZ	exclusive economic zone
EFH	essential fish habitat
F	a measure of the instantaneous rate of fishing mortality
$\mathbf{F_{30\%SPR}}$	fishing mortality that will produce a static SPR = 30%
$\mathbf{F_{CURR}}$	the current instantaneous rate of fishing mortality
$\mathbf{F_{MSY}}$	the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}
$\mathbf{F_{OY}}$	the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of B_{OY}
FEIS	final environmental impact statement
FMP	fishery management plan
FMU	fishery management unit
M	natural mortality rate
MARMAP	Marine Resources Monitoring Assessment and Prediction Program
MFMT	maximum fishing mortality threshold
MMPA	Marine Mammal Protection Act
MRFSS	Marine Recreational Fisheries Statistics Survey
MRIP	Marine Recreational Information Program
MSFCMA	Magnuson-Stevens Fishery Conservation and Management Act
MSST	minimum stock size threshold
MSY	maximum sustainable yield
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OFL	overfishing limit
OY	optimum yield
RIR	regulatory impact review
SAFMC	South Atlantic Fishery Management Council
SEDAR	Southeast Data, Assessment, and Review
SEFSC	Southeast Fisheries Science Center
SERO	Southeast Regional Office
SIA	social impact assessment
SPR	spawning potential ratio
SSC	Scientific and Statistical Committee

Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

Documents:	Environmental Assessment Regulatory Impact Review, Regulatory Flexibility Act
Proposed actions:	Regulatory Amendment 20 would adjust the rebuilding strategy, annual catch limits, and management measures for the snowy grouper component of the snapper grouper fishery.
Lead agency:	Regulatory Amendment 20 – South Atlantic Fishery Management Council EA/RIR/RFA – National Marine Fisheries Service (NMFS)
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Regulatory Amendment 20
Rebuilding strategy, annual catch limits, and management measures for snowy grouper

Summary

What Action Is Being Proposed?

Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) proposes to adjust the rebuilding strategy (Action 1), annual catch limit (ACL; Action 2), and management measures (Actions 3 and 4) for the snowy grouper component of the snapper grouper fishery. Regulatory Amendment 20 to the Snapper Grouper FMP (Regulatory Amendment 20) also specifies the acceptable biological catch (ABC), maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY). ABC, MSY, MSST, and OY are not action items in the amendment. Regulatory Amendment 20 provides updated values for these parameters based on the results of a 2013 stock assessment (SEDAR 36 2013).

Purpose for Action

The *purpose* of this amendment is to adjust the rebuilding strategy, update the acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery. These adjustments address the recent stock assessment results based on data through 2012.

Need for Action

The *need* for the amendment is to prevent overfishing and continue rebuilding the stock while minimizing, to the extent practicable, adverse social and economic effects.

Who is Proposing the Action?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the action. The South Atlantic Council develops the regulatory amendment and sends it to the National Marine Fisheries Service (NMFS) who publishes a rule to implement the regulatory amendment on behalf of the Secretary of Commerce. NMFS is a line office in the National Oceanic and Atmospheric Administration within the Department of Commerce.

Why are the South Atlantic Council and NMFS Considering Action?

In 2004, the snowy grouper stock was assessed through Southeast Data Assessment and Review (SEDAR) process as a benchmark assessment (SEDAR 4 2004), which indicated that it was overfished and undergoing overfishing. Measures to end overfishing were contained in Amendment 13C to the

Snapper Grouper FMP (SAFMC 2006), and Amendment 15A to the Snapper Grouper FMP (Amendment 15A; SAFMC 2008a) defined a rebuilding schedule as the maximum recommended period to rebuild if T_{MIN} > 10 years. The maximum recommended period equaled T_{MIN} + one generation time = 34 years for snowy grouper, where 2006 was Year 1. Amendment 15A also defined a rebuilding strategy for snowy grouper that maintained a modified/constant fishing mortality rate throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009 would remain in effect beyond 2009 until modified = 102,960 pounds (lbs) whole weight (ww).

In 2013, the snowy grouper stock was assessed through SEDAR 36 (2013) as a standard assessment, and the snowy grouper stock was determined to be overfished and rebuilding, but not undergoing overfishing. SEDAR 36 (2013) also recommended revised stock status criteria for snowy grouper. Therefore, Regulatory Amendment 20 would adjust the rebuilding schedule, update the ABC, ACL, MSY, MSST, OY, and revise management measures for snowy grouper based on the latest stock assessment (**Table S-1**).

Table S-1. Stock status of snowy grouper.

	SEDAR 36 (2012 most recent data)
Overfishing ($F_{2010\text{-}2012}/F_{MSY}$)	No (0.59)
Overfished ($SSBF_{2012}$/MSST(75%))	Yes (0.65)
F_{MSY} (proxy for MFMT)	0.14
MSY	418,600 lbs ww
MSST	1,442,264 lbs ww
OFL*	216,894 lbs ww in 2015 229,595 lbs ww in 2016 242,296 lbs ww in 2017 253,043 lbs ww in 2018 265,744 lbs ww in 2019
ABC**	164,136 lbs ww in 2015 178,791 lbs ww in 2016 192,469 lbs ww in 2017 205,170 lbs ww in 2018 218,848 lbs ww in 2019

*OFL at equilibrium = 418,600 lbs ww. OFL values for the years 2015 through 2019 are from Table 21 in SEDAR 36, and is based in the yield at F_{MSY}.
** ABC values for the years 2015 through 2019 are from Table 22 in SEDAR 36, and is based on the yield at 75%F_{MSY}. Reported total removals reported here are median values multiplied by 0.997 to reduce total removals to landings only (as reported in SEDAR 36).

Summary of Effects

Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

Biological Effects

The lower the harvest levels, the greater the biological benefit to stock, but there is a level of harvest that is sustainable, and will not negatively impact the health of a stock. **Alternative 1 (No Action)** would constrain harvest to a lower level than **Alternatives 2-4**. Further, the probability of the stock rebuilding would be greater under **Alternative 1 (No Action)** than under **Alternatives 2-4**. However, the 2013 stock assessment update (SEDAR 36 2013) indicatesd snowy grouper is no longer undergoing overfishing. The South Atlantic Council's Scientific and Statistical Committee (SSC) recommended an increase in the ABC; therefore, there is no biological need to constrain harvest at a level lower than that determined to be appropriate by the SSC. Compared to **Alternative 1 (No Action),** significant negative biological effects for the snowy grouper stock are not expected for alternatives (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4)** that specify catch levels at or below the catch level recommendations of the South Atlantic Council's SSC. **Sub-alternative 2a** would specify an ABC that is greater than the ABC recommended by the South Atlantic Council's SSC (**Preferred Alternative 3**), and the ABC specified by **Sub-alternative 2b** is more conservative than the ABC recommended by the South Atlantic Council's SSC (**Preferred Alternative 3**). **Preferred Alternative 3** would define a rebuilding strategy for snowy grouper recommended by the South Atlantic Council's SSC that would maintain a constant fishing mortality rate (F= 75%F_{MSY}) throughout the rebuilding timeframe. The probability of success is estimated as 68.9%, and this rebuilding strategy has been used for a number of other snapper grouper species. **Alternative 4** would define a rebuilding strategy for snowy grouper that would maintain a constant fishing mortality rate (F= $F_{current}$) throughout the rebuilding timeframe. The probability of rebuilding success under **Alternative 4** is estimated as 63.1%. **Alternative 4** would be expected to have intermediate biological effects compared with the rebuilding strategy under **Sub-alternative 2a,** which has a 50% probability of rebuilding the stock by 2039, and **Preferred Alternative 3**. When compared to **Alternative 1 (No Action)**, only **Sub-Alternative 2a** would be expected to have minor negative biological effects on the stock because it would exceed the catch level recommendation of the SSC.

Alternatives for Action 1
*(preferred alternatives in **bold**)*

1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate (F=F_{MSY}) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lbs ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 lbs ww consistent with this rebuilding strategy.

2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F=$F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. Specify a probability of success of:

2a: 50%.
2b: 70%.

ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F= 75%F_{MSY}) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at 75%F_{MSY} and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F=$F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Because the snowy grouper stock is rebuilding, harvest levels at or below the SSC's catch level recommendation (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4**) are appropriate and would not be expected to have negative biological effects on the stock.

Economic Effects

In general, the greatest economic benefit to commercial and recreational fishermen results from a rebuilding strategy that allows increased harvest and access to the resource for fishermen compared to the current ABC and ACL. However, the rebuilding strategies specified under **Sub-Alternative 2b, Preferred Alternative 3,** and **Alternative 4** would not result in long-term negative biological effects to the stock that could result in negative economic effects on fishermen in the future. In summary, **Preferred Alternative 3** is expected to yield the highest long-term economic benefits followed by **Alternative 2, Alternative 4**, and **Alternative 1 (No Action)**.

Social Effects

When compared to **Alternative 1 (No Action)**, only **Sub-Alternative 2a** would be expected to have minor negative biological effects on the stock. Because the snowy stock is rebuilding, harvest levels at or below the SSC's catch level recommendation (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4**) are appropriate and would not be expected to have negative biological effects on the stock. Overall, the most benefits to fishermen and communities would come from a rebuilding strategy that allows increased harvest and access to the resource for fishermen than the current ABC and ACL, but would not cause long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. **Alternatives 2-4** would result in higher ABCs than **Alternative 1 (No Action)** and increase access to the resource, which would be expected to reduce and minimize short-term negative effects on fishermen. **Sub-alternative 2a** would be expected to have the least short-term negative effects on fishermen, followed by **Preferred Alternative 3, Alternative 4**, and **Sub-alternative 2b**.

Administrative Effects

The administrative burden would be ranked lower to higher in the following order: **Sub-alternative 2a, Preferred Alternative 3, Alternative 4**, **Sub-alternative 2b,** and **Alternative 1 (No Action)**. All the rebuilding strategy alternatives considered would require continued monitoring of commercial and recreational landings in addition to continued enforcement of current harvest restrictions for snowy grouper including the 1-fish per vessel bag limit, and the 100 lbs gutted weight (gw) trip limit. Overall, administrative impacts under all the rebuilding strategy alternatives are not likely to be significant.

Action 2. Adjust Annual Catch Limits for Snowy Grouper

Biological Effects

Like **Alternative 1 (No Action)**, **Alternatives 2 (Preferred)** and **3**, which specify an ACL at or below the catch levels recommended by the South Atlantic Council's SSC, would not be expected to have adverse significant biological effects on the snowy grouper stock.

Alternatives for Action 2
*(preferred alternatives in **bold**)*

1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lbs ww) or 87,254 pounds gutted weight (lbs gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

		Pounds gutted weight (lbs gw)		
ABC	**ACL**	**Com ACL (95%)**	**Rec ACL (5%)**	**Rec # Fish**
87,254	87,254	82,900	4,400	523

2. Specify that ACL=ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational. Note: See Table S-2 for values.

3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational. Note: See Table S-3 for values.

3a. Set ACL=95%ABC=OY
3b. Set ACL=90%ABC=OY
3c. Set ACL=85%ABC=OY

The ACL specified by **Alternative 1 (No Action)** is based on the results of SEDAR 4 (2004), which indicated the stock was overfished and undergoing overfishing. Furthermore, the South Atlantic Council's SSC has recommended an ABC associated with the yield at 75%F_{MSY} (**Preferred Alternative 3** in **Action 1**), which is larger than the ABC resulting from SEDAR 4 (2004) under **Alternative 1 (No Action)**. Thus, there is not a biological need to maintain the ACL at the level specified under **Alternative 1 (No Action)**, and a larger ACL identified in **Alternatives 2 (Preferred)** and **3** would be appropriate to maintain a sustainable harvest of the stock (**Tables S-2** and **S-3**).

Economic Effects

In general, the higher the ACL, the greater the short-term economic benefits to commercial and recreational fishermen. Long-term economic benefits can also be realized if the ACL options are expected to achieve long-term biological health of the resource. However, the chances of long-term health are improved (if the sectors can be held to their ACLs) if a buffer exists between the ABC and the ACL. Therefore, since **Alternative 3** incorporates information from the newest stock assessment and incorporates a buffer, it is expected to achieve the greatest long-term health of the stock and the greatest long-term economic benefit with **Sub-alternative 3c** offering the largest buffer and therefore the largest long-term economic benefits. **Preferred Alternative 2** incorporates new information from the new stock assessment and has a higher ACL, and is expected to produce greater long-term economic benefits than **Alternative 1 (No Action).**

Social Effects

In general, the higher the ACL, the greater the short-term social benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions. The ACLs under **Preferred Alternative 2** and **Alternative 3** would all be higher than under **Alternative 1 (No Action)** while maintaining the level of removals below the recommended ABC, and the benefits to fishermen and fishing communities are expected to be greatest under **Preferred Alternative 2**. As the proposed ACL is subsequently lower under **Sub-alternatives 3a-3c**, the benefits would be less than under **Preferred Alternative 2**. The lower ACLs in **Sub-alternatives 3a-3c** could have negative short-term effects on fishermen if the AMs were triggered when a lower ACL is met. The updated commercial-recreational allocation (83%/17%) under **Preferred Alternative 2** and **Alternative 3** would also result in a higher ACL for the recreational sector, which would likely improve recreational fishing opportunities and reduce the risk of triggering the recreational AM. However, because the recreational overages have been estimated to be almost 400% in recent years, it is possible that a recreational accountability measure (AM) would still be triggered even with a higher recreational ACL.

Administrative Effects

Negative administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action), Alternative 2 (Preferred),** and **Alternative 3** (including their sub-alternatives) would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs. The burden on law enforcement would not change under either alternative since commercial quota closures and bag limits implemented are currently enforced.

Table S-2. ABC and ACL values (lbs ww and gw) of snowy grouper from 2015 to 2019 under **Preferred Alternative 2**.
Current commercial ACL is 97,812 lbs ww or 82,891 lbs gw; and the recreational ACL is 5,148 lbs ww or 4,363 lbs gw based on 95% commercial and 5% recreational allocation. Proposed commercial ACL is 83% of the total ACL and recreational ACL is 17% of the total ACL under **Preferred Alternative 2** as shown below.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Recreational ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Estimated Recreational Numbers of Fish**
2015	164,136	164,136	136,233	+38,421	+39%	27,903	+22,755	+442%	4,152
2016	178,791	178,791	148,397	+50,585	+52%	30,394	+25,246	+490%	4,483
2017	192,469	192,469	159,749	+61,937	+63%	32,720	+27,572	+536%	4,819
2018	205,170	205,170	170,291	+72,479	+74%	34,879	+29,731	+578%	4,983
2019	218,848	218,848	181,644	+83,832	+86%	37,204	+32,056	+623%	5,315
Gutted Weight									
2015	139,098	139,098	115,451	+32,560	+39%	23,647	+19,284	+442%	4,152
2016	151,518	151,518	125,760	+42,869	+52%	25,758	+21,395	+490%	4,483
2017	163,109	163,109	135,380	+52,489	+63%	27,729	+23,366	+536%	4,819
2018	173,873	173,873	144,315	+61,424	+74%	29,558	+25,195	+577%	4,983
2019	185,464	185,464	153,935	+71,044	+86%	31,529	+27,166	+623%	5,315

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Table S-3. ABC and ACL values (lbs ww and gw) of snowy grouper from 2015 to 2019 under **Alternative 3**. Current commercial ACL is 97,812 lbs ww or 82,891 lbs gw; and the recreational ACL is 5,148 lbs ww or 4,363 lbs gw based on 95% commercial and 5% recreational allocation. Proposed commercial ACL is 83% of the total ACL and recreational ACL is 17% of the total ACL as per **Preferred Alternative 2**, and are shown in the table below. ABC values in 2015 are based on projections from SEDAR 36 (2013) at 75% F_{MSY}.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Recreational ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Estimated Recreational Numbers of Fish**
Sub-Alternative 3a, ACL = 95%ABC									
2015	164,136	155,929	129,421	+31,609	+32%	26,508	+21,360	+415%	3,945
2016	178,791	169,851	140,977	+43,165	+44%	28,875	+23,727	+461%	4,259
2017	192,469	182,846	151,762	+53,950	+55%	31,084	+25,936	+504%	4,578
2018	205,170	194,912	161,777	+63,965	+65%	33,135	+27,987	+544%	4,734
2019	218,848	207,906	172,562	+74,750	+76%	35,344	+30,196	+587%	5,049
Sub-Alternative 3b, ACL = 90%ABC									
2015	164,136	147,722	122,610	+24,798	+25%	25,113	+19,965	+388%	3,737
2016	178,791	160,912	133,557	+35,745	+37%	27,355	+22,207	+431%	4,035
2017	192,469	173,222	143,774	+45,962	+47%	29,448	+24,300	+472%	4,337
2018	205,170	184,653	153,262	+55,450	+57%	31,391	+26,243	+510%	4,484
2019	218,848	196,963	163,479	+65,667	+67%	33,484	+28,336	+550%	4,783
Sub-Alternative 3c, ACL = 85%ABC									
2015	164,136	139,516	115,798	17,986	+18%	23,718	+18,570	+361%	3,529
2016	178,791	151,972	126,137	28,325	+29%	25,835	+20,687	+402%	3,811
2017	192,469	163,599	135,787	37,975	+39%	27,812	+22,664	+440%	4,096
2018	205,170	174,395	144,747	46,935	+48%	29,647	+24,499	+476%	4,235
2019	218,848	186,021	154,397	56,585	+58%	31,624	+26,476	+514%	4,518

Table S-3. Continued.

Gutted Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference**	**Percent Difference**	**Recreational ACL**	**Difference**	**Percent Difference**	**Estimated Recreational Numbers of Fish**
Sub-Alternative 3a, ACL = 95%ABC									
2015	139,098	132,143	109,679	+26,788	+32%	22,464	+18,101	+415%	3,945
2016	151,518	143,942	119,472	+36,581	+44%	24,470	+20,107	+461%	4,259
2017	163,109	154,954	128,612	+45,721	+55%	26,342	+21,979	+504%	4,578
2018	173,873	165,179	137,099	+54,208	+65%	28,080	+23,717	+544%	4,734
2019	185,464	176,191	146,239	+63,348	+76%	29,953	+25,590	+587 %	5,049
Sub-Alternative 3b, ACL = 90%ABC									
2015	139,098	125,188	103,906	+21,015	+25%	21,282	+16,919	+388%	3,737
2016	151,518	136,366	113,184	+30,293	+37%	23,182	+18,819	+431%	4,035
2017	163,109	146,798	121,843	+38,952	+47%	24,956	+20,593	+472%	4,337
2018	173,873	156,486	129,883	+46,992	+57%	26,603	+22,240	+510%	4,484
2019	185,464	166,918	138,542	+55,651	+67%	28,376	+24,013	+550%	4,783
Sub-Alternative 3c, ACL = 85%ABC									
2015	139,098	118,234	98,134	+15,243	+18%	20,100	+15,737	+361%	3,529
2016	151,518	128,790	106,896	+24,005	+29%	21,894	+17,531	+402%	3,811
2017	163,109	138,643	115,074	+32,183	+39%	23,569	+19,206	+440%	4,096
2018	173,873	147,792	122,667	+39,776	+48%	25,125	+20,762	+476%	4,235
2019	185,464	157,645	130,845	+47,954	+58%	26,800	+22,437	+514%	4,518

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Action 3. Commercial Management Measures for Snowy Grouper

Biological Effects

The biological effects of **Alternatives 2** through **5** (and their sub-alternatives) would be expected to be neutral compared with **Alternative 1 (No Action)**, because ACLs and AMs are in place to cap harvest, and trigger corrective action if ACLs are exceeded. Alternatives with larger trip limits could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made to the quota monitoring system, and the South Atlantic Council has approved a Dealer Reporting Amendment (effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier commercial closures of snowy grouper. Early commercial closures could lead to regulatory discards and, given that release mortality for snowy grouper is 100%, early closures would not be beneficial to the stock. SEDAR 36 (2013) indicated that snowy grouper is overfished but is rebuilding. An increase in the trip limit to 200 lbs gw or more may result in earlier closures of the commercial sector than the current 100 lbs gw trip limit, especially since monthly landings could increase by 57-137%. Early commercial closures could result in bycatch of snowy grouper if fishermen target co-occurring species after the closure occurs. Similarly, smaller trip limits could increase bycatch if fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

Alternatives for Action 3
*(preferred alternatives in **bold**)*

1 (No Action). The current commercial snowy grouper fishing year is the calendar year with no split of the commercial ACL into separate seasons. The current commercial snowy grouper trip limit is 100 pounds gutted weight (lbs gw).

2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

- **2a.** 100 lbs gw.
- **2b.** 150 lbs gw.
- **2c.** 200 lbs gw.

3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lbs gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

- **3a.** 100 lbs gw.
- **3b.** 150 lbs gw.
- **3c.** 200 lbs gw.
- **3d.** 250 lbs gw.
- **3e.** 300 lbs gw.

4. Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

- **4a.** 300 lbs gw.
- **4b. 200 lbs gw.**
- **4c.** 150 lsb gw.

5. Modify the commercial snowy grouper trip limit to 150 lbs gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Brevard/Indian River County line north when the trip limit will be as follows:

- **5a.** 200 lbs gw.
- **5b.** 250 lbs gw.
- **5c.** 300 lbs gw.

Economic Effects

The minor economic benefits under **Alternatives 2** and **3** are expected to exceed those under **Alternative 1 (No Action)** and enhance the

ability to better maintain seafood supply, and thus increase profitability. The economic effects resulting from **Preferred Alternative 4** and **Alternative 5** compared to **Alternative 1 (No Action)** are distributional and cannot be ranked because the benefits of trip limits depend on where a vessel is docked and the vessel's cost structure, for which no data exist.

Social Effects

The potential social effects of establishing a split season and changing the trip limit for snowy grouper would depend on the costs and benefits of trade-offs of these management measures. In general, a split season (**Alternatives 2** and **3**) would be most beneficial to fishermen in the northern part of the region and for fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available in later months of the year. For changes in the trip limit **Alternatives 4 (Preferred)** and **5**, the potential social effects would depend on how fishermen are affected by either higher trip limits and shorter season, or lower trip limits and longer seasons. It is likely that higher trip limits would be most beneficial to larger vessels, vessels with longer travel times to fishing grounds, and to fishing businesses that target multiple species and do not need one particular species to be open all the time. Conversely, a lower trip limit would likely have minimal effects on smaller vessels, vessels with shorter travel times to fishing grounds, and fishing businesses that would benefit from a longer season for snowy grouper.

Administrative Effects

Currently, there is not a split commercial fishing season for snowy grouper (**Alternative 1, No Action**). **Alternative 1** (**No Action), Alternative 4 (Preferred),** and **Alternative 5** would have less of an administrative burden than **Alternatives 2** and **3** because only one quota would need to be monitored. **Alternatives 2** and **3** would add to the administrative burden in the form of cost, time, or law enforcement efforts. Because there is already a trip limit in place, there would be little difference in the administrative impacts of **Alternative 1 (No Action)** and **Alternatives 4 (Preferred)** and **5** and their sub-alternatives. Higher trip limits could have slightly greater administrative effects because they increase the likelihood that the commercial ACL or quota would be met and a commercial closure would occur. **Alternatives 2** through **5** (including their respective sub-alternatives) would require notifying the commercial snapper grouper fishery and law enforcement personnel of an impending trip limit change for snowy grouper. However, this type of administrative burden is considered routine, and the overall administrative effects of the alternatives considered under this action would not vary much with respect to each other.

Action 4. Modify the Recreational Bag Limit for Snowy Grouper

Alternatives for Action 4
*(preferred alternatives in **bold**)*

1. (No Action.) The current recreational grouper bag and possession limit is as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.

2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year.

4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

Biological Effects

The biological benefits of **Alternatives 2 (Preferred)** through **5** would be expected to be slightly greater than **Alternative 1 (No Action)**, if they restrict the time during which recreational harvest of snowy grouper could occur. However, the biological benefits of **Alternatives 2 (Preferred)-5** might not be significantly different from **Alternative 1 (No Action)** because snowy grouper would still be caught, and discarded dead when fishermen target co-occurring species.

Alternative 1 (No Action) would provide the least biological benefit since the recreational ACL has been exceeded by 400% in recent years. The ACL was exceeded in 2013, in part, because recreational fishing did not stop after the recreational sector had been closed. **Alternatives 4** and **5** would be expected to have slightly greater biological benefits than **Alternatives 2 (Preferred)** and **3**, since they would allow recreational harvest of snowy grouper for just one month versus two months under **Alternative 3** and four months under **Preferred Alternative 2**. However, the biological effects of **Alternatives 1 (No Action)-5** would be similar if a recreational closure does not slow the rate of fishing.

Economic Effects

If any of the alternatives under **Action 4** are chosen other than **Alternative 1 (No Action)**, and it is effective in maintaining recreational landings at or below the status quo ACL, short-term economic benefits to the recreational sector would be lower relative to those being achieved right now. This is because, in recent years, the ACL has been exceeded by such a large amount. Although, these economic benefits would be greater than those that would occur under a situation where there is no increase in the ACL (**Alternative 1** under **Action 2**). That is, the recreational sector would benefit in the long-term from **Alternatives 2 (Preferred), 3, 4,** or **5** if those alternatives are effective at capping harvest. The short-term benefits would vary depending on whether an increase in the ACL occurs under **Action 2**.

Social Effects

In general, the social effects of modifying the snowy grouper bag limit or specifying when snowy grouper can be recreationally landed would be associated with the biological costs of each alternative, as well as with the times of year recreational anglers are targeting snowy grouper, and how a designated recreational fishing season would affect current recreational fishing opportunities. A longer fishing season would improve recreational fishing opportunities, and would be the longest under **Alternative 1 (No Action)**, followed by a four-month season under **Preferred Alternative 2**, and a two-month season under **Alternative 3**. The one-month season under **Alternatives 4** and **5** would result in the fewest opportunities for recreational fishing of snowy grouper. Because most recreational landings of snowy grouper are estimated to occur in May/June, particularly landings in Monroe County, allowing harvest during these months as under **Alternatives 1-5** would be beneficial to recreational fishermen targeting snowy grouper.

Administrative Effects

The administrative effects of **Alternative 1 (No Action)-5** would not be considered very different from one another. Bag limits are already monitored and enforced under **Alternative 1 (No Action)**. **Alternatives 2 (Preferred)** through **5** would not add to the administrative burden in the form of cost, time, or law enforcement efforts, except for incorporating changes to the bag limits and time of year they would apply, which are considered routine.

Chapter 1. Introduction

1.1 What Action Is Being Proposed?

Regulatory Amendment 20 proposes to adjust the rebuilding strategy (Action 1), annual catch limit (ACL; Action 2), and management measures (Actions 3 and 4) for the snowy grouper component of the snapper grouper fishery. Regulatory Amendment 20 also specifies the acceptable biological catch (ABC), maximum sustainable yield (MSY), minimum stock size threshold (MSST), and optimum yield (OY). ABC, MSY, MSST, and OY are not action items in the amendment. Regulatory Amendment 20 provides updated values for these parameters based on the results of a 2013 stock assessment (SEDAR 36 2013).

South Atlantic Fishery Management Council

- Responsible for conservation and management of fish stocks
- Consists of 13 voting members: 8 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; and recommends actions to NMFS for implementation
- Management area is from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West with the exception of Mackerel which is from New York to Florida, and Dolphin Wahoo, which is from Maine to Florida

1.2 Who is Proposing the Action?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the action. The South Atlantic Council develops the regulatory amendment and sends it to the National Marine Fisheries Service (NMFS) who publishes a rule to implement the regulatory amendment on behalf of the Secretary of Commerce. NMFS is a line office in the National Oceanic and Atmospheric Administration within the Department of Commerce.

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**). The species addressed in Regulatory Amendment 20 are among the 59 species managed by the South Atlantic Council under the Snapper Grouper FMP.

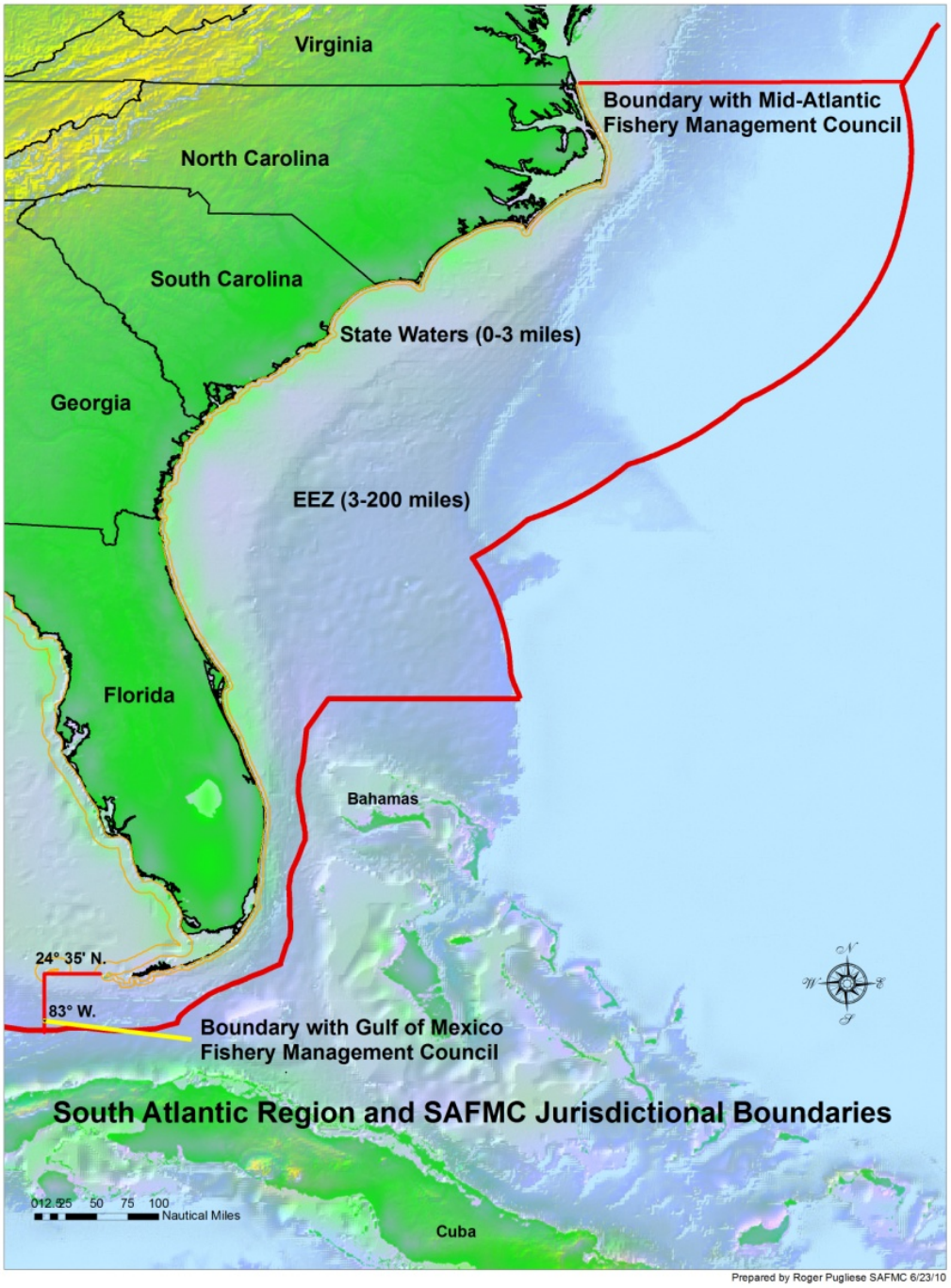

Figure 1.3.1. Jurisdictional boundaries of the South Atlantic Council.

1.4 Purpose and Need

Purpose for Action

The *purpose* of this amendment is to adjust the rebuilding strategy, update the acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery. These adjustments address the recent stock assessment results based on data through 2012.

Need for Action

The *need* for the amendment is to prevent overfishing and continue rebuilding the stock while minimizing, to the extent practicable, adverse social and economic effects.

1.5 What is the History of Management for the species considered in this amendment?

Snapper grouper regulations in the South Atlantic were first implemented in 1983. See **Appendix D** of this document for a detailed history of management for the snapper grouper fishery.

1.6 How is overfishing determined?

The 2009 National Standard 1 Guidelines provide a definition of overfishing that allows overfishing to be determined in two ways, by a fishing mortality rate or by a level of catch:

> 50 C.F.R. § 600.310 (e)(2)(i)(B)
>
> *"Overfishing (to overfish) occurs whenever a stock or stock complex is subjected to a level of fishing mortality or annual total catch that jeopardizes the capacity of a stock or stock complex to produce maximum sustainable yield (MSY) on a continuing basis."*

The National Standard 1 Guidelines provide more detail about these two methods, and require that FMPs describe which method will be used to determine an overfishing status:

> 50 C.F.R. § 600.310 (e)(2)(ii)(A)
>
> *Status Determination Criteria to determine overfishing status. Each fishery management plan (FMP) must describe which of the following two methods will be used for each stock or stock complex to determine an overfishing status.*

(1) Fishing mortality rate exceeds maximum fishing mortality threshold (MFMT). Exceeding the MFMT for a period of 1 year or more constitutes overfishing. The MFMT or reasonable proxy may be expressed either as a single number (a fishing mortality rate or F value), or as a function of spawning biomass or other measure of reproductive potential.

(2) Catch exceeds the overfishing limit (OFL). Should the annual catch exceed the annual OFL for 1 year or more, the stock or stock complex is considered subject to overfishing.

The OFL is defined as an annual level of catch that corresponds directly to the MFMT, and is the best estimate of the catch level above which overfishing is occurring. Biomass is below SSB_{MSY}. The stock is considered to be overfished according to the current overfished definition ($0.75*SSB_{MSY}$).

Each of the two methods for determining overfishing has benefits and drawbacks with MFMT being a better estimate of overfishing status in a year in which a stock is assessed and OFL a better estimate of overfishing status in years when a current estimate of fishing mortality is not available. Therefore, the South Atlantic Council proposes the use of both the MFMT and OFL as metrics to determine the overfishing status of snowy grouper.

For snowy grouper, overfishing will be determined on an annual basis by the MFMT and OFL methods. The estimate of F_{MSY} (MFMT) for snowy grouper from SEDAR 36 is 0.14, while the corresponding OFL values increase as the stock rebuilds. If either the MFMT (during an assessment year) or the OFL method (during a non-assessment year) is exceeded, the stock will be considered to be undergoing overfishing. *OFL at equilibrium = 418,600 lbs ww. OFL values for the years 2015 through 2019 are from Table 21 in SEDAR 36; values shown below do not include discards.

Year	OFL (lbs ww)
2015	216,894
2016	229,595
2017	242,296
2018	253,043
2019	265,744

Chapter 2. Proposed Actions and Alternatives

2.1 Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

Alternative 1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lbs ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 lbs ww consistent with this rebuilding strategy.

Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. Specify a probability of success of:

Sub-alternative 2a: 50%.

Sub-alternative 2b: 70%.

ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Preferred Alternative 3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $75\%F_{MSY}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

Alternative 4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

The ABC for each alternative is shown below in lbs ww (**Table 2.1.1**) and lbs gw (**Table 2.1.2**).

Table 2.1.1. ABC (lbs ww) specified by Alternatives 1-4 in Action 1.

	Alt 1	Sub-Alt 2a	Sub-Alt 2b	Pref Alt 3	Alt 4
Year	F_{MSY}	$F_{rebuild}$ 50%	$F_{rebuild}$ 70%	75% F_{MSY}	$F_{current}$
2015	216,894	194,423	130,918	**164,136**	147,527
2016	229,595	208,101	143,619	**178,791**	160,228
2017	242,296	219,825	156,320	**192,469**	171,952
2018	253,043	231,549	168,044	**205,170**	183,676
2019	265,744	242,296	179,768	**218,848**	195,400

Table 2.1.2. ABC (lbs gw) specified by Alternatives 1-4 in Action 1.

	Alt 1	Sub-Alt 2a	Sub-Alt 2b	Pref Alt 3	Alt 4
Year	**F_{MSY}**	**$F_{rebuild}$ 50%**	**$F_{rebuild}$ 70%**	**75% F_{MSY}**	**$F_{current}$**
2015	183,808	164,765	110,947	**139,098**	125,023
2016	194,572	176,357	121,711	**151,518**	135,786
2017	205,336	186,292	132,475	**163,109**	145,722
2018	214,443	196,228	142,410	**173,873**	155,658
2019	225,207	205,336	152,346	**185,464**	165,593

2.1.1 Comparison of Alternatives

The rebuilding strategy under **Alternative 1 (No Action)** was specified in Amendment 15A to the Snapper Grouper FMP (SAFMC 2008a) prior to the P* approach and establishment of the acceptable biological catch (ABC) control rule. Based on the results of SEDAR 4 (2004), which indicated snowy grouper was overfished and undergoing overfishing, Amendment 15A specified a 34 year rebuilding schedule and a rebuilding strategy for snowy grouper that maintains a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. **Alternatives 2-4** would establish a rebuilding strategy based on the results of the most recent stock assessment, which indicates the stock remains overfished, is rebuilding, and is no longer experiencing overfishing (**Table 2.1.3**).

Table 2.1.3. Stock status of snowy grouper.

	SEDAR 36 (2012 most recent data)
Overfishing ($F_{2010\text{-}2012}/F_{MSY}$)	No (0.59)
Overfished (SSB_{F2012}/MSST(75%))	Yes (0.65)
F_{MSY} (proxy for MFMT)	0.14
MSY	418,600 pounds whole weight (lbs ww)
MSST	1,442,264 lbs ww
OFL*	216,894 lbs ww in 2015 229,595 lbs ww in 2016 242,296 lbs ww in 2017 253,043 lbs ww in 2018 265,744 lbs ww in 2019
ABC**	164,136 lbs ww in 2015 178,791 lbs ww in 2016 192,469 lbs ww in 2017 205,170 lbs ww in 2018 218,848 lbs ww in 2019

*OFL at equilibrium = 418,600 lbs ww. OFL values for the years 2015 through 2019 are from Table 21 in SEDAR 36, and is based in the yield at F_{MSY}.
** ABC values for the years 2015 through 2019 are from Table 22 in SEDAR 36, and is based in the yield at 75%F_{MSY}. Total removals reported here are median values multiplied by 0.997 to reduce total removals to landings only (as reported in SEDAR 36).

The lower the harvest levels, the greater the biological benefit to stock, but there is a level of harvest that is sustainable, and will not negatively impact the health of a stock. **Alternative 1 (No Action)** would constrain harvest to a lower level than **Alternatives 2-4**. However, the 2013 stock assessment update (SEDAR 36 2013) indicated snowy grouper is no longer undergoing overfishing, and the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC) recommended an increase in the ABC; therefore, there is no biological need to constrain harvest at the level specified by **Alternative 1 (No Action)**. Compared to **Alternative 1 (No Action),** significant negative biological effects for the snowy grouper stock would be expected to be neutral for alternatives (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4)** that specify catch levels at or below the catch level recommendations of the South Atlantic Council's SSC. **Sub-alternative 2a** would specify an ABC that is greater than the ABC recommended by the South Atlantic Council's SSC (**Preferred Alternative 3**), and could have minor negative biological effects when compared to **Alternative 1 (No Action)**. **Sub-alternative 2b,** with a 70% probability of successfully rebuilding snowy grouper by 2039, would allow for a lower ABC than the yield at 75%F_{MSY} recommended by the South Atlantic Council's SSC. **Preferred Alternative 3** is based on the yield at 75%F_{MSY} recommended by the SSC and would be expected to have greater positive biological benefits than **Alternative 2**. Therefore, **Preferred Alternative 3** would use the best scientific information available to adjust the rebuilding strategy for snowy grouper. **Alternative 4**, which would allow for a more conservative level of harvest than that recommended by the South Atlantic Council's SSC, would be expected to have biological effects that are intermediate compared with **Sub-alternative 2a** (50% probability of rebuilding success) and **Preferred Alternative 3**. **Alternative 4** would be expected to result in fewer biological benefits than **Sub-alternative 2b** (70% probability of rebuilding success) and **Alternative 1 (No Action)**. When compared to **Alternative 1 (No Action)**, only **Sub-Alternative 2a** would be expected to have minor negative biological effects on the stock. Because the snowy grouper stock is rebuilding, harvest levels at or below the SSC's catch level recommendation (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4**) are appropriate and would not be expected to have any negative biological effects on the stock.

While the long-term health of the stock may improve with a rebuilding strategy that allows for a lower than necessary ABC, fishermen would not benefit with increased health of a stock unless the ABC also increases, potentially resulting in a higher ACL. A stock assessment that indicates a lower ABC is necessary, would have indirect short-term benefits through potentially higher harvests if the ABC is exceeded. But this also would result in long-term adverse effects for fishermen as they could potentially exceed the ACL (if landings data collection efforts are not successful in accurately predicting an appropriate closure date) and result in damage to the long-term health of the stock and lower future catch rates. In general, the greatest economic benefit to commercial and recreational fishermen results from a rebuilding strategy that allows increased harvest and access to the resource compared to the current ABC and ACL. However, the rebuilding strategy would not result in long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. In summary, **Preferred Alternative 3** is expected to yield the highest long-term economic benefits compared to the next best **Alternative 2**. **Alternative 4** is expected to yield the next highest long-term economic benefits followed by **Alternative 1 (No Action)**.

Because the recent assessment update determined that snowy grouper are no longer undergoing overfishing, **Alternative 1 (No Action)** would be expected to result in minimal or no benefits to

fishermen by not taking advantage of possible flexibility in the rebuilding plan and associated ABCs. Overall, the most benefits to fishermen and communities would come from a rebuilding strategy that allows increased harvest and access to the resource than the current ABC and ACL, but would not cause long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. **Alternatives 2-4** would result in higher ABCs than under **Alternative 1 (No Action)** and increase access to the resource, which would be expected to reduce and minimize short-term negative effects on fishermen. **Sub-alternative 2a** would be expected to have the greatest short-term benefits for fishermen, followed by **Preferred Alternative 3, Alternative 4**, and **Sub-alternative 2b**.

Alternatives that specify the lowest ABC would have the largest administrative burden due to the potential for ACLs to be met and accountability measures (AMs) to be triggered. The administrative burden would be ranked lower to higher in the following order: **Sub-alternative 2a, Preferred Alternative 3, Alternative 4**, **Sub-alternative 2b,** and **Alternative 1 (No Action)**. All the rebuilding strategy alternatives considered would require continued monitoring of commercial and recreational landings in addition to continued enforcement of current harvest restrictions for snowy grouper including the 1-fish per vessel bag limit, and the 100 pound gutted weight (lbs gw) trip limit. Overall, administrative impacts under all the rebuilding strategy alternatives are not likely to be significant.

2.2 Action 2. Adjust Annual Catch Limits for Snowy Grouper

Alternative 1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lbs ww) or 87,254 pounds gutted weight (lbs gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

		Pounds gutted weight (lbs gw)		
ABC	**ACL**	**Com ACL (95%)**	**Rec ACL (5%)**	**Rec # Fish**
87,254	87,254	82,900	4,400	523

Preferred Alternative 2. Specify that ACL=ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
The ACL, commercial ACL, and recreational ACL are shown below.

Pounds whole weight (lbs ww)					
Year	**ABC**	**ACL**	**Com ACL (83%)**	**Rec ACL (17%)**	**Estimated Rec #Fish**
2015	164,136	164,136	136,233	27,903	4,152
2016	178,791	178,791	148,397	30,394	4,483
2017	192,469	192,469	159,749	32,720	4,819
2018	205,170	205,170	170,291	34,879	4,983
2019	218,848	218,848	181,644	37,204	5,315
Pounds gutted weight (lbs gw)					
Year	**ABC**	**ACL**	**Com ACL (83%)**	**Rec ACL (17%)**	**Estimated Rec #Fish**
2015	139,098	139,098	115,451	23,647	4,152
2016	151,518	151,518	125,760	25,758	4,483
2017	163,109	163,109	135,380	27,729	4,819
2018	173,873	173,873	144,315	29,558	4,983
2019	185,464	185,464	153,935	31,529	5,315

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Alternative 3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational. The ABC, ACL, commercial ACL, and recreational ACL are shown below.

Sub-alternative 3a. Set ACL=95%ABC=OY
Sub-alternative 3b. Set ACL=90%ABC=OY
Sub-alternative 3c. Set ACL=85%ABC=OY

Year	ABC ww	ACL ww	Com ACL ww (83%)	Rec ACL ww (17%)	ACL gw	Com ACL gw (83%)	Rec ACL gw (17%)	Estimated Rec #Fish
Sub-Alt 3a, ACL = 95%ABC								
2015	164,136	155,929	129,421	26,508	132,143	109,679	22,464	3,945
2016	178,791	169,851	140,976	28,875	143,942	119,472	24,470	4,259
2017	192,469	182,846	151,762	31,084	154,954	128,612	26,342	4,578
2018	205,170	194,912	161,777	33,135	165,179	137,099	28,080	4,734
2019	218,848	207,906	172,562	35,344	176,191	146,239	29,952	5,049
Sub-Alt 3b, ACL = 90%ABC								
2015	164,136	147,722	122,609	25,113	125,188	103,906	21,282	3,737
2016	178,791	160,912	133,557	27,355	136,366	113,184	23,182	4,035
2017	192,469	173,222	143,774	29,448	146,798	121,842	24,956	4,337
2018	205,170	184,653	153,262	31,391	156,486	129,883	26,603	4,484
2019	218,848	196,963	163,479	33,484	166,918	138,542	28,376	4,783
Sub-Alt 3b, ACL = 85%ABC								
2015	164,136	139,516	115,798	23,718	118,234	98,134	20,100	3,529
2016	178,791	151,972	126,137	25,835	128,790	106,896	21,894	3,811
2017	192,469	163,599	135,787	27,812	138,643	115,074	23,569	4,096
2018	205,170	174,395	144,748	29,647	147,792	122,667	25,125	4,235
2019	218,848	186,021	154,397	31,624	157,645	130,845	26,800	4,518

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Discussion

The South Atlantic Council established the current sector allocation (95% commercial/5% recreational) in Amendment 15B (SAFMC 2008b) using average commercial and recreational landings for the period 1986-2005. SEDAR 36 (2013) updated the landings streams for these years, including making adjustments to account for the change from the Marine Recreational Fisheries Statistical Survey (MRFSS) to the newly adopted Marine Recreational Information Program (MRIP). The resulting change in the methodology used to estimate recreational landings caused a shift in allocation from the commercial to the recreational sector. The alternatives under **Action 2**; therefore, propose ACLs based on an 83% commercial/17% recreational allocation. This change; however, is not due to employing a different allocation formula but a result of revised landings streams provided in the SEDAR 36 (2013) assessment.

The ABC for snowy grouper generated from SEDAR 36 (2013) is in pounds; however, the recreational ACL is in numbers of fish. Therefore, the recreational ACL in pounds had to be converted to numbers of fish. This was done by first determining snowy grouper average weight by year. As the stock rebuilds the average weight is expected to change each year. SEDAR 36 (2013) provided the annual projected removals both by numbers and weight when fishing mortality is fixed at 75%F_{MSY} (Table 22 of SEDAR 36 2013 final report). This fishing mortality rate was chosen because yield generated from 75%F_{MSY} is the SSC's recommendation for ABC. For each year, the weights are divided by the numbers of fish to determine the annual average weight of an individual fish.

Table 2.2.1 shows the results of this calculation. The recreational ACL in pounds whole weight is determined by the annual average weight (of an individual fish) to convert the ACL from pounds to numbers of fish. For example, the proposed 2015 recreational ACL of 27,903 pounds whole weight is divided by the average weight of 6.72 pounds to get a recreational ACL of 4,152 fish.

Table 2.2.1. Annual average weight of South Atlantic snowy grouper generated from SEDAR 36 projection results when fishing mortality is fixed at 75%F_{MSY}.
Numbers and weight projections came from the median values of the stochastic projections, and the numbers are provided in Table 22 of the SEDAR 36 final report.

Year	Numbers of fish	Weight (lbs ww)	Average fish weight (lbs ww)
2015	25,000	168,000	6.72
2016	27,000	183,000	6.78
2017	29,000	197,000	6.79
2018	30,000	210,000	7.00
2019	32,000	224,000	7.00

2.2.1 Comparison of Alternatives

While the ACL under **Alternative 1 (No Action)** is lower than that proposed under **Preferred Alternative 2** and **Alternative 3** (including its sub-alternatives), it does not reflect the recommendations of the latest stock assessment for snowy grouper, and specifying an ACL at a lower level may not be needed to maintain harvest of snowy grouper at sustainable levels. **Alternative 3**, which would specify a buffer between the ABC and ACL, would be expected to have greater biological benefits than **Preferred Alternative 2**, which would set ACL equal to the ABC and OY. **Sub-alternative 3c** has the largest buffer between the ABC and the ACL and would be expected to yield the largest biological benefits of all the sub-alternatives under **Alternative 3**. Furthermore, scientific and management uncertainties are included in the SSC's ABC control rule, which is factored into the ABC (and therefore ACL) values generated under **Preferred Alternative 2** and **Alternative 3** (including its sub-alternatives). **Alternative 1 (No Action)**, **Alternatives 2 (Preferred)** and **3**, which specify an ACL at or below the catch levels recommended by the South Atlantic Council's SSC, would not be expected to have adversely significant biological effects on the snowy grouper stock.

Higher ACLs usually result in greater short-term economic benefits to commercial and recreational fishermen. Long-term economic benefits can also be realized if the ACL options are expected to achieve long-term biological health of the resource. However, the chances of long-term health are improved (if the sectors can be held to their ACLs) if a buffer exists between the ABC and the ACL. Therefore, since **Alternative 3** incorporates information from the newest stock assessment and incorporates a buffer, it is expected to achieve the greatest long-term health of the stock and the greatest long-term economic benefits, with **Sub-alternative 3c** offering the largest buffer and therefore the largest economic benefits. **Preferred Alternative 2** incorporates new information from the new stock assessment, has a higher ACL, and is expected to produce greater long-term economic benefits than **Alternative 1 (No Action).**

However, because it would not create a buffer between the ABC and ACL, **Sub-alternative 3c** would likely yield the greatest economic benefits.

In general, the higher the ACL, the greater the short-term social benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and communities because catch limits would be based on the current conditions and best scientific information available. The ACLs under **Preferred Alternative 2** and **Alternative 3** would be higher than that under **Alternative 1 (No Action)** while maintaining the level of removals below the recommended ABC. The benefits to fishermen and fishing communities are expected to be greatest under **Preferred Alternative 2**. As the proposed ACL is subsequently lower under **Sub-alternatives 3a-3c**, the benefits would be less than under **Preferred Alternative 2**. The lower ACLs in **Sub-alternatives 3a-3c** could have negative short-term effects on fishermen if the AMs were triggered when a lower ACL is met. The updated commercial-recreational allocation (83%/17%) under **Preferred Alternative 2** and **Alternative 3** would also result in a higher ACL for the recreational sector, which would likely improve recreational fishing opportunities and reduce the risk of triggering the recreational AM. However, because the recreational overages have been estimated to be almost 400% in recent years, it is possible that a recreational AM would still be triggered even with a higher recreational ACL.

Negative administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action), Preferred Alternative 2,** and **Alternative 3** (including its sub-alternatives) would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs.

2.3 Action 3. Commercial Management Measures for Snowy Grouper

(Note: The Accountability Measures (AMs) for snowy grouper are being addressed in the Generic Accountability Measure/Dolphin Allocation Amendment.)

Alternative 1 (No Action). The current commercial snowy grouper fishing year is the calendar year with no split of the commercial ACL into separate seasons. The current commercial snowy grouper trip limit is 100 pounds gutted weight (lbs gw).

Alternative 2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

Sub-alternative 2a. 100 lbs gw.
Sub-alternative 2b. 150 lbs gw.
Sub-alternative 2c. 200 lbs gw.

Alternative 3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lbs gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

Sub-alternative 3a. 100 lbs gw.
Sub-alternative 3b. 150 lbs gw.
Sub-alternative 3c. 200 lbs gw.
Sub-alternative 3d. 250 lbs gw.
Sub-alternative 3e. 300 lbs gw.

Preferred Alternative 4. Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

Sub-alternative 4a. 300 lbs gw.
Preferred Sub-alternative 4b. 200 lbs gw.
Sub-alternative 4c. 150 lbs gw.

Alternative 5. Modify the commercial snowy grouper trip limit to 150 lbs gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Brevard/Indian River County line north when the trip limit will be as follows:

Sub-alternative 5a. 200 lbs gw.
Sub-alternative 5b. 250 lbs gw.
Sub-alternative 5c. 300 lbs gw.

2.3.1 Comparison of Alternatives

By dividing the commercial ACL into two seasonal fishing quotas (**Alternatives 2** and **3**), fishermen would theoretically be given the opportunity to fish for snowy grouper at the beginning of the year and during the summer, and fishermen in the northern and southern areas of the South Atlantic would have a chance to fish for snowy grouper when weather conditions are favorable in their respective areas. The biological effects of **Alternatives 2** through **5** (and their sub-alternatives) proposed in **Action 3** would be expected to be neutral compared with **Alternative 1 (No Action)**, because ACLs and AMs are in place to cap harvest and trigger corrective action if ACLs are exceeded. Alternatives with larger trip limits could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made to the quota monitoring system, and the South Atlantic Council has approved a Dealer Reporting Amendment (effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier commercial closures of snowy grouper. Early commercial closures could lead to regulatory discards and release mortality for snowy grouper is 100%, which would not be beneficial to the stock. SEDAR 36 (2013) indicates that snowy grouper is overfished. Early commercial closures could result in bycatch of snowy grouper if fishermen target co-occurring species after the closure occurs. Similarly smaller trip limits could increase bycatch if fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

A split in the ACL (**Alternatives 2** and **3**) could provide long-term economic benefits because it would help spread harvest throughout a greater portion of the year and maintain market demand. However, as no commercial closure is expected in season 1 for most of the scenarios examined, the effect of splitting the commercial ACL into two seasonal quotas would not be much different than leaving the fishing season intact (**Alternative 1 No Action**). Commercial trip limits, in general, are not economically efficient because they limit vessels from benefiting from economies of scale. They have a tendency to increase some fishing trip costs when a trip must stop targeting a specific species because its trip limit has been reached. Unless a vessel that has reached its limit of the targeted fish can easily switch to targeting a different species on the same trip, trip costs associated with the species where the limit has been reached will increase because it will require more trips by vessels to catch the ACL. Depending on vessel characteristics and the distance required to travel to fish, a trip limit that is too low could result in targeted trips being cancelled altogether if the vessel cannot target other species on the same trip. In summary, economic benefits under **Alternatives 2** and **3** are expected to exceed those under **Alternative 1 (No Action)** and enhance the ability to better maintain seafood supply and thus increase profitability. The economic effects resulting from **Alternative 4 (Preferred)** and **5** compared to **Alternative 1 (No Action)** are distributional and cannot be ranked because the benefits of trip limits depend on where a vessel is docked and the vessel's cost structure, for which no data exist.

The potential social effects of establishing a split season and changing the trip limit for snowy grouper would depend on the costs and benefits of trade-offs of these management measures. In general, a split season (**Alternatives 2** and **3**) would be most beneficial to fishermen in the northern part of the region and for fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available later in the year. For changes in the trip limit, the potential social effects would depend on how fishermen are affected by either higher trip limits and a shorter season, or lower trip limits and longer seasons. It is likely that higher trip limits would be most beneficial to larger vessels, vessels with longer travel times to fishing grounds (see **Table 4.3.1**), and to

fishing businesses that target multiple species and do not need one particular species to be open all the time. Conversely, a lower trip limit would likely be more beneficial to smaller vessels, vessels with shorter travel times to fishing grounds (see **Table 4.3.1**), and fishing businesses that would benefit from a longer season for snowy grouper.

Currently, there is no split season for the commercial sector for snowy grouper (**Alternative 1, No Action**). **Alternative 1** (**No Action), Alternative 4 (Preferred),** and **Alternative 5** would have fewer administrative impacts than **Alternatives 2** and **3** because only one quota would need to be monitored. **Alternatives 2** and **3** would add to the administrative burden in the form of cost, time, or law enforcement efforts. Because there is already a trip limit in place, there would be little difference in the administrative impacts of **Alternative 1 (No Action)** and **Alternatives 4 (Preferred)** and **5** and their sub-alternatives. Higher trip limits could have greater administrative effects because they increase the likelihood that the commercial ACL or quota would be met and a commercial closure would occur. **Alternatives 2** through **5** (including their respective sub-alternatives) would require notifying the commercial snapper grouper fishery and law enforcement personnel of an impending trip limit change for snowy grouper. However, this type of administrative burden is considered routine, and the overall administrative effects of the alternatives considered under this action would not vary much with respect to each other.

2.4 Action 4. Modify the Recreational Bag Limit for Snowy Grouper

(Note: The Accountability Measures (AMs) are being addressed in the Generic Accountability Measure/Dolphin Allocation Amendment.)

Alternative 1. (No Action.) The current recreational grouper bag and possession limit is as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.

Preferred Alternative 2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year.

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

Alternative 5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

2.4.1 Comparison of Alternatives

The biological benefits of the **Alternatives 2 (Preferred)** through **5** would be expected to be greater than **Alternative 1 (No Action)**, if they restrict the time during which recreational harvest of snowy grouper could occur. Thus, with respect to **Alternative 1 (No Action)**, the biological benefits of **Alternatives 2 (Preferred)-5** would be significant if targeting of snowy grouper and co-occurring species was reduced during times when recreational harvest of snowy grouper was prohibited. However, release mortality of snowy grouper is 100%. If targeting of co-occurring species were to continue during a recreational closure, the biological benefits for snowy grouper might not be significant because snowy grouper would still be caught, and discarded dead. Thus, when compared to **Alternative 1 (No Action)**, minor biological benefits are expected from **Alternatives 2 (Preferred)** through **5.**

Alternative 1 (No Action) would be expected to provide the least biological benefit since the recreational ACL has been exceeded by 400% in the recent years under the status quo. The ACL was exceeded in 2013, in part, because recreational fishing did not stop after the recreational sector had been closed. **Alternatives 4** and **5** would be expected to have greater biological benefits than **Alternatives 2 (Preferred)** and **3**, since they would allow recreational harvest of snowy grouper for just one month versus two months under **Alternative 3** and four months under **Preferred Alternative 2**. However, the biological effects of **Alternatives 1 (No Action)-5** would be similar if a recreational closure does not slow the rate of fishing.

If any of the alternatives under **Action 4** is chosen, other than **Alternative 1 (No Action),** and it is effective in maintaining recreational landings at or below the ACL, short-term economic benefits to the

recreational sector would be lower relative to those being achieved right now. This is because, in recent years, the ACL has been exceeded by such a large amount. Although, these economic benefits would be greater than those that would occur under a situation where there is no increase in the ACL (**Alternative 1** under **Action 2**). That is, the recreational sector would benefit in the long-term from **Alternatives 2 (Preferred), 3, 4,** or **5** if they are effective. The short-term benefits would vary depending on whether an increase in the ACL occurs under **Action 2**.

In general, the social effects of modifying the snowy grouper bag limit or specifying when snowy grouper can be recreationally landed would be associated with the biological costs of each alternative (see **Section 4.4.1**), the times of year recreational anglers are targeting snowy grouper, and how a designated recreational fishing season would affect current recreational fishing opportunities. A longer fishing season would improve recreational fishing opportunities, and would be the longest under **Alternative 1 (No Action)**, followed a four-month season under **Preferred Alternative 2**, and a two-month season under **Alternative 3**. The one-month season under **Alternatives 4** and **5** would result in the fewest opportunities for recreational fishing of snowy grouper. Because most recreational landings of snowy grouper are estimated to occur in May/June (**Table 4.4.2**), particularly landings in Monroe County (**Table 4.4.3**), allowing harvest during these months as under **Alternatives 1 (No Action)-5** would be beneficial to recreational fishermen targeting snowy grouper.

The administrative effects of **Alternative 1 (No Action)-5** would be similar. Bag limits are already monitored and enforced under **Alternative 1 (No Action)**. **Alternatives 2 (Preferred)** through **5** would not add to the administrative burden in the form of cost, time, or law enforcement efforts, except for incorporating changes to the bag limits and time of year they would apply, which are considered routine.

Chapter 3. Affected Environment

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

Affected Environment

- **Habitat environment (Section 3.1)**

  Examples include coral reefs and sea grass beds

- **Biological and ecological environment (Section 3.2)**

  Examples include populations of groupers, corals, and turtles

- **Socio-economic environment (Section 3.3)**

  Examples include fishing communities and economic descriptions of the fisheries

- **Administrative environment (Section 3.4)**

  Examples include the fishery management process and enforcement activities

3.1 Habitat Environment

3.1.1 Inshore/Estuarine Habitat

Many snapper grouper species utilize both pelagic and benthic habitats during several stages of their life histories; larval stages of these species live in the water column and feed on plankton. Most juveniles and adults are demersal (bottom dwellers) and associate with hard structures on the continental shelf that have moderate to high relief (e.g., coral reef systems and artificial reef structures, rocky hard-bottom substrates, ledges and caves, sloping soft-bottom areas, and limestone outcroppings). Juvenile stages of some snapper grouper species also utilize inshore seagrass beds, mangrove estuaries, lagoons, oyster reefs, and embayment systems. In many species, various combinations of these habitats may be utilized during daytime feeding migrations or seasonal shifts in cross-shelf distributions. Additional information on the habitat utilized by species in the Snapper Grouper Complex is included in Volume II of the Fishery Ecosystem Plan (FEP; SAFMC 2009b) and incorporated here by reference. The FEP can be found at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

3.1.2 Offshore Habitat

Predominant snapper grouper offshore fishing areas are located in live bottom and shelf-edge habitats where water temperatures range from 11º to 27º C (52º to 81º F) due to the proximity of the Gulf Stream, with lower shelf habitat temperatures varying from 11º to 14º C (52º to 57º F). Water depths range from 16 to 27 meters (54 to 90 ft) or greater for live-bottom habitats, 55 to 110 meters (180 to 360 ft) for the shelf-edge habitat, and from 110 to 183 meters (360 to 600 ft) for lower-shelf habitat areas.

The exact extent and distribution of productive snapper grouper habitat on the continental shelf north of Cape Canaveral, Florida is unknown. Current data suggest from 3 to 30% of the shelf is suitable habitat for these species. These live-bottom habitats may include low relief areas, supporting sparse to moderate growth of sessile (permanently attached) invertebrates, moderate relief reefs from 0.5 to 2 meters (1.6 to 6.6 ft), or high relief ridges at or near the shelf break consisting of outcrops of rock that are heavily encrusted with sessile invertebrates such as sponges and sea fan species. Live-bottom habitat is scattered irregularly over most of the shelf north of Cape Canaveral, Florida, but is most abundant offshore from northeastern Florida. South of Cape Canaveral, Florida the continental shelf narrows from 56 to 16 kilometers (35 to 10 mi) wide off the southeast coast of Florida and the Florida Keys. The lack of a large shelf area, presence of extensive, rugged living fossil coral reefs, and dominance of a tropical Caribbean fauna are distinctive benthic characteristics of this area.

Rock outcroppings occur throughout the continental shelf from Cape Hatteras, North Carolina to Key West, Florida (MacIntyre and Milliman 1970; Miller and Richards 1979; Parker et al. 1983), which are principally composed of limestone and carbonate sandstone (Newton et al. 1971), and exhibit vertical relief ranging from less than 0.5 to over 10 meters (33 ft). Ledge systems formed by rock outcrops and piles of irregularly sized boulders are also common. Parker et al. (1983) estimated that 24% (9,443 km^2) of the area between the 27 and 101 meter (89 and 331 ft) depth contours from Cape Hatteras, North Carolina to Cape Canaveral, Florida is reef habitat. Although the bottom communities found in water depths between 100 and 300 meters (328 and 984 ft) from Cape Hatteras, North Carolina to Key West, Florida is relatively small compared to the whole shelf, this area, based upon landing

information of fishers, constitutes prime reef fish habitat and probably significantly contributes to the total amount of reef habitat in this region.

Artificial reef structures are also utilized to attract fish and increase fish harvests; however, research on artificial reefs is limited and opinions differ as to whether or not these structures promote an increase of ecological biomass or merely concentrate fishes by attracting them from nearby, natural un-vegetated areas of little or no relief.

The distribution of coral and live hard bottom habitat as presented in the Southeast Marine Assessment and Prediction Program (SEAMAP) bottom mapping project is a proxy for the distribution of the species within the snapper grouper complex. The method used to determine hard bottom habitat relied on the identification of reef obligate species including members of the snapper grouper complex. The Florida Fish and Wildlife Research Institute (FWRI), using the best available information on the distribution of hard bottom habitat in the South Atlantic region, prepared ArcView maps for the four-state project. These maps, which consolidate known distribution of coral, hard/live bottom, and artificial reefs as hard bottom, are available on the South Atlantic Council's online map services provided by the newly developed SAFMC Habitat and Ecosystem Atlas: http://ocean.floridamarine.org/safmc_atlas/. An introduction to the system is found at: http://www.safmc.net/ecosystem-management/mapping-and-gis-data.

Plots of the spatial distribution of offshore species were generated from Marine Resources Monitoring, Assessment, and Prediction Program (MARMAP) data. The plots serve as point confirmation of the presence of each species within the scope of the sampling program. These plots, in combination with the hard bottom habitat distributions previously mentioned, can be employed as proxies for offshore snapper grouper complex distributions in the south Atlantic region. Maps of the distribution of snapper grouper species by gear type based on MARMAP data can also be generated through the South Atlantic Council's Internet Mapping System at the above address.

3.1.3 Essential Fish Habitat

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)). Specific categories of EFH identified in the South Atlantic Bight, which are utilized by federally managed fish and invertebrate species, include both estuarine/inshore and marine/offshore areas. Specifically, estuarine/inshore EFH includes: Estuarine emergent and mangrove wetlands, submerged aquatic vegetation, oyster reefs and shell banks, intertidal flats, palustrine emergent and forested systems, aquatic beds, and estuarine water column. Additionally, marine/offshore EFH includes: live/hard bottom habitats, coral and coral reefs, artificial and manmade reefs, *Sargassum* species, and marine water column.

EFH utilized by snapper grouper species in this region 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 183 meters [600 ft (but to at least 2,000 ft for wreckfish)] where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical fish complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for survival of larvae and growth up to and including settlement. In addition, the Gulf Stream is also EFH

because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine-dependent and near shore snapper grouper species, EFH includes areas inshore of the 30 meter (100-ft) 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 habitats.

3.1.4 Habitat Areas of Particular Concern

Areas which meet the criteria for Essential Fish Habitat-Habitat Areas of Particular Concern (EFH-HAPCs) for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; 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 Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; South Atlantic Council-designated Artificial Reef Special Management Zones (SMZs); and deep-water MPAs.

Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, postlarval, juvenile, and adult stages).

In addition to protecting habitat from fishing related degradation though fishery management plan regulations, the South Atlantic Council, in cooperation with National Marine Fisheries Service (NMFS), actively comments on non-fishing projects or policies that may impact essential fish habitat. With guidance from the Habitat Advisory Panel, the South Atlantic Council has developed and approved policies on: energy exploration, development, transportation and hydropower re-licensing; beach dredging and filling and large-scale coastal engineering; protection and enhancement of submerged aquatic vegetation; alterations to riverine, estuarine and near shore flows; offshore aquaculture; and marine invasive species and estuarine invasive species.

Refer to **Appendix H** for detailed information on EFH and EFH-HAPCs for all Council managed species.

3.2 Biological and Ecological Environment

The reef environment in the South Atlantic management area affected by actions in this environmental assessment is defined by two components (**Figure 3.2.1**). Each component will be described in detail in the following sections.

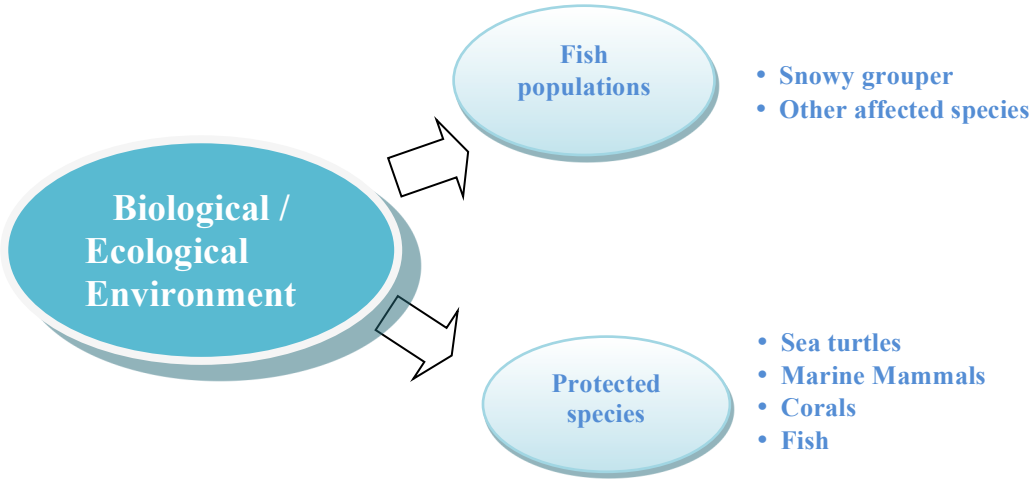

Figure 3.2.1. Two components of the biological environment described in this document.

3.2.1 Fish Populations Affected by this Amendment

The waters off the South Atlantic coast are home to a diverse population of fish. The snapper grouper fishery management unit contains 59 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. Snapper grouper species that may be affected by the proposed action include snowy grouper, blueline tilefish, yellowedge grouper, and silk snapper.

Snowy Grouper Life History
An Overview

- Extend from Massachusetts to Brazil and Mexico, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico.
- Adults live in waters ranging from 116-259 m, with juveniles documented from 46-91 m.
- May exhibit spawning aggregations.
- The spawning season extends from April through September.
- Oldest fish reported is 35 years old.

3.2.2 Snowy grouper

The snowy grouper, *Epinephelus niveatus*, is a commercially important deepwater species that occurs in the western Atlantic from Massachusetts to Brazil, including Bermuda, Cuba, the Bahamas, and the Gulf of Mexico (Carpenter 2002). Stray specimens have been collected in the Canadian Atlantic (Scott and Scott

1988). Along the coast of the southeast United States, adult snowy grouper are predominantly found on the upper continental slope (> 75 m; Lee et al. 1985) at depths of 116-259 m (Low and Ulrich 1983; Moore and Labisky 1984; Parker and Ross 1986), whereas juveniles are more common at shallower depths (Moore and Labisky 1984). Low and Ulrich (1983) and Wyanski et al. (2000) noted a positive correlation between total length (TL) and water depth off South Carolina. Snowy Grouper feed on fish, crabs and other crustaceans, squid, and snails (Heemstra and Randall 1993). Information on predators of Snowy Grouper is limited.

Snowy grouper are protogynous, where fish begin life as females, and the older and larger fish in the population are males. Female snowy grouper reach sexual maturity between the ages of 3 and 8 years (Wyanski et al. 2000), most by the age of 5 years (Moore and Labisky 1984) to 7 years (Wyanski et al. 2000). Wyanski et al. (2000) found evidence that the number of males in the population decreased between the 1970s and the 1990s off North Carolina and South Carolina, which may have been a function of the removal of older and larger snowy grouper through fishing pressure. The maximum age of snowy grouper reported by Wyanski et al. (2013) is 35 years. The spawning season for snowy grouper is from April through September (Wyanski et al. 2000, 2013). Snowy grouper are slow growing, with the estimates of 'k' in the von Bertalanffy growth model ranging from 0.07 to 0.12 in life history studies (Matheson and Huntsman 1984; Moore and Labisky 1984; Wyanski et al. 2000). Snowy grouper can reach a size of 1.2 m (4 ft) in length and 30 kg (66 lb) in weight (Heemstra and Randall 1993). SEDAR 36 (2013) determined natural mortality (M) = 0.12, is constant over time, but decreases with age. Most fishing for this species occurs in habitats characterized by rocky ledges, cliffs, and swift currents (Matheson and Huntsman 1984). Snowy grouper in the South Atlantic Region are harvested by hook-and-line gear and bottom longline gear. The use of bottom longline gear is prohibited shallower than 50 fathoms (91.4 m) and south of 27°10' N. lat. (due east of the entrance to St. Lucie Inlet, FL) in the waters under the South Atlantic Council's jurisdiction.

3.2.3 The Stock Assessment Process and Stock Status of Snowy Grouper

SEDAR is a cooperative Fishery Management Council process initiated to improve the quality and reliability of fishery stock assessments in the South Atlantic, Gulf of Mexico, and U.S. Caribbean. The Caribbean, Gulf of Mexico, and South Atlantic Fishery Management Councils manage SEDAR in coordination with the National Marine Fisheries Service (NMFS) and the Atlantic and Gulf States Marine Fisheries Commissions. 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 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 South Atlantic

Council's Scientific and Statistical Committee (SSC). The SSC considers whether the assessment represents the best scientific information available and develops fishing level recommendations for South Atlantic Council consideration.

SEDAR workshops are public meetings organized by SEDAR. Workshop participants appointed by the lead Council are drawn from state and federal agencies, non-government organizations, Council members, Council advisors, and the fishing industry with a goal of including a broad range of disciplines and perspectives. All participants are expected to contribute to this scientific process by preparing working papers, contributing data, providing assessment analyses, evaluating and discussing information presented, and completing the workshop report.

In 2004, the snowy grouper stock was first assessed through SEDAR as a benchmark assessment (SEDAR 2004). That assessment (SEDAR-4) applied a statistical catch-age model to data through 2002. Recreational landings from the Florida Keys were not included because there was no way to post-stratify them into Atlantic and Gulf Council areas. The results indicated that fishing mortality first exceeded F_{MSY} in the mid-1970s, and overfishing continued through the end of the assessment period. During that time, the population declined to levels below SSB_{MSY} starting in the early 1980s. SEDAR-4 concluded that the stock was overfished and experiencing overfishing in 2002. $SSB_{2002}/SSB_{MSY} = 0.18$ and $F_{current}/F_{MSY} = 3.08$.

In 2013, the snowy grouper stock was assessed through SEDAR as a standard assessment (SEDAR 36 2013). That assessment (SEDAR 36) applied a statistical catch-age model to data through 2012. Recreational landings from the Florida Keys were included using a post-stratification methodology to separate Florida West Coast landings into those from the Atlantic and Gulf of Mexico areas. The results were reviewed by the South Atlantic Council's Scientific and Statistical Committee (SSC) in April 2014, and their report was presented to the South Atlantic Council in June 2014. The SSC determined that the snowy grouper stock is not undergoing overfishing, is rebuilding, and remains overfished. The SSC recommended an acceptable biological catch equal to the yield at $75\%F_{MSY}$, and an overfishing limit equal to the yield at F_{MSY}. The following is taken directly from the SEDAR 36 assessment report (page 8):

"Results suggest that spawning stock declined until the mid-1990s and then increased gradually over the last decade. The terminal (2012) base-run estimate of spawning stock was below SSB_{MSY} ($SSB_{2012}/SSB_{MSY} = 0.49$), as was the median estimate ($SSB_{2012}/SSB_{MSY} = 0.38$), indicating that the **stock remains overfished**. The estimated fishing rate has exceeded the MFMT (represented by F_{MSY}) for most of the assessment period, but only once in the last six years. This one overage occurred in 2012, when the recreational fleet exceeded its quota. Still, the terminal estimate, which is based on a three-year geometric mean, is below F_{MSY} in the case of the base run ($F_{2010–2012}/F_{MSY} = 0.59$) and the median ($F_{2010–2012}/F_{MSY} = 0.70$). Thus, this assessment indicates that the stock has not yet recovered to its biomass target, but is **no longer experiencing overfishing**."

Table 3.2.1 summarizes the results of the most recent stock assessment for snowy grouper, as well as the status determination criteria for this species. The South Atlantic Council, through Regulatory Amendment 20, intends to implement management measures to prevent overfishing and rebuild the snowy grouper stock. See **Appendix D** for a history of management of snowy grouper.

Table 3.2.1. Stock status of snowy grouper.

	SEDAR 36 (2012 most recent data)
Overfishing ($F_{2010\text{-}2012}/F_{MSY}$)	No (0.59)
Overfished ($SSBF_{2012}$/MSST(75%))	Yes (0.65)
F_{MSY} (proxy for MFMT)	0.14
MSY	418,600 pounds whole weight (lbs ww)
MSST	1,442,264 lbs ww
OFL*	216,894 lbs ww in 2015 229,595 lbs ww in 2016 242,296 lbs ww in 2017 253,043 lbs ww in 2018 265,744 lbs ww in 2019
ABC**	164,136 lbs ww in 2015 178,791 lbs ww in 2016 192,469 lbs ww in 2017 205,170 lbs ww in 2018 218,848 lbs ww in 2019

*OFL at equilibrium = 418,600 lbs ww. OFL values for the years 2015 through 2019 are from Table 21 in SEDAR 36 in SEDAR 36, and is based in the yield at F_{MSY}.
** ABC values for the years 2015 through 2019 are from Table 22 in SEDAR 36, and is based in the yield at 75%F_{MSY}. Reported total removals reported here are median values multiplied by 0.997 to reduce total removals to landings only (as reported in SEDAR 36).

Snowy Grouper is listed as vulnerable to extinction by the International Union for the Conservation of Nature (IUCN) due to inferred large population declines throughout the species' distribution in the western Atlantic Ocean (Thierry et al. 2008).

3.2.4 Other Affected Species

Species that co-occur with the species considered in this amendment are snowy grouper, blueline tilefish, yellowedge grouper, and silk snapper (SAFMC 2011c). Golden tilefish, sand tilefish, misty grouper, queen snapper, black snapper, and blackfin snapper are all part of the deepwater complex, but are not as closely associated with snowy grouper with regard to life history, habitat, etc. Non-target species like mackerels, sharks, and dolphin could also be caught by fishers targeting snowy grouper (SAFMC 2010b).

For details on the life histories and ecology of co-occurring species, the reader is referred to Volume II of the Fishery Ecosystem Plan (SAFMC 2009b) available at: http://www.safmc.net/ecosystem-management/fishery-ecosystem-plan-1.

Blueline tilefish was assessed in 2013 (SEDAR 32). Warsaw grouper and yellowedge grouper were included in the SEDAR 4 stock assessment in 2004, but the results were inconclusive due to infrequent landings and lack of life-history data. There is no SEDAR stock assessment for silk snapper.

3.2.5 Protected Species

There are 49 species, or distinct population segments (DPSs) of species, protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act (MMPA) (Wynne and Schwartz 1999, Waring et al. 2013). 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) classifies U.S. commercial fisheries into three categories based on the number of incidental mortality or serious injury they cause to marine mammals. More information about the LOF and the classification process can be found at: http://www.nmfs.noaa.gov/pr/interactions/lof/.

Six of the marine mammal species (sperm, sei, fin, blue, humpback, and North Atlantic right whales) protected by the MMPA, are also listed as endangered under the Endangered Species Act (ESA). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp's ridley, leatherback, and loggerhead); the smalltooth sawfish; five DPSs of Atlantic sturgeon; and six species of coral [elkhorn coral (*Acropora palmata*), staghorn coral (*A. cervicornis*) ("*Acropora*" collectively); lobed star coral (*Orbicella annularis*), mountainous star coral (*O. faveolata*), and knobby star coral (*O. franksi*) ("*Orbicella*" collectively); and rough cactus coral (*Mycetophylia ferox*)] are also protected under the ESA.

Portions of designated critical habitat for North Atlantic right whales, the Northwest Atlantic (NWA) DPS of loggerhead sea turtles, and *Acropora* corals occur within the South Atlantic Council's jurisdiction. NMFS has conducted specific analyses ("Section 7 consultations") to evaluate the potential adverse effects from the South Atlantic snapper grouper fishery on species and critical habitat protected under the ESA. Summaries of those consultations and their determination are in **Appendix C**. Those consultations indicate that of the species listed above, sea turtles and smalltooth sawfish are the most likely to interact with the hook-and-line portion of the snapper grouper fishery via incidental capture. Information on these sea turtles and smalltooth sawfish and how they are adversely affected by the snapper grouper fishery are discussed below.

3.2.5.1 ESA-Listed Sea Turtles

Green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles are all highly migratory and travel widely throughout the South Atlantic. The following sections are a brief overview of the general life history characteristics of the sea turtles found in the South Atlantic region. Several volumes exist that cover the biology and ecology of these species more thoroughly (i.e., Lutz and Musick (eds.) 1997, Lutz et al. (eds.) 2002).

Green sea turtle hatchlings are thought to occupy pelagic areas of the open ocean and are often associated with *Sargassum* rafts (Carr 1987, Walker 1994). Pelagic stage green sea turtles are thought to be carnivorous. Stomach samples of these animals found ctenophores and pelagic snails (Frick 1976, Hughes 1974). At approximately 20 to 25 cm carapace length, juveniles migrate from pelagic habitats to benthic foraging areas (Bjorndal 1997). As juveniles move into benthic foraging areas a diet shift towards herbivory occurs. They consume primarily seagrasses and algae, but are also know to consume jellyfish, salps, and sponges (Bjorndal 1980, 1997; Paredes 1969; Mortimer 1981, 1982). The diving abilities of all sea turtles species vary by their life stages. The maximum diving range of green sea turtles is estimated at 110 m (360 ft) (Frick 1976), but they are most frequently making dives of less

than 20 m (65 ft.) (Walker 1994). The time of these dives also varies by life stage. The maximum dive length is estimated at 66 minutes with most dives lasting from 9 to 23 minutes (Walker 1994).

The **hawksbill's** pelagic stage lasts from the time they leave the nesting beach as hatchlings until they are approximately 22-25 cm in straight carapace length (Meylan 1988, Meylan and Donnelly 1999). The pelagic stage is followed by residency in developmental habitats (foraging areas where juveniles reside and grow) in coastal waters. Little is known about the diet of pelagic stage hawksbills. Adult foraging typically occurs over coral reefs, although other hard-bottom communities and mangrove-fringed areas are occupied occasionally. Hawksbills show fidelity to their foraging areas over several years (Van Dam and Diéz 1998). The hawksbill's diet is highly specialized and consists primarily of sponges (Meylan 1988). Gravid females have been noted ingesting coralline substrate (Meylan 1984) and calcareous algae (Anderes Alvarez and Uchida 1994), which are believed to be possible sources of calcium to aid in eggshell production. The maximum diving depths of these animals are not known, but the maximum length of dives is estimated at 73.5 minutes. More routinely, dives last about 56 minutes (Hughes 1974).

Kemp's ridley hatchlings are also pelagic during the early stages of life and feed in surface waters (Carr 1987, Ogren 1989). Once the juveniles reach approximately 20 cm carapace length they move to relatively shallow (less than 50m) benthic foraging habitat over unconsolidated substrates (Márquez-M. 1994). They have also been observed transiting long distances between foraging habitats (Ogren 1989). Kemp's ridleys feeding in these nearshore areas primarily prey on crabs, though they are also known to ingest mollusks, fish, marine vegetation, and shrimp (Shaver 1991). The fish and shrimp Kemp's ridleys ingest are not thought to be a primary prey item but instead may be scavenged opportunistically from bycatch discards or from discarded bait (Shaver 1991). Given their predilection for shallower water, Kemp's ridleys most routinely make dives of 50 m or less (Soma 1985, Byles 1988). Their maximum diving range is unknown. Depending on the life stage, a Kemp's ridley may be able to stay submerged anywhere from 167 minutes to 300 minutes, though dives of 12.7 minutes to 16.7 minutes are much more common (Soma 1985, Mendonca and Pritchard 1986, Byles 1988). Kemp's ridleys may also spend as much as 96% of their time underwater (Soma 1985, Byles 1988).

Leatherbacks are the most pelagic of all ESA-listed sea turtles and spend most of their time in the open ocean. Although they will enter coastal waters and are seen over the continental shelf on a seasonal basis to feed in areas where jellyfish are concentrated. Leatherbacks feed primarily on cnidarians (medusae, siphonophores) and tunicates. Unlike other sea turtles, leatherbacks' diets do not shift during their life cycles. Because leatherbacks' ability to capture and eat jellyfish is not constrained by size or age, they continue to feed on these species regardless of life stage (Bjorndal 1997). Leatherbacks are the deepest diving of all sea turtles. It is estimated that these species can dive in excess of 1000 m (Eckert et al. 1989) but more frequently dive to depths of 50 m to 84 m (Eckert et al. 1986). Dive times range from a maximum of 37 minutes to more routines dives of 4 to 14.5 minutes (Standora et al. 1984, Eckert et al. 1986, 1989; Keinath and Musick 1993). Leatherbacks may spend 74% to 91% of their time submerged (Standora et al. 1984).

Loggerhead hatchlings forage in the open ocean and are often associated with *Sargassum* rafts (Hughes 1974, Carr 1987, Walker 1994, Bolten and Balazs 1995). The pelagic stage of these sea turtles are known to eat a wide range of things including salps, jellyfish, amphipods, crabs, syngnathid fish, squid, and pelagic snails (Brongersma 1972). Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to live in coastal inshore and

nearshore waters of the continental shelf throughout the U.S. Atlantic (Witzell 2002). Here they forage over hard- and soft-bottom habitats (Carr 1986). Benthic foraging loggerheads eat a variety of invertebrates with crabs and mollusks being an important prey source (Burke et al. 1993). Estimates of the maximum diving depths of loggerheads range from 211 m to 233 m (692-764ft.) (Thayer et al. 1984, Limpus and Nichols 1988). The lengths of loggerhead dives are frequently between 17 and 30 minutes (Thayer et al. 1984, Limpus and Nichols 1988, Limpus and Nichols 1994, Lanyon et al. 1989) and they may spend anywhere from 80 to 94% of their time submerged (Limpus and Nichols 1994, Lanyon et al. 1989).

3.2.5.2 ESA-Listed Marine Fish

Historically the **smalltooth sawfish** in the U.S. ranged from New York to the Mexico border. Their current range is poorly understood but believed to have contracted from these historical areas. In the South Atlantic region, they are most commonly found in Florida, primarily off the Florida Keys (Simpfendorfer and Wiley 2004). Only two smalltooth sawfish have been recorded north of Florida since 1963 (the first was captured off North Carolina in 1963 and the other off Georgia in 2002 (National Smalltooth Sawfish Database, Florida Museum of Natural History)). Historical accounts and recent encounter data suggest that immature individuals are most common in shallow coastal waters less than 25 meters (Bigelow and Schroeder 1953, Adams and Wilson 1995), while mature animals occur in waters in excess of 100 meters (Simpfendorfer pers. comm. 2006). Smalltooth sawfish feed primarily on fish. Mullet, jacks, and ladyfish are believed to be their primary food resources (Simpfendorfer 2001). Smalltooth sawfish also prey on crustaceans (mostly shrimp and crabs) by disturbing bottom sediment with their saw (Norman and Fraser 1938, Bigelow and Schroeder 1953).

3.3 Socio-economic Environment

3.3.1 Economic Description of the Commercial Sector

The South Atlantic Fishery Management Council manages 6 key species groups, in addition to *Sargassum* and coral/coral reefs. The distributions of commercial landings and dockside revenues for these 6 species groups over a 5-year period from 2009 through 2013 are presented in **Figure 3.3.1.1** and **Figure 3.3.1.2**. The 2013 landings for most species groups are preliminary. The snapper grouper complex accounted for the highest percentage of commercial landings (gw) at 39% followed by coastal migratory pelagics at 37% and spiny lobster at 14%. The rest of the species groups represented 10% of commercial landings. In terms of dockside revenues (2013 $), the snapper grouper complex represented the highest share at 38%, followed by spiny lobster at 33%, with coastal migratory pelagics ranking third at 19%.

Within the snapper grouper fishery, snappers ranks first by both weight and revenue (**Figure 3.3.1.3** and **Figure 3.3.1.4**). Sea basses and groupers ranks second by both weight and revenue. Jacks ranks third by weight but falls to fourth place behind tilefishes in terms of revenues. Tilefishes ranks fourth by weight and third by revenues.

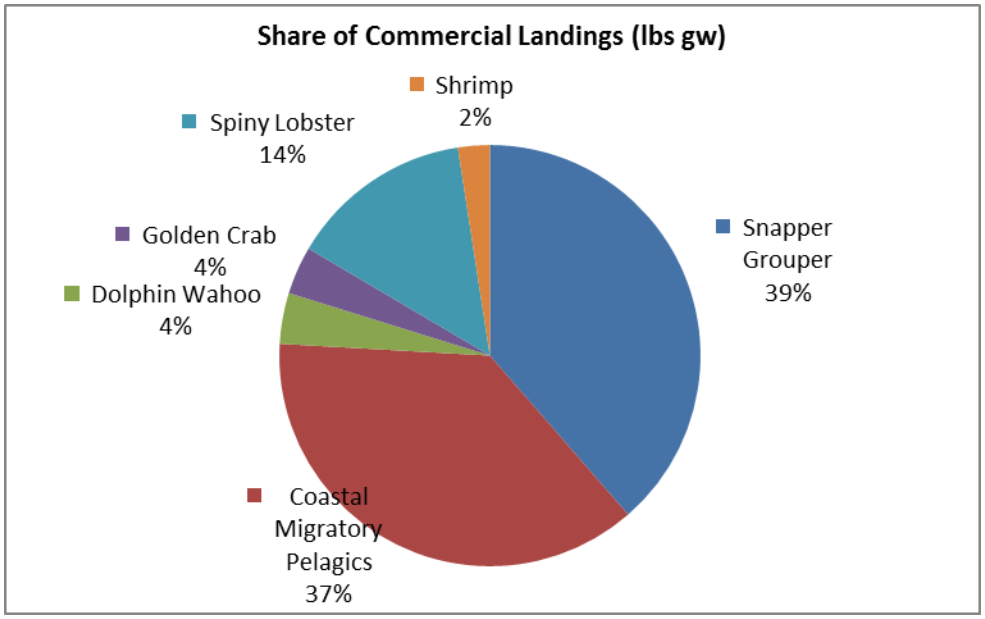

Figure 3.3.1.1. Share of commercial landings (lbs gw) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009 – 2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

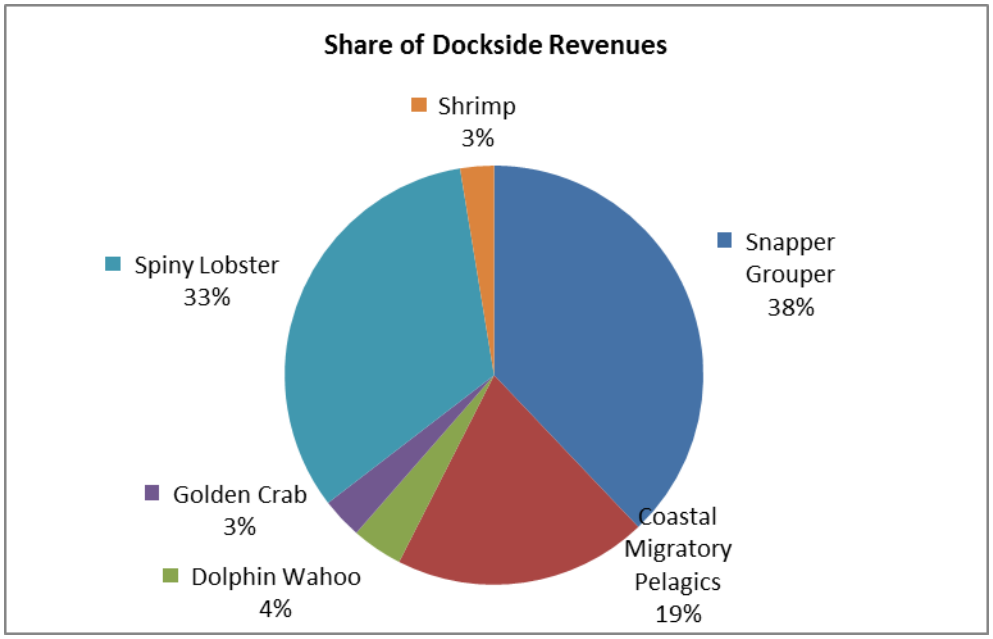

Figure 3.3.1.2. Share of dockside revenues ($) by categories of species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

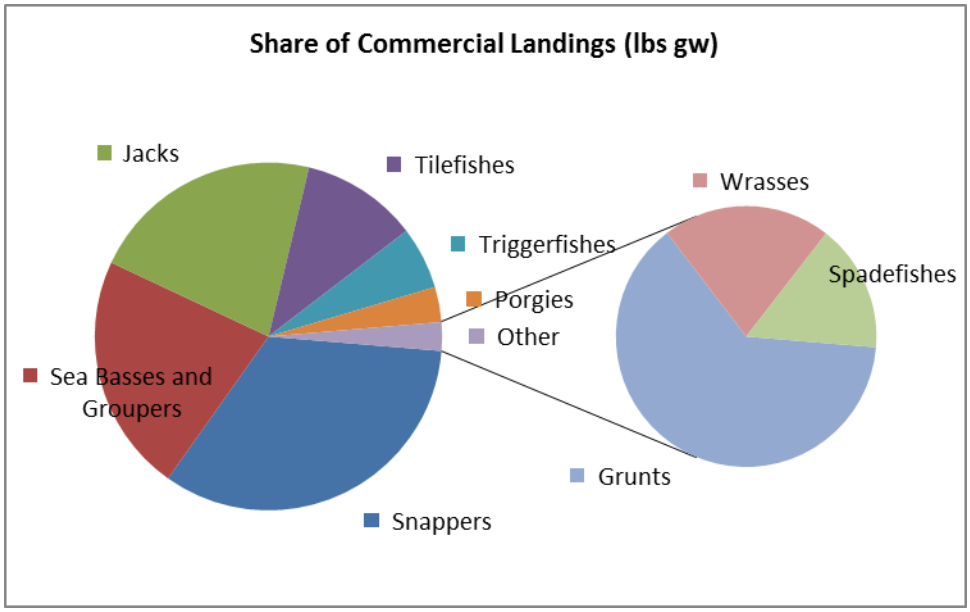

Figure 3.3.1.3. Share of commercial landings (lbs gw) by group of snapper grouper species managed by the South Atlantic Fishery Management Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

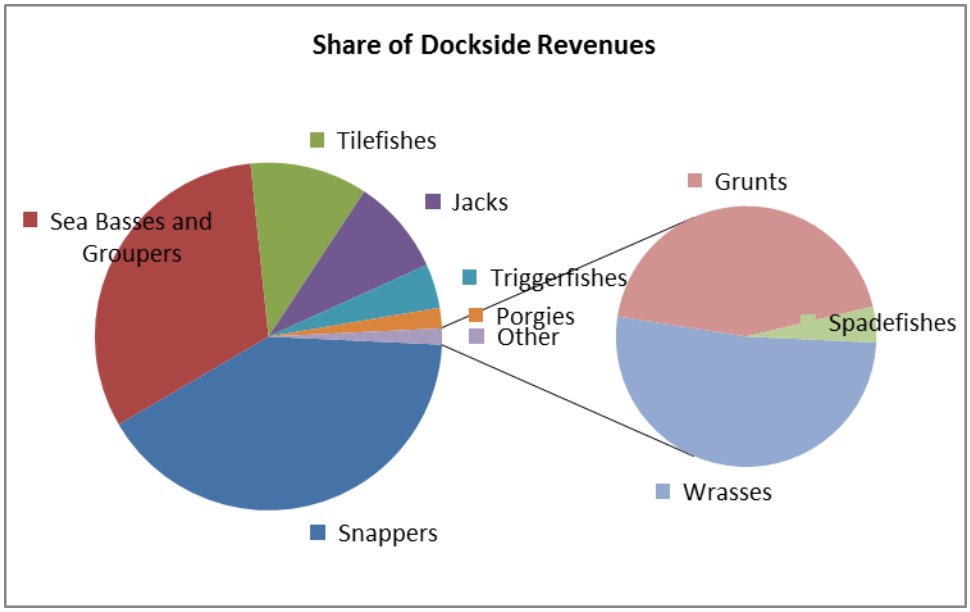

Figure 3.3.1.4. Share of dockside revenues ($) by group of snapper grouper species managed by the South Atlantic Council, 5-year period from 2009–2013.
Source: SEFSC Commercial ACL Dataset, excluding confidential data.

Any fishing vessel that harvests and sells any of the snapper grouper species from the South Atlantic EEZ must have a valid South Atlantic commercial snapper grouper permit, which is a limited access permit. There are currently 547 valid South Atlantic Snapper Grouper Unlimited Permits and 117 valid 225 lbs Trip Limited Permits (**Table 3.3.1.1**). After a permit expires, it can be renewed and transferred up to one year after it expires. The numbers of valid and transferrable/renewable permits have declined

since 2009, from 640 to 593 for the unlimited permits and from 144 to 130 for the limited permits (**Table 3.3.1.2**).

Table 3.3.1.1. Valid and transferrable/renewable South Atlantic commercial snapper grouper permits as of January 30, 2014.

South Atlantic S-G Permits	Unlimited lbs	225 lbs
Valid	547	117
Transferrable/Renewable	22	8
Total	569	125

Source: NMFS SERO PIMS, 2014.

Table 3.3.1.2. Number of South Atlantic commercial snapper grouper permits.

	Unlimited	Limited 225 lbs
2009	640	144
2010	624	139
2011	569	126
2012	558	123
2013	593	130
Average	597	132

Source: NMFS SERO PIMS, 2014.

The following focuses on commercial landings and revenues for snowy grouper. Total landings and revenues are based on the SEFSC Commercial ACL Dataset, as summarized by SERO-LAPP, while vessel-level landings and revenues are based on the SEFSC Coastal Fisheries Logbook Dataset. Landings from the logbook program do not include all landings shown from the ACL database due to landings by fishermen who do not have the federal snapper grouper permit and are not required to complete the logbook; non-reporting in the logbook program is also an issue. Additional information on commercial landings and fishing for the snapper grouper fishery can be found in previous amendments [Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Regulatory Amendment 9 (SAFMC 2011a), and Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c)] and is incorporated herein by reference.

Snowy grouper is within the sea basses and groupers group of the snapper grouper fishery. From 2009 through 2013, snowy grouper's 5-year commercial landings ranked 19th by weight and 13th by revenue among the 59 species within the snapper grouper complex. Annual commercial landings of snowy grouper in the South Atlantic ranged from about 37,000 lbs gw to 89,000 lbs gw from 2009 through 2013, and dockside revenues from those landings ranged from about $150,000 to $370,000 (2013 $) (**Figure 3.3.1.5**; **Table 3.3.1.3**). The average dockside price during those five years was $4.15 per pound gw (2013$). Commercial landings of snowy grouper peaked in 2012 and troughed in 2011 by both weight and revenue.

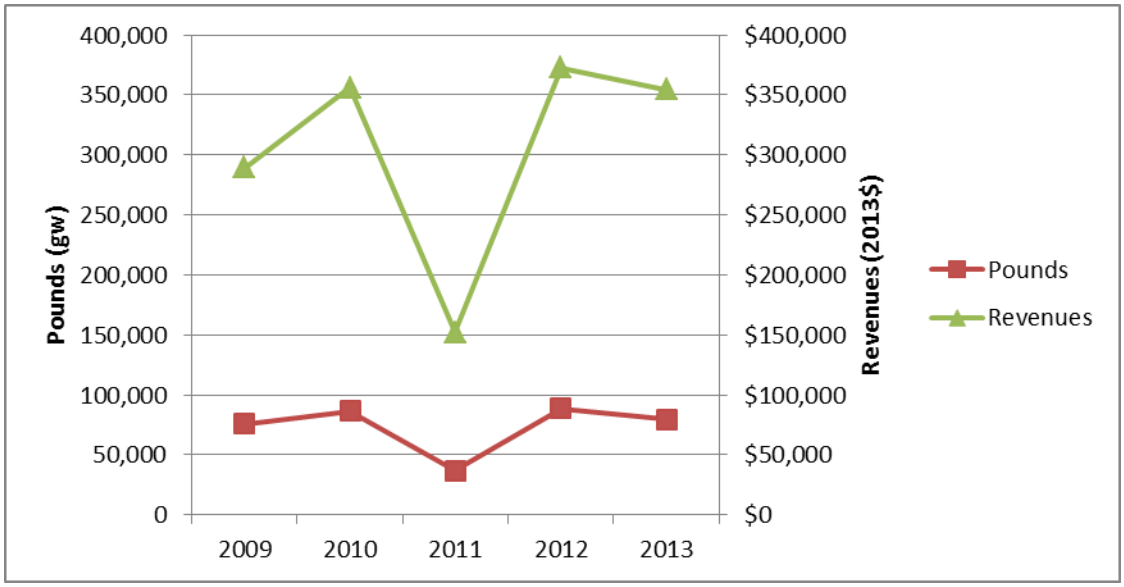

Figure 3.3.1.5. Annual commercial landings of snowy grouper by weight (lbs gw) and dockside revenue (2013 $). Source: SEFSC Commercial ACL Dataset; SERO-LAPP.

The commercial fishing season for snowy grouper is January 1 through December 31. The commercial ACL for snowy grouper has been 82,900 lbs gw since 2009. Although the ACL was exceeded in 2010 and 2012, it was only in 2013 that a fishery closure was implemented when the commercial ACL was reached in October.

Table 3.3.1.3 shows the snowy grouper landings and dockside revenues by state. For a visual comparison of landings and revenues by state, **Figures 3.3.1.6** and **3.3.1.7** were developed from data shown in **Table 3.3.1.3**. Florida and Georgia landings and revenues were combined to avoid confidentiality issues.

Among the South Atlantic states, Florida/Georgia ranks first in snowy grouper landings by both weight and dockside revenue, followed by North Carolina and South Carolina (**Figure 3.3.1.6** and **Figure 3.3.1.7**). The year 2011 was an exception when South Carolina registered higher landings by both weight and revenue than North Carolina. The Florida/Georgia area accounted approximately from over 40% to over 70% of all snowy grouper landings by both weight and revenue over the 5-year period.

Average monthly distribution of landings and dockside revenues for the years 2009 through 2013 is shown in **Figure 3.3.1.8**. Seasonality characterizes the landings and dockside revenues for snowy grouper. Average landings and revenues peaked in June and were lowest in December.

Table 3.3.1.3. Snowy grouper landings (lbs gw) and dockside revenues (2013 $) by state, 2009-2013.

	Florida/Georgia	North Carolina	South Carolina	Total
Landings (lbs gw)				
2009	38,427	27,918	9,269	75,614
2010	42,369	30,069	14,209	86,648
2011	14,939	7,634	14,269	36,842
2012	48,631	21,823	18,436	88,889
2013	46,369	17,187	15,837	79,393
Average	38,147	20,926	14,404	73,477
Dockside Revenues (2013 $)				
2009	$148,141	$102,101	$39,297	$289,539
2010	$179,766	$114,011	$62,068	$355,844
2011	$65,650	$25,558	$61,004	$152,211
2012	$214,266	$79,376	$79,214	$372,856
2013	$210,059	$72,066	$72,476	$354,601
Average	$163,576	$78,622	$62,812	$305,010

Source: SEFSC Commercial ACL Dataset; SERO-LAPP.

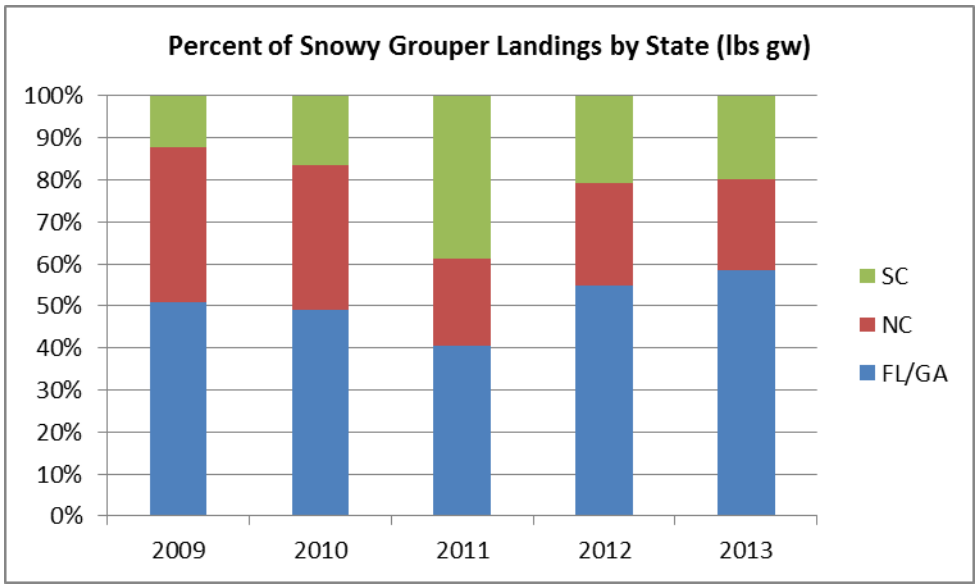

Figure 3.3.1.6. Percent of snowy grouper landings (lbs gw) by state, 2009–2013.
Source: SEFSC Commercial ACL Dataset; SERO-LAPP.

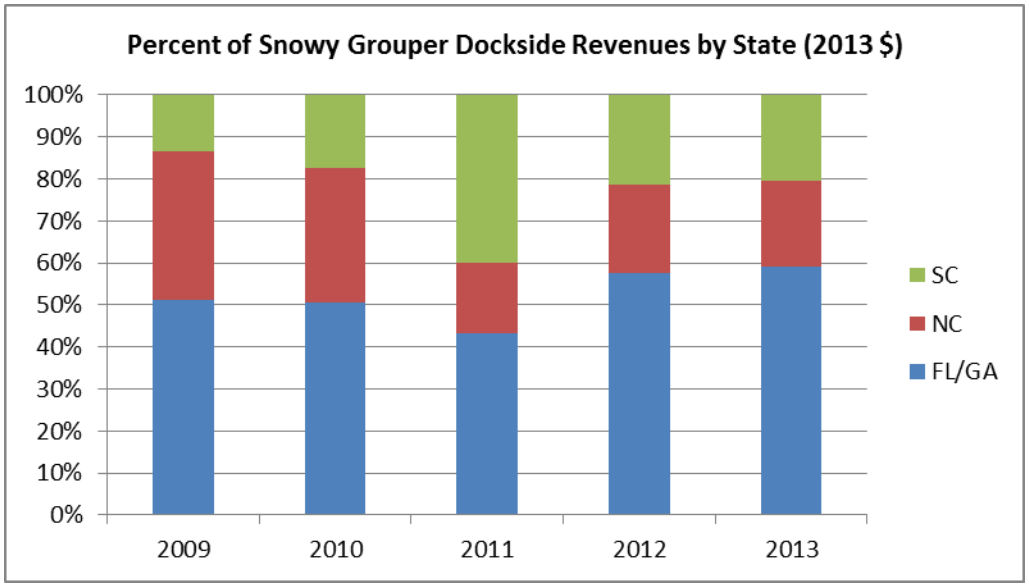

Figure 3.3.1.7. Percent of snowy grouper dockside revenues (2013 $) by state, 2009–2013.
Source: SEFSC Commercial ACL Dataset; SERO-LAPP.

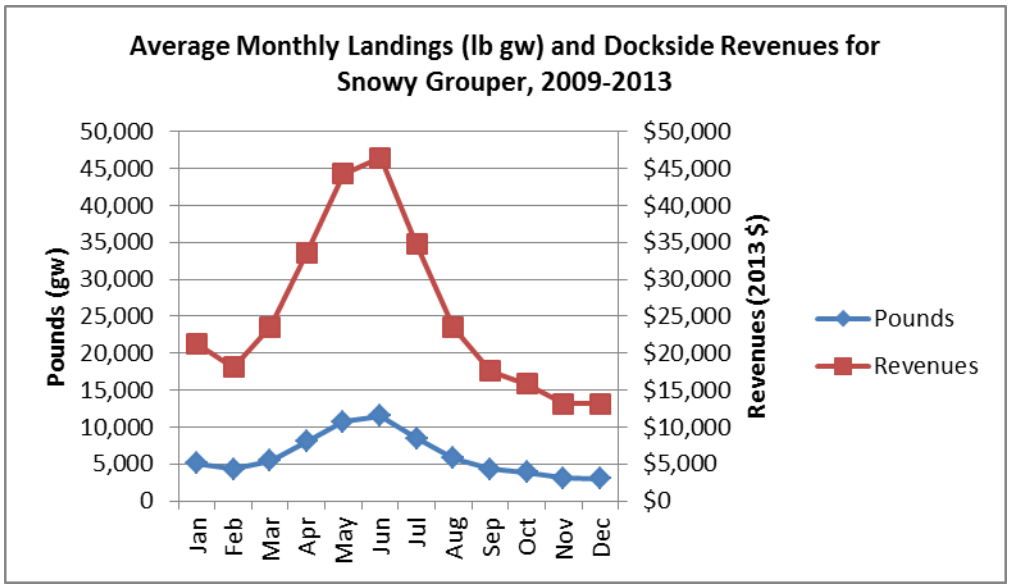

Figure 3.3.1.8. Average monthly landings (lbs gw) and dockside revenues (2013 $), 2009–2013.
Source: SEFSC Commercial ACL Dataset; SERO-LAPP.

From 2009 through 2013, an annual average of 138 vessels took 935 commercial trips that combined landed an average of 70,218 lbs gw of snowy grouper annually with a dockside value (2013 dollars) of $284,024 (**Table 3.3.1.4**). The average trip with landings of the species sold approximately 75 lbs gw of snowy grouper yielding average dockside revenue of $304. Average annual dockside revenue from snowy grouper landings represented approximately 9% of total dockside revenue from trips that landed snowy grouper from 2009 through 2013.

Table 3.3.1.4. Vessels and trips with snowy grouper landings by weight (lbs gw) and dockside revenue (2013 $), 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lbs gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lbs gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	151	1,057	66,013	$254,473	1,091,322	$2,742,902	$2,997,376
2010	134	1,088	74,693	$298,355	969,160	$2,467,975	$2,766,330
2011	112	592	35,472	$148,354	781,586	$2,174,886	$2,323,240
2012	128	1,080	80,490	$338,892	829,793	$2,283,829	$2,622,721
2013	166	856	94,425	$380,047	1,486,015	$4,730,487	$5,110,534
Average	138	935	70,218	$284,024	1,031,575	$2,880,016	$3,164,040

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

On average, the vessels that harvested snowy grouper also took 3,412 trips per year without snowy grouper landings (**Figure 3.3.1.9**). The 935 average annual trips that these vessels took with snowy grouper landings represented approximately 22% of the average of all annual commercial trips of those vessels in the South Atlantic region from 2009 through 2013.

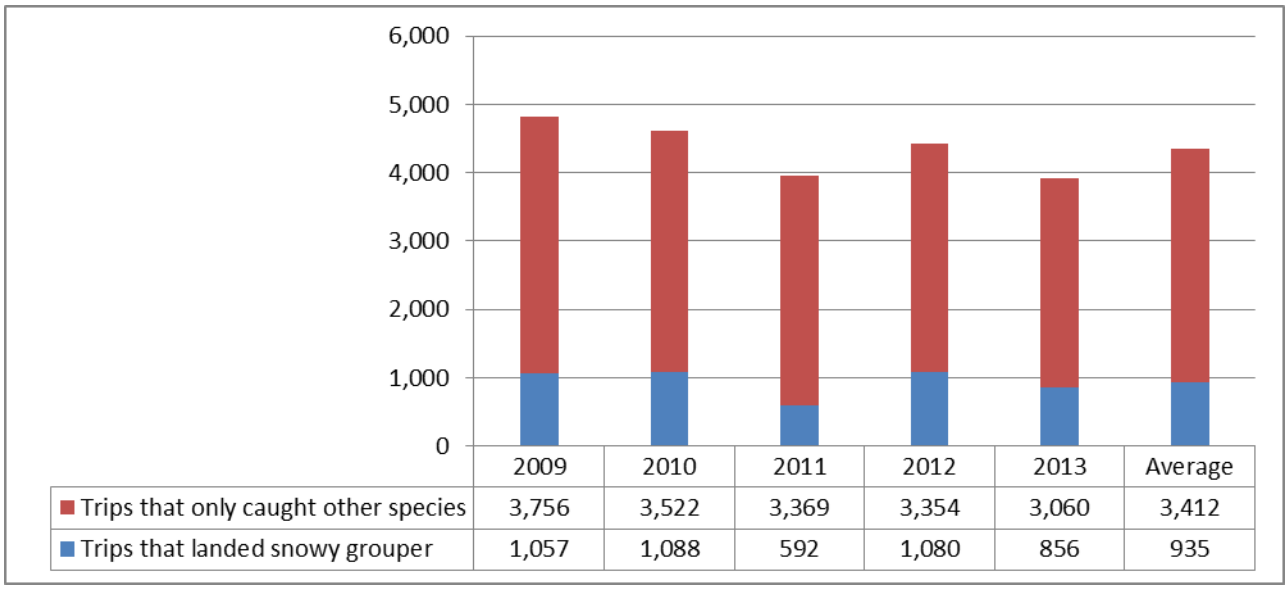

Figure 3.3.1.9. All annual trips by vessels that landed snowy grouper, 2009–2013.
Source: SEFSC Coastal Fisheries Logbook.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper was about $77,860 (2013 $) (**Table 3.3.1.5**). Annual dockside revenue from snowy grouper landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2013. Average annual dockside revenue per vessel from all landings was $77,860 as compared to $2,058 per vessel from snowy grouper only.

Table 3.3.1.5. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	151	$254,473	$2,742,902	$7,291,820	$10,289,196	$68,140
2010	134	$298,355	$2,467,975	$7,260,791	$10,027,121	$74,829
2011	112	$148,354	$2,174,886	$7,055,797	$9,379,037	$83,741
2012	128	$338,892	$2,283,829	$6,819,137	$9,441,858	$73,765
2013	166	$380,047	$4,730,487	$9,634,449	$14,744,983	$88,825
Average	138	$284,024	$2,880,016	$7,612,399	$10,776,439	$77,860

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

The following 6 tables present a state-by-state breakdown of vessel-level information for vessels landing snowy grouper. As in the previous tables, Florida and Georgia landings/revenues are combined to avoid confidentiality issues.

In Florida/Georgia, from 2009 through 2013, an annual average of 65 vessels took 456 commercial trips that combined landed an average of 37,857 lbs gw of snowy grouper annually with a dockside value (2013 dollars) of $157,631 (**Table 3.3.1.6**). These numbers represent about 47% of all vessels, 49% of all trips, 54% of all landings, and 55% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in Florida/Georgia was about $74,034 (2013 $) (**Table 3.3.1.7**). This is about 5% lower than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 3% of the total dockside revenue from all commercial landings from 2009 through 2013. This is about the same percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.6. Vessels and trips with snowy grouper landings by weight (lbs gw) and dockside revenue (2013 $) in Florida/Georgia, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lbs gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lbs gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	67	507	31,537	$122,032	227,950	$585,467	$707,500
2010	56	538	38,056	$152,670	205,243	$459,464	$612,134
2011	49	233	13,646	$61,142	132,071	$275,671	$336,813
2012	62	568	44,721	$197,106	194,852	$463,826	$660,932
2013	91	435	61,325	$255,203	882,288	$3,092,914	$3,348,117
Average	65	456	37,857	$157,631	328,481	$975,468	$1,133,099

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.7. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in Florida/Georgia, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	67	$122,032	$585,467	$2,477,068	$3,184,567	$47,531
2010	56	$152,670	$459,464	$3,193,551	$3,805,684	$67,959
2011	49	$61,142	$275,671	$3,511,914	$3,848,727	$78,545
2012	62	$197,106	$463,826	$3,547,795	$4,208,727	$67,883
2013	91	$255,203	$3,092,914	$6,503,050	$9,851,167	$108,255
Average	65	$157,631	$975,468	$3,846,675	$4,979,775	$74,034

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

In North Carolina, from 2009 through 2013, an annual average of 39 vessels took 255 commercial trips that combined landed an average of 17,209 lbs gw of snowy grouper annually with a dockside value (2013 dollars) of $62,798 (**Table 3.3.1.8**). These numbers represent about 28% of all vessels, 27% of all trips, 25% of all landings, and 22% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in North Carolina was about $68,667 (2013 $) (**Table 3.3.1.9**). This is about 12% lower than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 2.3% of the total dockside revenue from all commercial landings from 2009 through 2013. This is lower than the 3% corresponding percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.8. Vessels and trips with snowy grouper landings by weight (lbs gw) and dockside revenue (2013 $) in North Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lbs gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lbs gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	54	349	23,838	$87,170	451,646	$920,490	$1,007,661
2010	49	354	23,078	$87,101	346,442	$799,454	$886,555
2011	28	115	6,551	$21,917	156,901	$407,700	$429,617
2012	29	249	17,486	$63,572	245,007	$643,391	$706,963
2013	36	208	15,091	$54,232	177,254	$409,064	$463,296
Average	39	255	17,209	$62,798	275,450	$636,020	$698,818

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.9. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in North Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	54	$87,170	$920,490	$2,929,778	$3,937,439	$72,916
2010	49	$87,101	$799,454	$2,279,063	$3,165,617	$64,604
2011	28	$21,917	$407,700	$1,669,732	$2,099,348	$74,977
2012	29	$63,572	$643,391	$1,533,884	$2,240,847	$77,271
2013	36	$54,232	$409,064	$1,465,063	$1,928,360	$53,566
Average	39	$62,798	$636,020	$1,975,504	$2,674,322	$68,667

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

In South Carolina, from 2009 through 2013, an annual average of 34 vessels took 221 commercial trips that combined landed an average of 14,709 lbs gw of snowy grouper annually with a dockside value (2013 dollars) of $62,250 (**Table 3.3.1.10**). These numbers represent about 24% of all vessels, 24% of all trips, 21% of all landings, and 22% of all revenues for all vessels landing snowy grouper in the South Atlantic.

Combining all sources of revenues, the average annual dockside revenues of vessels that landed snowy grouper in North Carolina was about $89,536 (2013 $) (**Table 3.3.1.11**). This is about 15% higher than the average revenues per vessel of about $77,860 (2013 $) for all vessels landing snowy grouper in the South Atlantic. Annual dockside revenue from snowy grouper landings represented, on average, approximately 2% of the total dockside revenue from all commercial landings from 2009 through 2013. This is lower than the 3% corresponding percentage for all vessels landing snowy grouper in the South Atlantic.

Table 3.3.1.10. Vessels and trips with snowy grouper landings by weight (lbs gw) and dockside revenue (2013 $) in South Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Number trips that landed snowy grouper	Snowy grouper landings (lbs gw)	Dockside revenue from snowy grouper (2013 $)	'Other species' landed and jointly caught with snowy grouper (lbs gw)	Dockside revenue from 'other species' from trips with snowy grouper landings (2013 $)	Total dockside revenue (2013 $) from trips with snowy grouper landings
2009	32	201	10,638	$45,271	411,726	$1,236,944	$1,282,215
2010	31	196	13,559	$58,584	417,474	$1,209,058	$1,267,642
2011	35	244	15,274	$65,295	492,615	$1,491,515	$1,556,810
2012	38	263	18,283	$78,213	389,935	$1,176,613	$1,254,826
2013	33	201	15,792	$63,884	359,252	$1,031,504	$1,095,388
Average	34	221	14,709	$62,250	414,200	$1,229,127	$1,291,376

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

Table 3.3.1.11. Dockside revenues (2013 $) from all sources for vessels that landed snowy grouper in South Carolina, 2009–2013.

Year	Number vessels that landed snowy grouper	Dockside revenue from snowy grouper (2013 $)	Dockside revenue from 'other species' jointly landed with snowy grouper (2013 $)	Dockside revenue from 'other species' landed on trips without snowy grouper (2013 $)	Total dockside revenue (2013 $)	Average total dockside revenue per vessel (2013 $)
2009	32	$45,271	$1,236,944	$1,842,301	$3,124,516	$97,641
2010	31	$58,584	$1,209,058	$1,752,056	$3,019,698	$97,410
2011	35	$65,295	$1,491,515	$1,874,151	$3,430,961	$98,027
2012	38	$78,213	$1,176,613	$1,726,851	$2,981,677	$78,465
2013	33	$63,884	$1,031,504	$1,417,053	$2,512,441	$76,135
Average	34	$62,250	$1,229,127	$1,722,483	$3,013,859	$89,536

Source: SEFSC Coastal Fisheries Logbook for weight and NMFS ALS for revenues.

3.3.2 Economic Description of the Recreational Sector

The recreational sector of the snapper grouper fishery is comprised of the private sector and the for-hire sector. The private sector includes anglers fishing from shore (all land-based structures) and private/rental boats. The for-hire sector is composed of the charter boat and headboat (also called partyboat) sectors. Charter boats generally carry fewer passengers and charge a fee on an entire vessel basis, whereas headboats carry more passengers and payment is per person.

For-hire vessels are required to have a for-hire snapper grouper permit to fish for or possess snapper grouper species in the South Atlantic EEZ. The number of vessels with for-hire snapper grouper permits for the period 2009-2013 is provided in **Table 3.3.2.1**. This sector operates as an open access fishery and not all permitted vessels are necessarily active in the fishery. Some vessel owners may have obtained open access permits as insurance for uncertainties in the fisheries in which they currently operate.

The number of for-hire vessel permits issued for the South Atlantic snapper grouper fishery decreased from 1,852 permits in 2009 to 1,799 permits in 2013. However, the for-hire snapper grouper permits increased in 2012 and 2013. The majority of snapper grouper for-hire permitted vessels were home-ported in Florida; a relatively high proportion of these permitted vessels were also home-ported in North Carolina and South Carolina. Many vessels with South Atlantic for-hire snapper grouper permits were home-ported in states outside of the South Atlantic Council's area of jurisdiction, particularly in the Gulf states of Alabama through Texas. The number of vessels with South Atlantic for-hire snapper grouper permits home-ported in states outside of South Atlantic Council's area of jurisdiction has accounted for about the same proportion (10-11%) of the total number of permits.

Table 3.3.2.1. Number of South Atlantic for-hire snapper grouper permits, by homeport state, 2009-2013.

Home Port	2009	2010	2011	2012	2013	Average
North Carolina	349	331	330	312	307	326
South Carolina	146	145	132	138	150	142
Georgia	30	27	26	26	30	28
Florida	1,131	1,109	1,099	1,122	1,121	1,116
Gulf (AL-TX)	83	86	91	93	91	89
Others	113	114	103	106	100	107
TOTAL	1,852	1,812	1,781	1,797	1,799	1,808

Source: NMFS SERO Permits Dataset, 2014.

For-hire permits do not distinguish charter boats from headboats. Based on a 1997 survey, Holland et al. (1999) estimated that a total of 1,080 charter vessels and 96 headboats supplied for-hire services in all South Atlantic fisheries during 1997. By 2014, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 77, indicating a decrease in fleet size of approximately 20% between 1997 and 2014 (K. Brennan, Beaufort Laboratory, SEFSC, pers. comm. 2014). According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,456 current holders of South Atlantic for-hire snapper grouper permits as of May 16, 2014.

There are no specific permitting requirements for recreational anglers to harvest snapper grouper. Instead, anglers are required to possess either a state recreational fishing permit that authorizes saltwater fishing in general, or be registered in the federal National Saltwater Angler Registry system, subject to appropriate exemptions.

The following description focuses on the recreational sector for snowy grouper. Additional information on the recreational sector of the snapper grouper fishery as a whole is contained in previous or concurrent amendments and is incorporated herein by reference [see Amendment 13C (SAFMC 2006), Amendment 15A (SAFMC 2008a), Amendment 15B (SAFMC 2008b), Amendment 16 (SAFMC 2009a), Amendment 17A (SAFMC 2010a), Amendment 17B (SAFMC 2010b), Regulatory Amendment 9 (SAFMC 2011a), Regulatory Amendment 11 (SAFMC 2011b), Comprehensive ACL Amendment for the South Atlantic Region (SAFMC 2011c), and Amendment 24 (SAFMC 2011d)].

On average, the private mode dominated in the harvest of snowy grouper; however, the for-hire mode landed more snowy grouper than the private mode in 2010 and 2011 (**Figure 3.3.2.1**). Among the states, Florida/Georgia had higher average landings of snowy grouper than South/North Carolina, but the latter area had higher landings in 2010 and 2011 (**Figure 3.3.2.2**). There is an apparent seasonality in the recreational harvests of snowy grouper (**Figure 3.3.2.3**). Recreational harvests tended to increase from the first through the third wave, fell on the fourth wave, rose in the fifth wave, and fell sharply in the sixth wave. Recreational harvests of snowy grouper were lowest in January/February and highest in September/October.

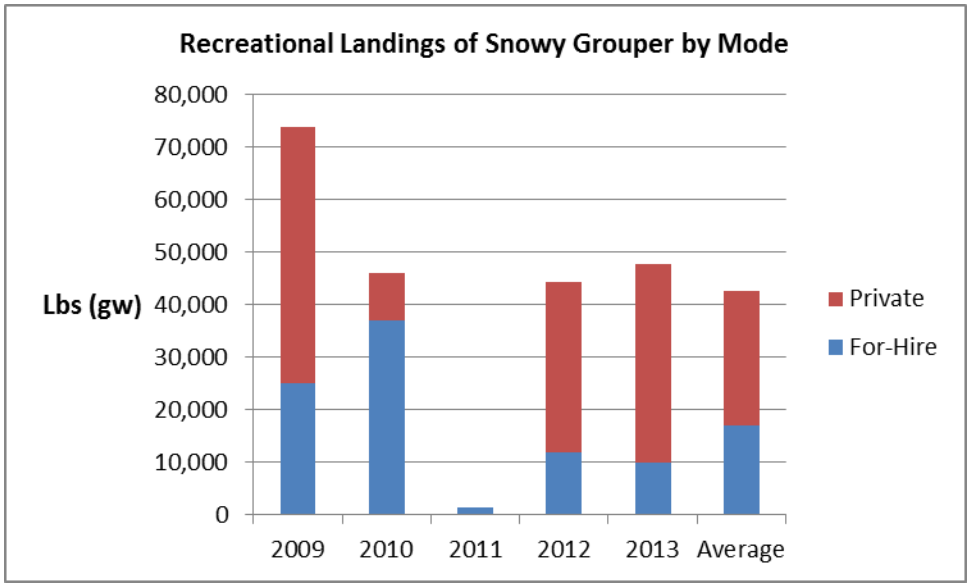

Figure 3.3.2.1. Recreational landings (gw) of snowy grouper by fishing mode, 2009-2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_06Jun14); SEFSC Headboat Survey; SERO-LAPP.

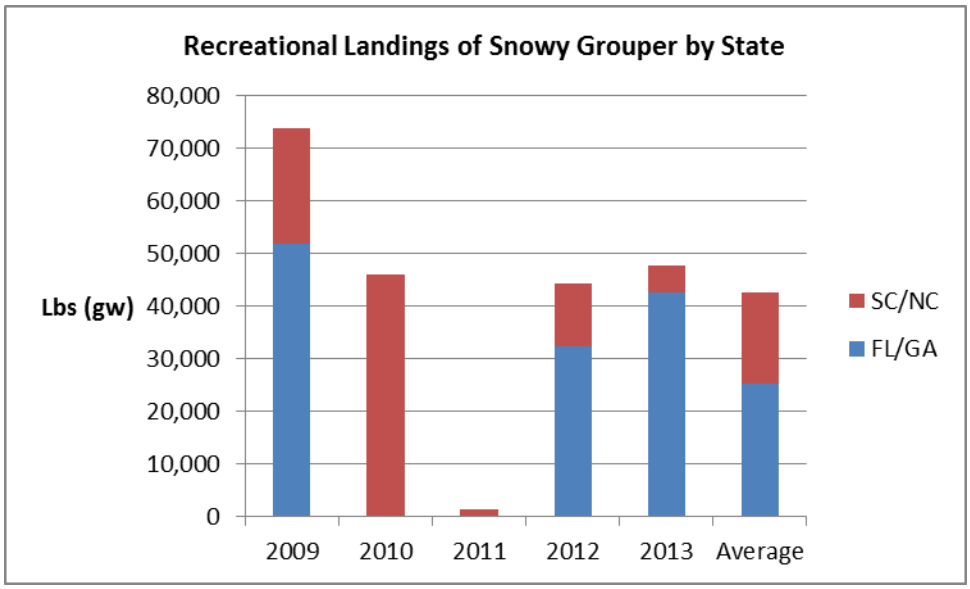

Figure 3.3.2.2. Recreational landings (gw) of snowy grouper by state, 2009-2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_06Jun14); SEFSC Headboat Survey; SERO-LAPP.

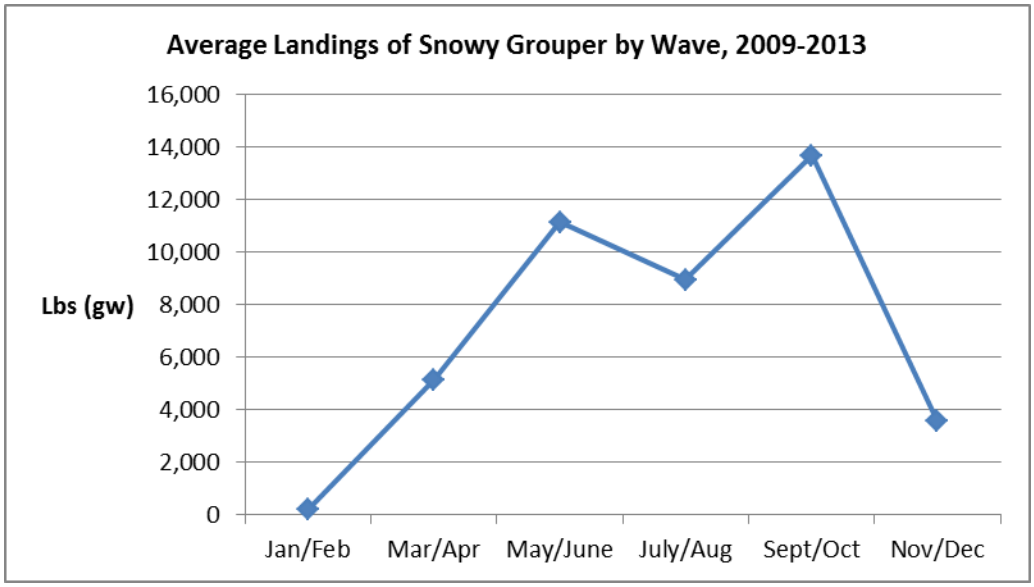

Figure 3.3.2.3. Average recreational landings (gw) of snowy grouper by wave, 2009-2013.
Source: SEFSC ACL Recreational Dataset (mrfssassess_rec81_13wv6_06Jun14); SEFSC Headboat Survey; SERO-LAPP.

Recreational effort can be characterized in terms of the number of trips as follows:

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

The source of the following target and catch trips is NOAA fisheries website for accessing recreational data: http://www.st.nmfs.noaa.gov/recreational-fisheries/access-data/run-a-data-query/index.

For the years 2009 through 2013, there have been no reported target trips for snowy grouper. Some catch trips have been recorded in certain states in the South Atlantic. Catch trips ranged from a low of about 70 trips to a high of about 2,500 trips (**Figure 3.3.2.4**). Most catch trips were made by the private mode, although the for-hire mode registered higher trips in 2010 and 2011. Florida/Georgia has been the dominant area for snowy grouper catch trips but South/North Carolina had higher trips in 2010 and 2011 (**Figure 3.3.2.5**). The apparent seasonality in catch trips has some similarities and differences with that of harvests (**Figure 3.3.2.6** vs. **Figure 3.3.2.3**). Like harvests, catch trips tended to increase from the first to the third wave, fell in the fourth wave, and rose in the fifth wave. Unlike harvests, catch trips rose in the sixth wave. In addition, harvests peaked in September/October whereas catch trips peaked in May/June.

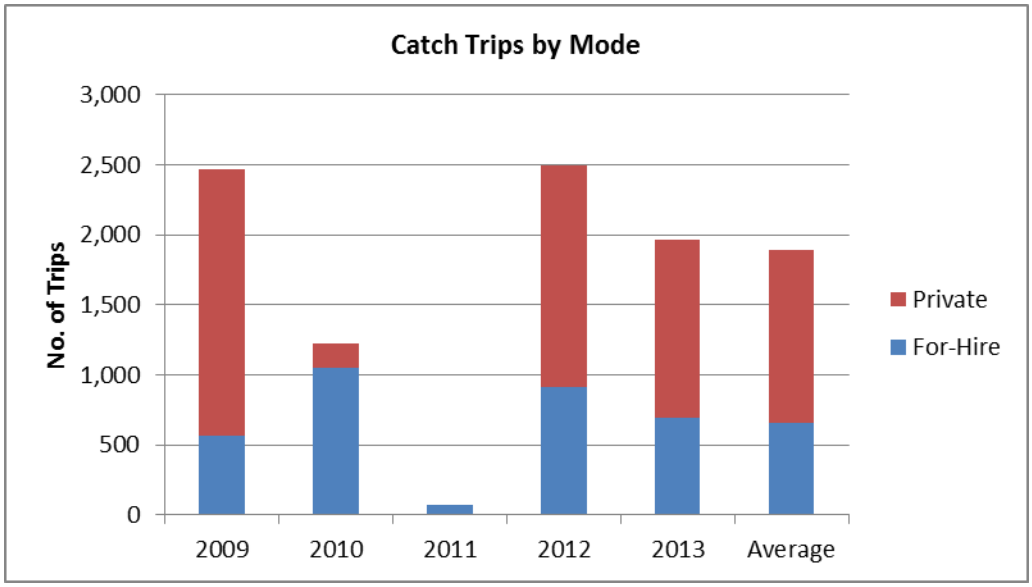

Figure 3.3.2.4. Number of catch trips for snowy grouper by fishing mode, 2009-2013.

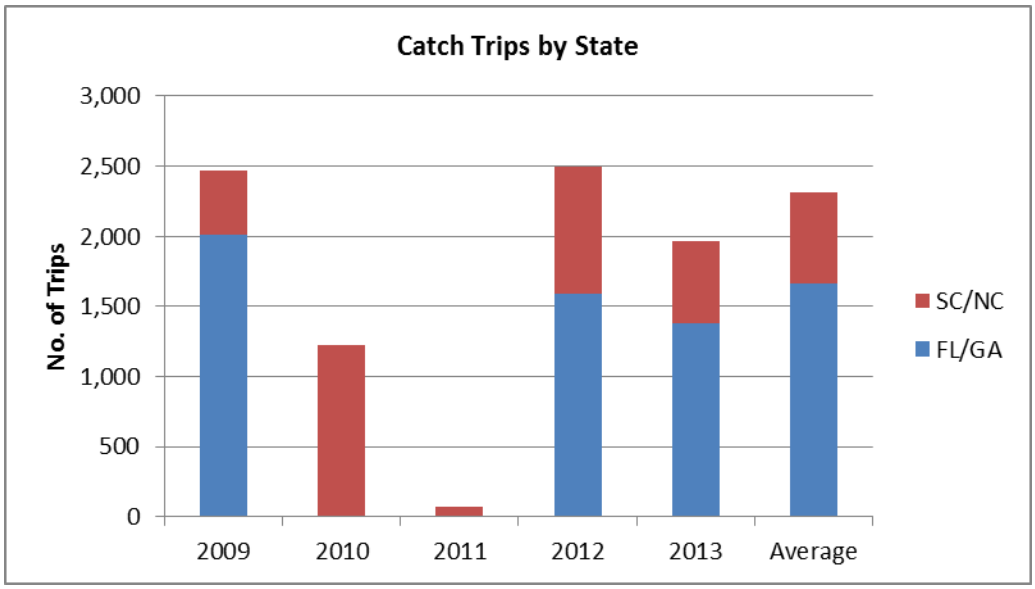

Figure 3.3.2.5. Number of catch trips for snowy grouper by state, 2009-2013.

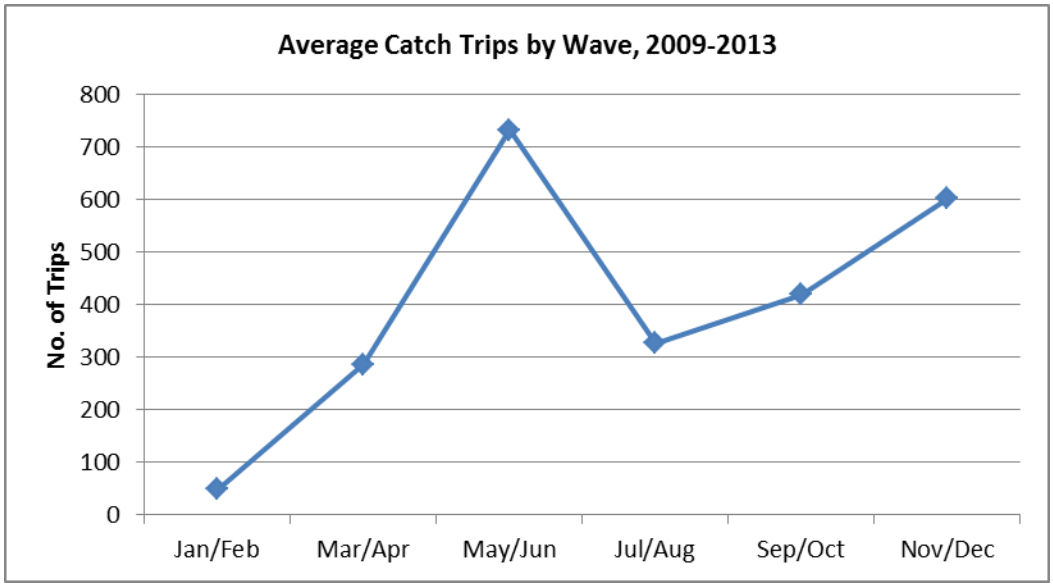

Figure 3.3.2.6. Average number of catch trips for snowy grouper by wave, 2009-2013.

Similar analysis of recreational effort is not possible for the headboat sector because headboat data are not collected at the angler level. Estimates of effort in the headboat sector are provided in terms of angler days, or the number of standardized 12-hour fishing days that account for the different half-, three-quarter-, and full-day fishing trips by headboats. **Table 3.3.2.2** displays the annual angler days by state for 2009-2013 and **Table 3.3.2.3** displays their average (2009-2013) monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days (trips) varied from year to year across various states. Total headboat angler trips decreased in 2010 and 2011 but increased in the next two years, reaching their highest level of 227,189 in 2013 (**Table 3.3.2.2**). Southeast Florida registered the highest number of angler trips, followed by Georgia/Northeast Florida, South Carolina, and North Carolina. Clearly, Florida dominated all other states in terms of headboat angler days.

On average (2009-2013), overall angler days peaked in July and troughed in November (**Table 3.3.2.3**). All states recorded peak angler trips in July, similar to the overall peak month. None of the states, however, had the same trough month as the overall angler trips. North Carolina had a trough in December, South Carolina in January, Georgia/Northeast Florida in November, and Southeast Florida in October.

Table 3.3.2.2. South Atlantic headboat angler days, by state, 2009-2013.

	2009	2010	2011	2012	2013	Average
NC	19,468	21,071	18,457	20,766	20,547	20,062
SC	40,919	44,951	44,645	41,003	40,963	42,496
GA/NEFL	66,447	53,676	46,256	8,800	66,587	48,353
SEFL	69,973	69,986	77,785	130,823	99,092	89,532
TOTAL	196,807	189,684	187,143	201,392	227,189	200,443

Source: SEFSC Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Table 3.3.2.3. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2009-2013.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
NC	26	12	198	1,020	2,227	3,959	4,631	3,791	2,114	1,758	316	7
SC	59	114	1,077	2,793	3,496	8,822	11,350	8,337	3,439	2,316	567	125
GA/NEFL	443	299	478	1,080	1,622	2,735	3,490	2,612	1,400	1,152	147	176
SEFL	8,047	9,377	12,784	13,104	11,617	14,270	15,345	11,156	6,326	5,836	5,898	8,488
TOTAL	8,574	9,801	14,536	17,997	18,962	29,787	34,816	25,896	13,279	11,062	6,929	8,797

Source: SEFSC Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab.

Participation, effort, and harvest are general indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus (CS). The value or benefit derived from the recreational experience is dependent on several quality determinants, which include fish size, catch success rate, and the number of fish kept. These variables help determine the value of a fishing trip and influence total demand for recreational fishing trips.

The NMFS Southeast Science Center (Table 4, Carter and Liese 2012) estimated consumer surplus per fish, per angler trip for various numbers of fish caught and kept or caught and released. For grouper, the mean estimates in 2013 dollars for the second, third, fourth, fifth, and sixth fish kept are, respectively, $102, $68, $50, $39, and $32. The corresponding values for red snapper are $80, $53, $39, $31, and $25; for dolphin the values are $15, $10, $7, $6, and $5; and, for king mackerel the values are $98, $65, $48, $38, and $31. The 95th confidence interval around these mean estimates are $10 for grouper, $11 for red snapper, $35 for dolphin, and $11 for king mackerel. Carter and Liese (2012) also estimated the values for fish caught and released due to either the minimum size or bag limit restriction and are incorporated herein by reference.

While anglers receive economic value as measured by the consumer surplus associated with fishing, for-hire businesses receive value from the services they provide. Producer surplus (PS) is the measure of the economic value these operations receive. Producer surplus is the difference between the revenue a business receives for a good or service, such as a charter or headboat trip, and the cost the business incurs to provide that good or service. Estimates of the producer surplus associated with for-hire trips are not available. However, proxy values in the form of net operating revenues are available (C. Liese, NMFS SEFSC, personal communication, August 2010). These estimates were culled from several studies – Liese et al. (2009), Dumas et al. (2009), Holland et al. (1999), and Sutton et al. (1999). Estimates of net operating revenue per angler trip (2013 dollars) on representative charter trips (average charter trip regardless of area fished) are $158 for Louisiana through east Florida, $147 for east Florida, $170 for northeast Florida, and $139 for North Carolina. For charter trips into the EEZ only, net operating revenues are $153 in east Florida and $161 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $169-$174 in North Carolina. Comparable estimates are not available for Georgia or South Carolina. Revision of these estimates is currently being undertaken.

Net operating revenues per angler trip are lower for headboats than for charter boats. Net operating revenue estimates (2013 dollars) for a representative headboat trip are $52 in the Gulf of Mexico (all states and all of Florida), and $68-$74 in North Carolina. For full-day and overnight headboat trips, net

operating revenues are estimated to be $81-$84 in North Carolina. Comparable estimates are not available for Georgia or South Carolina. Revision of these estimates is currently being undertaken.

A study of the North Carolina for-hire fishery provides some information on the financial status of the for-hire fishery in the state (Dumas et al. 2009). Depending on vessel length, regional location, and season, charter fees per passenger per trip ranged from $182.58 to $273.20 for a full-day trip and from $101.70 to $134.63 for a half-day trip; headboat fees ranged from $78.71 to $88.75 for a full-day trip and from $41.32 to $43.70 for a half-day trip. Charter boats generated a total of $60.48 million in passenger fees, $3.5 million in other vessel income (e.g., food and beverages), and $5.2 million in tips. The corresponding figures for headboats were $10.67 million in passenger fees, $0.22 million in other vessel income, and $0.97 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $46.6 million for charter boats and $5.8 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $130.70 million and headboats had an aggregate value (depreciated) of $11.08 million. All the above values are in 2013 dollars.

A more recent study of the for-hire sector provides estimates on gross revenues generated by the charter boats and headboats in the South Atlantic (Holland et al. 2012). Average annual revenues (2013 dollars) for charter boats are estimated to be $130,524 for Florida vessels, $55,348 for Georgia vessels, $104,417 for South Carolina vessels, and $105,593 for North Carolina vessels. For headboats, the corresponding estimates in 2013 dollars are $216,975 for Florida vessels and $159,332 for vessels in the other states. Due to limited sample size, revenue information for headboats in states other than Florida is aggregated to avoid disclosure of sensitive information.

3.3.3 Social Environment

This regulatory amendment proposes to adjust the rebuilding strategy, adjust the ACLs, modify the commercial trip limit, and modify the recreational bag limit for snowy grouper. Therefore, descriptions of the recreational and commercial components of the snowy grouper fishery are included in the following narrative. The description is based on the geographical distribution of landings and the relative importance of the species for commercial and recreational communities. A spatial approach enables the consideration of fishing communities and consideration of the importance of fishery resources to those communities, as required by National Standard 8.

Because so many communities in the South Atlantic benefit from snapper grouper fishing, a discussion of the communities most involved in South Atlantic fishing, is included in **Section 3.8.3.3** of the Comprehensive ACL Amendment (SAFMC 2011c), which is hereby incorporated by reference. Detailed information is included on the importance of individual commercial species to each community and can be partnered with the following narrative to provide an understanding of the dependence by communities on snowy grouper. The Comprehensive ACL Amendment may be found at: https://www.dropbox.com/s/iz8wn5vec36hpis/CompACLAm_101411_FINAL.pdf?dl=0

Social Importance of Fishing

Socio-cultural values are qualitative in nature making it difficult to measure social valuation of marine resources and fishing activity. The following description includes multiple approaches to examining fishing importance. These spatial approaches focus on the community level (based on the address of dealers or permit holders) and identify importance by "community", defined according to geo-political boundaries (cities). A single county may thus have several communities identified as reliant on fishing and the boundaries of these communities are not discrete in terms of residence, vessel homeport, and dealer address. For example, a fisherman may reside in one community, homeport his vessel in another, and land his catch in yet another. Furthermore, while commercial fishing data are available at the species level, these data are not available for recreational fishing which must be addressed more generally. Despite these caveats, the analysis identifies where most fishing activity takes place.

To identify the communities of greatest engagement in recreational fishing, a factor analysis was run on a set of predictor variables including the number of federal charter permits, number of vessels designated recreational by owner address, number of vessels designated recreational by homeport (SERO permit office 2008), and recreational fishing infrastructure (MRIP site survey 2010). The communities with the highest factor scores are identified in **Table 3.3.3.2** as the communities of greatest recreational fishing engagement. However, this measure does not adjust for population size meaning that larger communities are given more weight over smaller communities. The ranking addresses recreational fishing generally and is not specific to an individual species. Ideally, additional variables quantifying the importance of recreational fishing to a community would be included (such as the amount of recreational landings in a community, number of recreational fishing related businesses, etc.); however, these data are not available at the community level.

One approach to identify communities with the greatest engagement utilizes measures called the regional quotient (rq) to identify commercial reliance. The rq is a way to measure the relative importance of a given species across all communities in the region and represents the proportional distribution of commercial landings of a particular species. This proportional measure does not provide

the number of pounds or the value of the catch, data which might be confidential at the community level for many places. The rq is calculated by dividing the total pounds (or value) of a species landed in a given community, by the total pounds (or value) for that species for all communities in the region.

Another type of analysis has been completed which uses the top communities identified in the rq analysis, and applies indices which were created using secondary data from permit and landings information for the commercial sector and permit information for the recreational sector (Jepson and Colburn 2013; Jacob et al. 2013). Fishing engagement is primarily the absolute numbers of permits, landings, and value. For commercial fishing, the analysis used the number of vessels designated commercial by homeport and owner address, value of landings, and total number of commercial permits for each community. For recreational engagement we used the number of recreational permits, vessels designated as recreational by homeport, and owners address. Fishing reliance has the same variables as engagement divided by population to give an indication of the per capita influence of this activity.

Using a principal component and single solution factor analysis each community receives a factor score for each index to compare to other communities. Taking the communities with the highest regional quotients, factor scores of both engagement and reliance for both commercial and recreational fishing were plotted. Two thresholds of one and ½ standard deviation above the mean are plotted onto the graphs to help determine a threshold for significance. The factor scores are standardized therefore a score above 1 is also above one standard deviation. A score above ½ standard deviation is considered engaged or reliant with anything above 1 standard deviation to be very engaged or reliant.

The reliance index uses factor scores that are normalized. The factor score is similar to a z-score in that the mean is always zero and positive scores are above the mean and negative scores are below the mean. Comparisons between scores are relative but one should bear in mind that, like a z-score, the factor score puts the community on a spot in the distribution. Objectively they have a score related to the percent of communities with those similar attributes. For example, a score of 2.0 means the community is two standard deviations above the mean and is among the 2.27% most vulnerable places in the study (normal distribution curve). Reliance score comparisons between communities are relative. However, if the community scores greater than two standard deviations above the mean, this indicated that the community is dependent on the species. Commercial reliance can be measured by examining the component variables on the reliance index and how they are weighted by factor score. The reliance index provides a way to gauge change over time with these communities but also provides a comparison of one community with another.

These measures are an attempt to quantify the importance of the components of the included fisheries to communities around the South Atlantic coast and suggest where impacts from management actions are more likely to be experienced.

Snowy Grouper Recreational Fishing

Snowy grouper is landed recreationally in Florida, North Carolina, and South Carolina. In 2012, recreational landings for snowy grouper were greatest in Florida (92.7%) and a small amount of snowy grouper were landed recreationally in North Carolina (7.3%, **Table 3.3.3.1**). Of the recreational landings in 2012, over 81% occurred in Monroe County, Florida (SEDAR 36 2013). A very small amount of snowy grouper has been landed recreationally in South Carolina within the last five years (**Table 3.3.3.1**).

Table 3.3.3.1. Snowy grouper recreational landings (lbs gw), by state.

Year	FL	GA	NC	SC	Total
2008	3,017	0	23,359	21	26,397
2009	38,909	0	19,293	19	58,221
2010	11,063	0	69,204	0	80,267
2011	197	0	532	0	729
2012	74,836	0	5,935	0	80,770

Source: SEDAR 36. Includes all recreational landings (including headboat and Monroe County).

Landings for the recreational sector are not available by species at the community level; therefore, it is difficult to identify communities as dependent on recreational fishing for individual species. Recreational fishing communities in the South Atlantic are listed in **Table 3.3.3.2**. Identified recreational communities include a large number of communities in Monroe County, Florida and in North Carolina (**Table 3.3.3.2**), areas where the majority of snowy grouper recreational landings occurred in 2012. Monroe County recreational fishing communities include Islamorada, Cudjoe Key, Key West, Tavernier, Little Torch Key, Marathon, Sugarloaf Key, Big Pine Key, Key Largo, and Summerland Key.

Table 3.3.3.2. South Atlantic recreational fishing communities.

Community	State	Community	State
Jekyll Island	GA	Cape Carteret	NC
Hatteras	NC	Kill Devil Hill	NC
Manns Harbor	NC	Murrells Inlet	SC
Manteo	NC	Little River	SC
Atlantic Beach	NC	Georgetown	SC
Wanchese	NC	Islamorada	FL
Salter Path	NC	Cudjoe Key	FL
Holden Beach	NC	Key West	FL
Ocean Isle	NC	Tavernier	FL
Southport	NC	Little Torch Key	FL
Wrightsville Beach	NC	Ponce Inlet	FL
Marshallberg	NC	Marathon	FL
Carolina Beach	NC	Sugarloaf Key	FL
Oriental	NC	Palm Beach Shores	FL
Topsail Beach	NC	Big Pine Key	FL
Swansboro	NC	Saint Augustine	FL
Nags Head	NC	Key Largo	FL
Harkers Island	NC	Summerland Key	FL
Calabash	NC	Sebastian	FL
Morehead City	NC	Cape Canaveral	FL

Source: SERO permit office 2008, MRIP site survey 2010.

Snowy Grouper Commercial Fishing

Commercial landings for snowy grouper are greatest in Florida (54.4% in 2012), followed by North Carolina (23.4%) and South Carolina (22.2%, SEDAR 36 2013). There were no commercial landings of snowy grouper in Georgia in 2012 (SEDAR 36 2013).

Figure 3.3.3.1 identifies the communities with the most commercial landings of snowy grouper. The top two communities of Murrells Inlet and Little River, South Carolina land about 31% of snowy grouper, and these landings represent over 31% of total value (**Figure 3.3.3.1**). One other South Carolina community makes up the top fifteen, seven Florida communities (including about 38% of landings in pounds and 41% in value), and five North Carolina communities (including about 19% of landings in pounds and 15% in value). No Georgia communities were included.

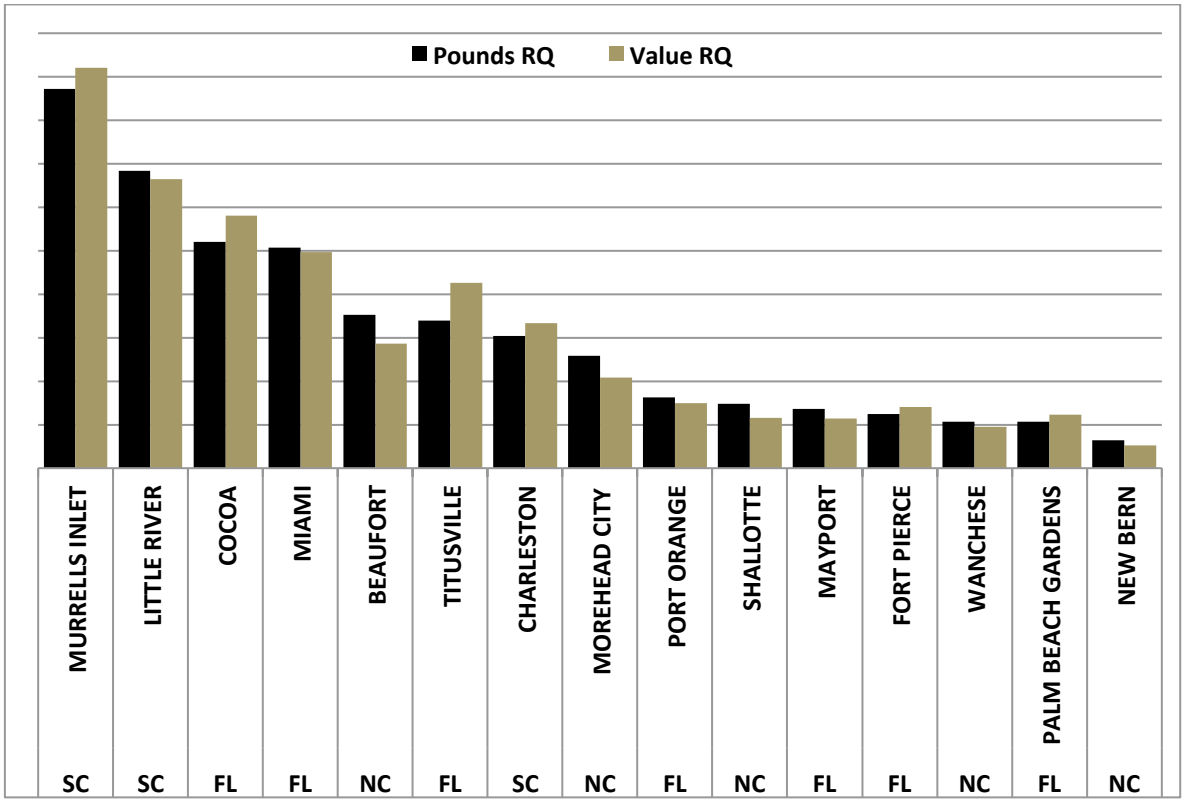

Figure 3.3.3.1. Top fifteen communities ranked by pounds and value of regional quotient of snowy grouper. The actual RQ values (y-axis) are omitted from the figure to maintain confidentiality.
Source: Southeast Regional Office, Community ALS 2011.

For snowy grouper (**Figure 3.3.3.2**), the primary communities that demonstrate high levels of commercial fishing engagement and reliance include Fort Pierce and Miami, Florida; Beaufort, Morehead City, and Wanchese, North Carolina; and Charleston, South Carolina.

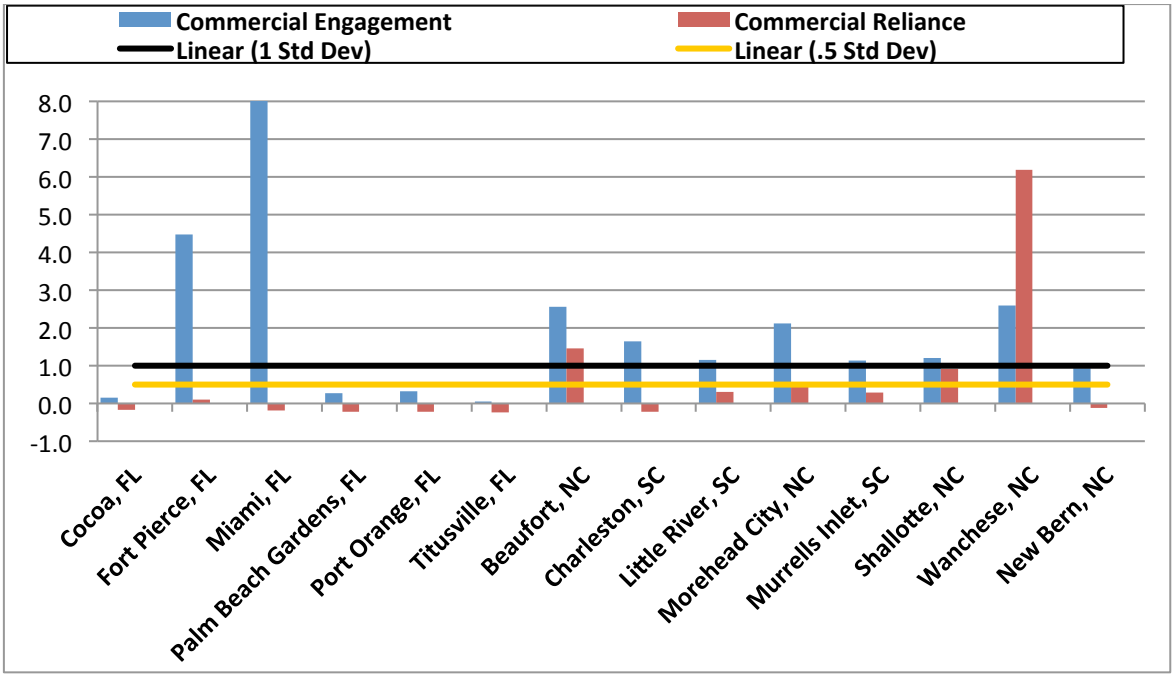

Figure 3.3.3.2. Commercial engagement and reliance for communities with top regional quotients for snowy grouper.
Source: Southeast Regional Office Social Indicator Database 2013.

Communities with substantial recreational engagement and reliance include Fort Pierce and Miami, Florida; Morehead City and Wanchese, North Carolina; and Charleston, Little River, and Murrels Inlet, South Carolina (**Figure 3.3.3.3**).

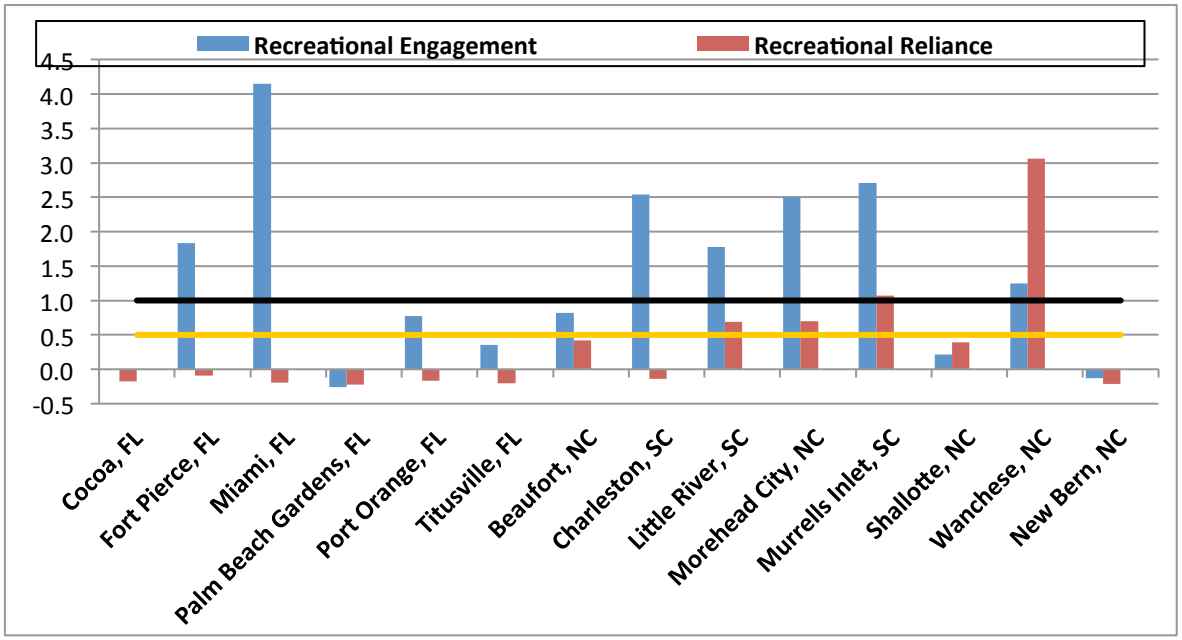

Figure 3.3.3.3. Recreational engagement and reliance for communities with top regional quotients for snowy grouper.
Source: Southeast Regional Office Social Indicator Database 2013.

3.3.4 Environmental Justice

Executive Order 12898 requires federal agencies to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. This executive order is generally referred to as environmental justice (EJ).

To evaluate EJ considerations for the proposed actions, information on poverty and minority rates is examined at the county level. Information on the race and income status for groups at the different participation levels (vessel owners, crew, dealers, employees, etc.) is not available. Because the proposed actions would be expected to affect fishermen and associated industries along the South Atlantic coast and not just those profiled, it is possible that other counties have poverty or minority rates that exceed the EJ thresholds.

In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the county was greater than or equal to 1.2 times the state average, then the county was considered an area of potential EJ concern (EPA 1999). Census data for the year 2010 was used. Estimates of the state minority and poverty rates, associated thresholds, and county rates are provided in **Table 3.3.4.1**; note that only counties that exceed the minority threshold and/or the poverty threshold are included in the table**.**

Another type of analysis uses a suite of indices created to examine the social vulnerability of coastal communities and is depicted in **Figure 3.3.4.1**. 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; more households with children under the age of 5; and disruptions like higher separation rates, higher crime rates, and unemployment all are signs of populations experiencing vulnerabilities. The data used to create these indices are from the 2005-2009 American Community Survey estimates at the U.S. Census Bureau. The thresholds of 1 and ½ standard deviation are the same for these standardized indices. Again, for those communities that exceed the threshold for all indices it would be expected that they would exhibit vulnerabilities to sudden changes or social disruption that might accrue from regulatory change.

The vulnerability indices use normalized factor scores. Comparison of vulnerability scores is relative, but the score is related to the percent of communities with similar attributes. The social vulnerability indices provide a way to gauge change over time with these communities but also provides a comparison of one community with another.

Table 3.3.4.1. Environmental Justice thresholds (2010 U.S. Census data) for counties in the South Atlantic region.
Only coastal counties (east coast for Florida) with minority and/or poverty rates that exceed the state threshold are listed.

State	County	Minority Rate	Minority Threshold*	Poverty Rate	Poverty Threshold*
Florida		**39.5**	**47.4**	**13.2**	**15.8**
	Broward	52	-4.6	11.7	4.1
	Miami-Dade	81.9	-34.5	16.9	-1.1
	Orange County	50.3	-2.9	12.7	3.1
	Osceola	54.1	-6.7	13.3	2.5
Georgia		**41.7**	**50.0**	**15.0**	**18.0**
	Liberty	53.2	-3.2	17.5	0.5
South Carolina		**34.9**	**41.9**	**15.8**	**19.0**
	Colleton	44.4	-2.5	21.4	-2.4
	Georgetown	37.6	4.3	19.3	-0.3
	Hampton	59	-17.1	20.2	-1.2
	Jasper	61.8	-19.9	19.9	-0.9
North Carolina		**32.6**	**39.1**	**15.1**	**18.1**
	Bertie	64.6	-25.5	22.5	-4.4
	Chowan	39.2	-0.1	18.6	-0.5
	Gates	38.8	0.3	18.3	-0.2
	Hertford	65.3	-26.2	23.5	-5.4
	Hyde	44.5	-5.4	16.2	1.9
	Martin	48.4	-9.3	23.9	-5.8
	Pasquotank	43.4	-4.3	16.3	1.8
	Perquimans	27.7	11.4	18.6	-0.5
	Tyrrell	43.3	-4.2	19.9	-1.8
	Washington	54.7	-15.6	25.8	-7.7

*The county minority and poverty thresholds are calculated by comparing the county minority rate and poverty estimate to 1.2 times the state minority and poverty rates. A negative value for a county indicates that the threshold has been exceeded.

With regard to social vulnerabilities, the following communities exceed the threshold of 0.5 standard deviation for at least one of the social vulnerability indices (**Figure 3.3.4.1**): Miami, Fort Pierce, and Cocoa, Florida and Beaufort, Morehead City, Wanchese, and New Bern, North Carolina. The Florida communities of Miami, Fort Pierce, and Cocoa and the North Carolina community of New Bern exceed the thresholds on all three social vulnerabilities. These communities are expressing substantial vulnerabilities and may be susceptible to further effects from any regulatory change depending upon the direction and extent of that change.

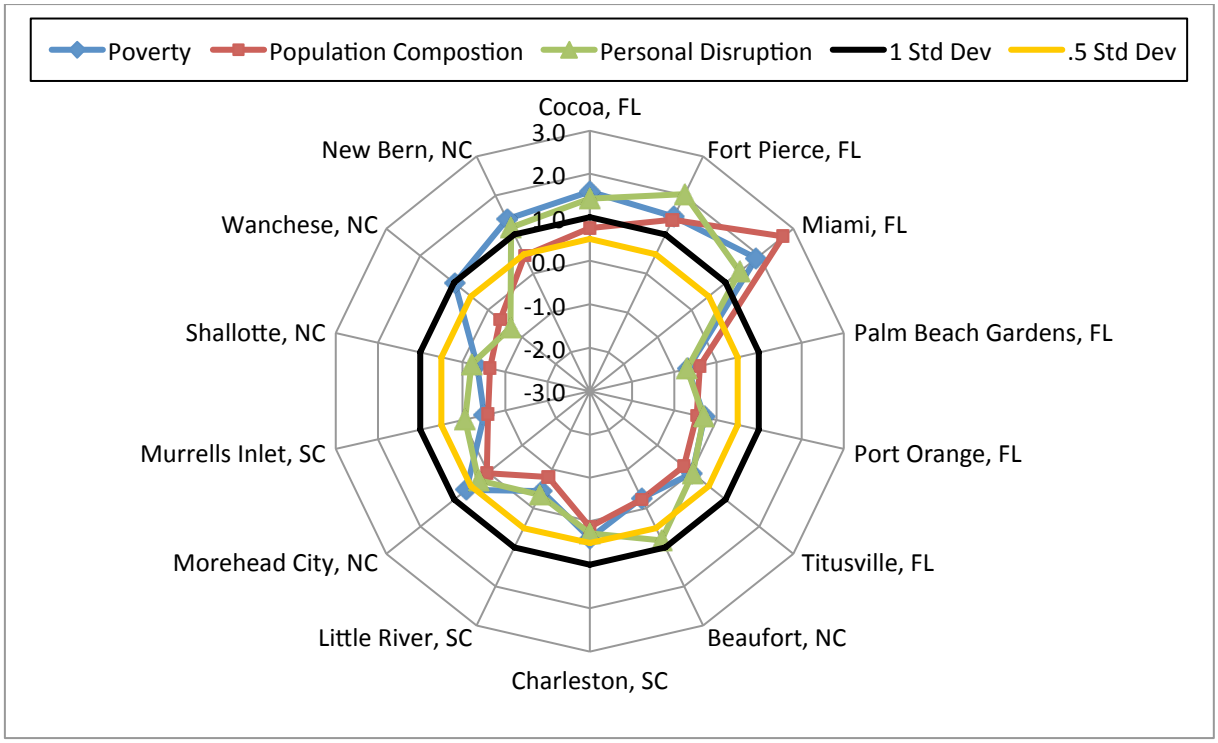

Figure 3.3.4.1. Social vulnerability indices for fifteen communities with the top regional quotients for snowy grouper.
Source: Southeast Regional Office, Social Indicator Database 2013.

While some counties and communities expected to be affected by this proposed amendment may have minority or economic profiles that exceed the EJ thresholds and, therefore, may constitute areas of concern, significant EJ issues are not expected to arise as a result of this proposed amendment. No adverse human health or environmental effects are expected to accrue to this proposed amendment, nor are these measures expected to result in increased risk of exposure of affected individuals to adverse health hazards. The proposed management measures would apply to all participants in the affected area, regardless of minority status or income level, and information is not available to suggest that minorities or lower income persons are, on average, more dependent on the affected species than non-minority or higher income persons.

Finally, the general participatory process used in the development of fishery management measures (e.g., open Council meetings and electronic public comment periods) is expected to provide sufficient opportunity for meaningful involvement by potentially affected individuals to participate in the development process of this amendment and have their concerns factored into the decision process. Public input from individuals who participate in the fishery has been considered and incorporated into management decisions throughout development of the amendment.

3.4 Administrative Environment

3.4.1 The Fishery Management Process and Applicable Laws

3.4.1.1 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 nautical miles (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, conducting stock assessments, and for promulgating regulations to implement proposed plans and amendments after ensuring that management measures are consistent with the Magnuson-Stevens Act and with other applicable laws. In most cases, the Secretary has delegated this authority to NMFS.

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

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 South Atlantic 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.

3.4.1.2 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 Environment and Natural Resources. The Marine Resources Division of the South Carolina Department of Natural Resources regulates South Carolina's marine fisheries. Georgia's marine fisheries are managed by the Coastal Resources Division of the Department of Natural Resources. The Marine Fisheries Division 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 South Atlantic 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 the Atlantic States Marine Fisheries Commission (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 consistent state regulations to conserve coastal species. The ASFMC is also represented but does not have voting authority at the South Atlantic Council level.

NMFS' 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.

3.4.1.3 Enforcement

Both the National Oceanic and Atmospheric Administration (NOAA) Fisheries Office for Law Enforcement (NOAA/OLE) and the United States Coast Guard (USCG) have the authority and the responsibility to enforce South Atlantic 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 Schedules can be found at http://www.gc.noaa.gov/enforce-office3.html.

Chapter 4.

Environmental Consequences and Comparison of Alternatives

4.1 Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

4.1.1 Biological Effects

In 2008, Amendment 15A to the Snapper Grouper FMP (Amendment 15A, SAFMC 2008a) implemented a rebuilding schedule for snowy grouper with the maximum recommended period of T_{MIN} + one generation time = 34 years for snowy grouper. 2006 is year 1 of the rebuilding schedule, and the terminal year is 2039. As described in **Alternative 1 (No Action)**, the rebuilding strategy implemented by Amendment 15A also maintained a modified/constant fishing mortality rate throughout the rebuilding timeframe. The 2009 total allowable catch (TAC) was specified at 102,960 pounds whole weight (lbs ww) and would remain in effect beyond 2009 until modified.

The rebuilding strategy under **Alternative 1 (No Action)** specified in Amendment 15A to the Snapper Grouper FMP (SAFMC 2008a) was in response to SEDAR 4 (2004), which indicated snowy grouper was overfished and undergoing overfishing. The rebuilding strategy was put in place prior to the P* approach and establishment of the acceptable biological catch (ABC) control rule. Furthermore, a stock assessment update was conducted in 2013 (SEDAR 36 2013), which indicated that overfishing had ended and the stock was rebuilding, but remained overfished. Based on the stock assessment update, the SSC recommended an updated ABC. Therefore, the status quo **Alternative 1** is not based upon the best scientific information available.

Alternatives for Action 1
*(preferred alternatives in **bold**)*

1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lbs ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 lbs ww consistent with this rebuilding strategy.

2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. Specify a probability of success of:

2a: 50%.
2b: 70%.

ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $75\%F_{MSY}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

The ABC for each alternative is shown below in lbs ww (**Table 4.1.1**) and lbs gw (**Table 4.1.2**).

Table 4.1.1. ABC (lbs ww) specified by Alternatives 1-4 in Action 1.

	Alt 1	Sub-Alt 2a	Sub-Alt 2b	Pref Alt 3	Alt 4
Year	**F_{MSY}**	**$F_{rebuild}$ 50%**	**$F_{rebuild}$ 70%**	**75% F_{MSY}**	**$F_{current}$**
2015	216,894	194,423	130,918	**164,136**	147,527
2016	229,595	208,101	143,619	**178,791**	160,228
2017	242,296	219,825	156,320	**192,469**	171,952
2018	253,043	231,549	168,044	**205,170**	183,676
2019	265,744	242,296	179,768	**218,848**	195,400

Table 4.1.2. ABC (lbs gw) specified by Alternatives 1-4 in Action 1.

	Alt 1	Sub-Alt 2a	Sub-Alt 2b	Pref Alt 3	Alt 4
Year	**F_{MSY}**	**$F_{rebuild}$ 50%**	**$F_{rebuild}$ 70%**	**75% F_{MSY}**	**$F_{current}$**
2015	183,808	164,765	110,947	**139,098**	125,023
2016	194,572	176,357	121,711	**151,518**	135,786
2017	205,336	186,292	132,475	**163,109**	145,722
2018	214,443	196,228	142,410	**173,873**	155,658
2019	225,207	205,336	152,346	**185,464**	165,593

The lower the harvest levels, the greater the biological benefit to stock, but there is a level of harvest that is sustainable, and will not negatively impact the health of a stock. **Alternative 1 (No Action)** would constrain harvest to a lower level than **Alternatives 2-4**. However, the 2013 stock assessment update indicated snowy grouper is no longer undergoing overfishing, and the South Atlantic Fishery Management Council's (South Atlantic Council) Scientific and Statistical Committee (SSC) has recommended an increase in the ABC; therefore, there is not a biological need to constrain harvest at the level specified by **Alternative 1 (No Action)**. Compared to **Alternative 1 (No Action),** biological effects for the snowy grouper stock would be expected to be neutral for alternatives that specify catch levels at or below the catch level recommendations of the South Atlantic Council's SSC (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4)**.

Alternatives 2-4 would establish a rebuilding strategy based on the results of the most recent stock assessment (SEDAR 36 3013), which indicated the stock remains overfished, is rebuilding, and is no longer experiencing overfishing. The South Atlantic Council's SSC has recommended an ABC equal to the yield at 75%F_{MSY}, and an overfishing limit equal to yield at F_{MSY}. Under **Alternatives 2-4** the total ABC would increase for a period of five years, 2015-2019, and remain at the 2019 value until modifications are warranted due to a new stock assessment.

Alternative 2 and its sub-alternatives would define a rebuilding strategy for snowy grouper that would maintain a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. **Table**

4.1.3 shows the total ABC values in pounds whole weight (lbs ww) for snowy grouper under **Alternative 2** based on a 50% probability of rebuilding success (**Sub-alternative 2a**) and a 70% probability (**Sub-alternative 2b**) by the end of the 34-year rebuilding schedule. Under **Sub-alternative 2a**, the ABC would increase by 91,463 lbs ww to 194,423 lbs ww in 2015 (an increase of 89%), and continue to increase by 139,336 lbs ww to 242,296 lbs ww (an increase of 135%) in 2019 as the stock rebuilds (**Table 4.1.3**). This level of harvest is greater than the ABC recommended by the South Atlantic Council's SSC. Under **Sub-alternative 2b**, the ABC would increase by 27,958 lbs ww to 130,918 lbs ww in 2015 (an increase of 27%), and continue to increase by 76,808 lbs ww to 179,768 lbs ww (an increase of 75%) in 2019 as the stock rebuilds (**Table 4.1.3**). This level of harvest is more conservative than the ABC recommended by the South Atlantic Council's SSC (**Preferred Alternative 3**). After 2019, the total ABC would stay constant at 242,296 lbs ww under **Sub-alternative 2a**, and at 179,768 lbs ww under **Sub-alternative 2b**, until modifications are warranted due to a new stock assessment. The positive biological effects under **Sub-alternative 2b** would be expected to be higher when compared to **Sub-alternative 2a** (which would inherently have a 50% probability of failure to rebuild the snowy grouper stock by 2039). **Sub-alternative 2b** would have greater biological benefits than **Alternatives 3 (Preferred)** or **4**, while **Sub-alternative 2a** would have the least amount of biological benefits among the action alternatives. When compared to **Alternative 1 (No Action)**, only **Sub-Alternative 2a** would be expected to have minor negative biological effects on the stock. Because the snowy stock is rebuilding, harvest levels at or below the SSC's catch level recommendation (**Sub-Alternative 2b, Preferred Alternative 3, Alternative 4**) are appropriate and would not be expected to have negative biological effects on the stock.

Table 4.1.3. Total ABC values (lbs ww) under Alternative 2 based on yield at $F=F_{Rebuild}$ and probability of rebuilding of 50% (Sub-alternative 2a) or 70% (Sub-alternative 2b).
The current total ABC = 102,960 lbs ww. The five-year ABC values starting from 2015 to 2019 are highlighted.

Year	Yield at $F_{rebuild}$ 50% (lbs ww)	Difference from current ABC (lbs ww)	Percent Difference (%)	Probability Rebuilding (%)	Yield at $F_{rebuild}$ 70% (lbs ww)	Difference from current ABC (lbs ww)	Percent Difference (%)	Probability Rebuilding (%)
2013	102,585	-375	-0.36%	12.0%	102,585	-375	-0.36%	12.0%
2014	102,585	-375	-0.36%	14.8%	102,585	-375	-0.36%	14.8%
2015	**194,423**	**+91,463**	**+88.83%**	17.8%	**130,918**	**+27,958**	**+27.15%**	18.3%
2016	**208,101**	**+105,141**	**+102.12%**	19.7%	**143,619**	**+40,659**	**+39.49%**	21.2%
2017	**219,825**	**+116,865**	**+113.51%**	22.0%	**156,320**	**+53,360**	**+51.83%**	25.2%
2018	**231,549**	**+128,589**	**+124.89%**	24.6%	**168,044**	**+65,084**	**+63.21%**	28.9%
2019	**242,296**	**+139,336**	**+135.33%**	26.9%	**179,768**	**+76,808**	**+74.60%**	32.4%
2020	253,043			29.1%				35.7%
2021	262,813			31.0%				38.8%
2022	271,606			32.8%				41.5%
2023	280,399			34.7%				44.4%
2024	288,215			36.2%				47.0%
2025	295,054			37.8%				49.4%
2026	301,893			39.1%				51.7%
2027	308,732			40.3%				53.9%
2028	314,594			41.5%				55.8%
2029	319,479			42.5%				57.7%
2030	323,387			43.7%				59.3%
2031	328,272			44.6%				60.9%
2032	333,157			45.4%				62.4%
2033	337,065			46.2%				63.6%
2034	340,973			47.0%				64.8%
2035	344,881			47.7%				66.0%
2036	348,789			48.4%				67.2%
2037	351,720			49.1%				68.3%
2038	353,674			49.6%				69.3%
2039	357,582			50.2%				70.2%

Preferred Alternative 3 would define a rebuilding strategy for snowy grouper recommended by the South Atlantic Council's SSC that would maintain a constant fishing mortality rate ($F= 75\%F_{MSY}$) throughout the rebuilding timeframe. The probability of success is estimated as 68.9% (**Table 4.1.4**), and this rebuilding strategy has been used for a number of other snapper grouper species. ABC values are shown in **Table 4.1.1**. The ABC would increase by 61,176 lbs ww to 164,136 lbs ww in 2015 (an increase of 59%), and continue to increase by 115,888 lbs ww to 218,848 lbs ww (an increase of 113%) in 2019 as the stock rebuilds (**Table 4.1.4**). After 2019, the total ABC would stay constant at 218,848 lbs

ww until modifications are warranted due to a new stock assessment. **Preferred Alternative 3** would be expected to have biological effects similar to but less than those under the 70% probability of success of rebuilding under **Alternative 2**. **Preferred Alternative 3** would be using the best scientific information available to adjust the rebuilding strategy for snowy grouper since it is based on the recent stock assessment (SEDAR 36 2013), and recommendations from the South Atlantic Council's SSC.

Table 4.1.4. Total ABC values (lbs ww) under **Preferred Alternative 3** based on yield at F=75%F_{MSY}.
The current total ABC = 102,960 lbs ww.
The 5-year ABC values starting from 2015 to 2019 are highlighted.

Year	Yield at 75% F_{MSY} (lbs ww)	Difference from current ABC (lbs ww)	Percent Difference (%)	Probability Rebuilding (%)
2013	102,585	-375	-0.36%	12.0%
2014	102,585	-375	-0.36%	14.8%
2015	**164,136**	**+61,176**	**+59.42%**	17.3%
2016	**178,791**	**+75,831**	**+73.65%**	18.5%
2017	**192,469**	**+89,509**	**+86.94%**	20.3%
2018	**205,170**	**+102,210**	**+99.27%**	22.4%
2019	**218,848**	**+115,888**	**+112.56%**	24.7%
2020	231,549			27.2%
2021	243,273			29.7%
2022	254,997			32.3%
2023	264,767			34.9%
2024	274,537			37.4%
2025	283,330			39.8%
2026	291,146			42.4%
2027	299,939			44.8%
2028	306,778			47.2%
2029	312,640			49.5%
2030	318,502			51.8%
2031	324,364			54.1%
2032	330,226			56.3%
2033	336,088			58.4%
2034	340,973			60.2%
2035	345,858			62.0%
2036	350,743			63.6%
2037	354,651			65.5%
2038	358,559			67.2%
2039	362,467			68.9%

Current accountability measures (AMs) such as an in-season closure for the commercial sector and a payback provision for the recreational sector that would reduce the length of the following year's fishing season to account for an overage in the current fishing year, would be expected to prevent the ACLs from

being exceeded despite the increase in the ABC under all the alternatives considered in this action. Modifications to the recreational AM is being considered in an amendment under development by the South Atlantic Council (Comprehensive Accountability Measures/Dolphin Allocations Amendment).

Alternative 4 would define a rebuilding strategy for snowy grouper that would maintain a constant fishing mortality rate ($F= F_{current}$) throughout the rebuilding timeframe. The probability of rebuilding success under **Alternative 4** is estimated at 63.1% (**Table 4.1.5**). The ABC would increase by 44,567 lbs ww to 147,527 lbs ww in 2015 (an increase of 43%), and continue to increase by 92,440 lbs ww to 195,400 lbs ww (an increase of 90%) in 2019 as the stock continues to rebuild (**Table 4.1.5**). After 2019, the total ABC would stay constant at 195,400 lbs ww, until modifications are warranted due to a new stock assessment. **Alternative 4** would be expected to have intermediate biological effects compared with the rebuilding strategy under **Sub-alternative 2a** that has a 50% probability of rebuilding the stock by 2039 and **Preferred Alternative 3** with a 69% probability of rebuilding.

Regardless of the alternative or sub-alternative selected, none is anticipated to have adverse effects on listed *Acropora* species, large whales, or any distinct population segments (DPS) of Atlantic sturgeon. Previous Endangered Species Act (ESA) consultations determined the hook-and-line sector of the snapper grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1 (No Action)** because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. Assuming that total ABC translates directly to fishing effort, and fishing effort translates to potential for interactions with protected species, when compared to **Alternative 1 (No Action)**, **Alternative 4** would likely be the most biologically beneficial for sea turtles and smalltooth sawfish followed by **Preferred Alternative 3** with **Alternative 2** being the least biologically beneficial for sea turtles and smalltooth sawfish.

The proposed alternatives under this action would not alter the way the snowy grouper portion of the snapper grouper fishery is prosecuted. Furthermore, hook-and-line gear, the gear predominantly used by snowy grouper fishermen, is included in the Sustainable Seafood Guide's recommended gear in the U.S. as a "best choice" or "good alternative" since this gear has minimal bycatch issues, and does little damage to physical or biogenic habitats (Blue Ocean 2010; Seafood Watch 2010). Therefore, no adverse effects on essential fish habitat (EFH), EFH habitats of particular concern (HAPCs), or Coral HAPCs are anticipated.

Table 4.1.5. Total ABC values (lbs ww) under **Alternative 4** based on yield at $F=F_{current}$.
The current total ABC = 102,960 lbs ww. The five-year ABC values starting from 2015 to 2019 are highlighted.

Year	$F_{current}$	Difference from current ABC	Percent Difference	Probability Rebuilding
2013	102,585	-375	-0.36	12.00%
2014	102,585	-375	-0.36	14.80%
2015	**147,527**	**+44,567**	**+43.29%**	18.20%
2016	**160,228**	**+57,268**	**+55.62%**	20.80%
2017	**171,952**	**+68,992**	**+67.01%**	24.40%
2018	**183,676**	**+80,716**	**+78.40%**	28.00%
2019	**195,400**	**+92,440**	**+89.78%**	31.30%
2020	207,124			34.20%
2021	216,894			36.90%
2022	227,641			39.40%
2023	237,411			41.80%
2024	246,204			43.90%
2025	255,974			46.00%
2026	263,790			47.90%
2027	271,606			49.60%
2028	278,445			51.20%
2029	285,284			52.70%
2030	291,146			54.00%
2031	297,008			55.30%
2032	301,893			56.50%
2033	307,755			57.60%
2034	312,640			58.60%
2035	318,502			59.50%
2036	323,387			60.40%
2037	326,318			61.40%
2038	330,226			62.30%
2039	334,134			63.10%

4.1.2 Economic Effects

The rebuilding strategy and ABC under **Alternative 1 (No Action)**, is based on the results of SEDAR 4 (2004), which indicated the stock was overfished and undergoing overfishing. **Alternatives 2-4** would update the rebuilding strategy and ABC based upon the results of a recent stock assessment that indicates the stock is no longer undergoing overfishing, is rebuilding, but remains overfished (SEDAR 36 2013). Retention of **Alternative 1 (No Action)** creates short-term and long-term indirect adverse effects for commercial and recreational fishermen when a stock assessment indicates higher ABC levels are possible. While the long-term health of the stock may improve with a lower than necessary ABC, fishermen would not benefit unless the ABC also increases, potentially resulting in a higher ACL. A stock assessment that indicates that a lower ABC is necessary would have indirect short-term benefits through potentially higher harvests if the ABC is exceeded. However, this also would result in long-term adverse effects for fishermen as they could potentially exceed the ACL (if landings data collection efforts are not successful in accurately predicting an appropriate closure date), and result in damage to the long-term health of the stock and lower future catch rates. The ranking of the different alternatives below is based on the expectation of long-term economic benefits resulting from better stock health and higher future catch rates. Long-term indirect economic benefits from healthier stocks trump most short-term harvest rate increases.

Both sub-alternatives under **Alternative 2** could result in indirect short-term and long-term indirect beneficial economic effects for commercial and recreational fishermen in that they allow for a higher ABC and a potentially higher future ACL and resulting harvests and revenues than **Alternative 1 (No Action)**. **Preferred Alternative 3** would be expected to have greater indirect long-term economic benefits than **Alternative 1 (No Action)** and **Sub-alternative 2a** due to the expectation of greater stock health and potentially higher future catch levels. **Preferred Alternative 3** has similar expected economic benefits to **Sub-alternative 2b**. While **Alternative 4** would be expected to have greater economic benefits than **Alternative 1 (No Action)** because it proposes to change the ABC in response to the new stock assessment, the economic benefits of **Alternative 4** would be less than **Preferred Alternative 3** due to greater long-term indirect economic benefits to fishermen from potentially better stock quality and higher future catch levels under **Preferred Alternative 3**.

In general, the greatest economic benefit to commercial and recreational fishermen results from a rebuilding strategy that allows increased harvest and access to the resource compared to the current ABC and ACL. However, the rebuilding strategy would not result in long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. In summary, **Preferred Alternative 3** is expected to yield the highest long-term economic benefits compared to the next best **Alternative 2**. **Alternative 4** is expected to yield the next highest long-term economic benefits followed by **Alternative 1 (No Action)**.

4.1.3 Social Effects

Although adjustment of the rebuilding strategy for snowy grouper is primarily an administrative action, the selected level of fishing mortality and associated ABCs determine the level of restrictiveness of management measures in order to rebuild the resource within the specified timeframe. The level to which access to the resource is limited or non-existent would determine the magnitude of the associated

social and economic effects expected to accrue during the recovery period. The rebuilding strategies and associated ABCs in this action are trade-offs of long-term and short-term biological benefits, which are directly tied to long-term and short-term social benefits. A more conservative rebuilding strategy would likely result in short-term negative social impacts such as loss of income and decreased fishing opportunities due to lower target fishing mortality. However, the resulting larger, sustainable biomass once the snowy grouper stock is rebuilt is expected to produce long-term social benefits, including stable and sustainable livelihoods for commercial fishermen and the for-hire sector; consistent product for fish houses and restaurants; and private recreational fishing opportunities.

Because the recent assessment update determined that overfishing is no longer occurring for snowy grouper, the stock is rebuilding, and catch levels can be increased, **Alternative 1 (No Action)** would be expected to result in minimal or no benefits to fishermen by not taking advantage of higher catches under the rebuilding plan and associated ABCs. **Alternatives 2-4** specify different rebuilding strategies but all would continue to follow the rebuilding schedule of 34 years set in Amendment 15A (SAFMC 2008a), which ends in 2039.

Overall the most benefits to fishermen and communities would come from a rebuilding strategy that allows increased harvest and access to the resource than the current ABC and ACL, but would not cause long-term negative biological effects to the stock that could result in negative effects on fishermen in the future. **Section 3.3.3** describes South Atlantic communities that could be affected by changes to the snowy grouper rebuilding strategy. **Alternatives 2-4** would result in higher ABCs than under **Alternative 1 (No Action)** and increase access to the resource, which would be expected to reduce and minimize short-term negative effects on fishermen. **Sub-alternative 2a** would be expected to have the least short-term negative effects on fishermen, followed by **Preferred Alternative 3, Alternative 4**, and **Sub-Alternative 2b**.

4.1.4 Administrative Effects

The rebuilding strategy specified under **Alternative 1 (No Action)** would not use the best scientific information available since it would not incorporate information from the latest stock assessment (SEDAR 36 2013). A change in the ABC under **Alternative 2**, **Preferred Alternative 3,** and **4**, would result in a proportional change in the ACL; especially if ABC=ACL. Thus, the lower the ABC, the more likely an ACL would be met and an AM would be triggered. However, meeting an ACL would depend on fishing behavior since even the highest ACL proposed in **Alternatives 2-4** is likely to be met. A rebuilding strategy with a 50% probability of success under **Sub-alternative 2a** would result in the highest ABC and would likely be associated with the highest ACL value specified in **Action 2**. Therefore, burden on the administrative environment that would result from AMs being triggered would likely be lowest under the 50% probability of success under **Sub-alternative 2a**. **Alternative 1 (No Action)** specifies the lowest ABC among the ABCs considered and would be expected to have the greatest negative administrative effects. The administrative burden would be expected to be ranked lower to higher in the following order: **Sub-alternative 2a, Preferred Alternative 3, Alternative 4**, **Sub-alternative 2b,** and **Alternative 1 (No Action)**. All the rebuilding strategy alternatives considered would require continued monitoring of commercial and recreational landings in addition to continued enforcement of harvest restrictions for snowy grouper including the recreational bag limit and the

commercial trip limit. Overall, administrative impacts under all the rebuilding strategy alternatives are not likely to be significant.

4.2 Action 2. Adjust Annual Catch Limits for Snowy Grouper

4.2.1 Biological Effects

Under **Alternative 1 (No Action),** the total ACL for snowy grouper is equal to the total ABC (total allowable catch) of 102,960 lbs ww (87,254 lbs gw) as per Amendment 15A (SAFMC 2008a). Amendment 17B (SAFMC 2010b) did not specifically set ACL=ABC, but set the commercial ACL equal to the commercial quota (82,900 lbs gw) specified in Amendment 15B (SAFMC 2008b), and the recreational ACL equal to the recreational allocation (4,400 lbs gw or 523 fish) from Amendment 15B.

***Alternatives for Action 2** (preferred alternatives in **bold**)*

1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lbs ww) or 87,254 pounds gutted weight (lbs gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

		Pounds gutted weight (lbs gw)		
ABC	**ACL**	**Com ACL (95%)**	**Rec ACL (5%)**	**Rec # Fish**
87,254	87,254	82,900	4,400	523

2. Specify that ACL=ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
Note: See Table 4.2.2 for values

3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
Note: See Table 4.2.3 for values.

3a. Set ACL=95%ABC=OY
3b. Set ACL=90%ABC=OY
3c. Set ACL=85%ABC=OY

Preferred Alternative 2 would set ACL=ABC=OY, and apply the South Atlantic Council's existing allocation formula (average of landings from 1986-2005) using landings data from SEDAR 36 (2013). SEDAR 36 (2013) updated the landings streams for these years, including making adjustments to account for the change from the Marine Recreational Fisheries Statistical Survey (MRFSS) to the newly adopted Marine Recreational Information Program (MRIP). The resulting change in the methodology used to estimate recreational landings caused a shift in allocation from the commercial to the recreational sector. SEDAR 4 (2004) commercial landings included Monroe County, Florida; however, the recreational data were not post-stratified from the rest of the West Florida landings. Therefore, Monroe County recreational landings were not included in the stock assessment when SEDAR 4 (2004) was conducted. Thus, the current recreational ACL (523 fish) is based on landings that do not include Monroe County recreational landings. When SEDAR 36 (2013) was conducted, a method for extracting Monroe County recreational landings from the rest of West Florida had been developed. Therefore, the decision was made to include Monroe County recreational landings in SEDAR 36 (2013). As a result, the new ABC and ACL that would be based on the results of SEDAR 36 (2013) would include Monroe County, Florida. SEDAR 36 (2013) attributed all landings from Monroe County, Florida to the South Atlantic. The reasoning was that snowy grouper is a deepwater species and, according to both commercial and recreational fishermen from Monroe County, Florida the majority of deepwater fishing occurs in the northeastern portion of the Florida Keys, within the jurisdiction of the South Atlantic Council. The alternatives under **Action 2**; therefore, propose ACLs based on an 83% commercial/17% recreational

allocation. This change; however, is not due to employing a different allocation formula but a result of revised landings streams used in the SEDAR 36 assessment.

The ABC generated from SEDAR 36 (2013) is in pounds; however, the recreational ACL is in numbers of fish. Therefore, the recreational ACL in pounds needs to be converted to numbers of fish. This was done by first determining snowy grouper average weight by year. As the stock rebuilds the average weight is expected to change each year. SEDAR 36 (2013) provided the annual projected removals both by numbers and weight when fishing mortality is fixed at 75%F_{MSY} (Table 22 of SEDAR 36 final report). This fishing mortality rate was chosen because the yield generated from 75%F_{MSY} was the ABC recommended by the South Atlantic Council's SSC. For each year, the weights are divided by the numbers of fish to determine the annual average weight of individual fish. **Table 4.2.1** shows the results of this calculation from the SEDAR 36 (2013) final report. The recreational ACL in pounds whole weight is divided by the annual average weights (of individual fish) to convert the ACL from pounds to numbers of fish. For example, the 2015 recreational ACL of 27,903 lbs ww is divided by the average weight of 6.72 lbs ww to provide a recreational ACL of 4,152 fish (**Table 4.2.2**).

Table 4.2.1. Annual average weight of South Atlantic snowy grouper generated from SEDAR 36 projection results when fishing mortality is fixed at 75%F_{MSY}.
Numbers and weight projections came from the median values of the stochastic projections, and the numbers are provided in Table 22 of the SEDAR 36 final report.

Year	Numbers of fish	Weight (ww lbs)	Average fish weight (lbs ww)
2015	25,000	168,000	6.72
2016	27,000	183,000	6.78
2017	29,000	197,000	6.79
2018	30,000	210,000	7.00
2019	32,000	224,000	7.00

Table 4.2.2 represents the ABC and ACL values for **Preferred Alternative 2** based on the South Atlantic Council's preferred rebuilding strategy of 75%F_{MSY} (**Preferred Alternative 3**) in **Action 1**. The commercial and recreational ACLs in **Table 4.2.2** also incorporate the sector allocations of 83% commercial and 17% recreational based on application of the South Atlantic Council's existing allocation formula. In 2015, the commercial ACL under **Preferred Alternative 2** would increase by 38,421 lbs ww (32,560 lbs gw); and the recreational ACL would increase by 22,755 lbs ww (19,284 lbs gw), or 523 fish to 4,152 fish (**Table 4.2.2**). From 2015 to 2019, the commercial and recreational ACLs would continue to increase, and in 2019, the commercial ACL would increase by 83,832 lbs ww (71,044 lbs gw); and the recreational ACL would increase by 32,056 lbs ww (27,166 lbs gw), or 5,315 fish (**Table 4.2.2**). The ACL values would remain at the 2019 levels until specified otherwise.

Table 4.2.2. ABC and ACL values (lbs ww and gw) of snowy grouper from 2015 to 2019 under **Preferred Alternative 2**.
Current commercial ACL is 97,812 lbs ww or 82,891 lbs gw; and the recreational ACL is 5,148 lbs ww or 4,363 lbs gw based on 95% commercial and 5% recreational allocation. Proposed commercial ACL is 83% of the total ACL and recreational ACL is 17% of the total ACL under **Preferred Alternative 2** as shown below.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Recreational ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Estimated Recreational Numbers of Fish**
2015	164,136	164,136	136,233	+38,421	+39%	27,903	+22,755	+442%	4,152
2016	178,791	178,791	148,397	+50,585	+52%	30,394	+25,246	+490%	4,483
2017	192,469	192,469	159,749	+61,937	+63%	32,720	+27,572	+536%	4,819
2018	205,170	205,170	170,291	+72,479	+74%	34,879	+29,731	+578%	4,983
2019	218,848	218,848	181,644	+83,832	+86%	37,204	+32,056	+623%	5,315
Gutted Weight									
2015	139,098	139,098	115,451	+32,560	+39%	23,647	+19,284	+442%	4,152
2016	151,518	151,518	125,760	+42,869	+52%	25,758	+21,395	+490%	4,483
2017	163,109	163,109	135,380	+52,489	+63%	27,729	+23,366	+536%	4,819
2018	173,873	173,873	144,315	+61,424	+74%	29,558	+25,195	+577%	4,983
2019	185,464	185,464	153,935	+71,044	+86%	31,529	+27,166	+623%	5,315

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Alternative 3 and its sub-alternatives would specify a range of buffers between the ABC and ACL and have a greater biological benefit than **Preferred Alternative 2** and **Alternative 1 (No Action)**. Creating a buffer between the ACL and ABC would provide greater assurance overfishing would not occur. Setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty in whether or not management measures are constraining fishing mortality to target levels. **Table 4.2.3** shows the ABC and ACL values with a buffer of 95% ABC **(Sub-alternative 3a)**, 90% ABC **(Sub-alternative 3b**), and 85% ABC **(Sub-alternative 3c)**.

Table 4.2.3. ABC and ACL values (lbs ww and gw) of snowy grouper from 2015 to 2019 under **Alternative 3**. Current commercial ACL is 97,812 lbs ww or 82,891 lbs gw; and the recreational ACL is 5,148 lbs ww or 4,363 lbs gw based on 95% commercial and 5% recreational allocation. Proposed commercial ACL is 83% of the total ACL and recreational ACL is 17% of the total ACL as per **Preferred Alternative 2**, and are shown in the table below. ABC values in 2015 are based on projections from SEDAR 36 (2013) at 75% F_{MSY}.

Whole Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Recreational ACL**	**Difference from current ACL**	**Percent Difference from current ACL**	**Estimated Recreational Numbers of Fish**
Sub-Alternative 3a, ACL = 95%ABC									
2015	164,136	155,929	129,421	+31,609	+32%	26,508	+21,360	+415%	3,945
2016	178,791	169,851	140,977	+43,165	+44%	28,875	+23,727	+461%	4,259
2017	192,469	182,846	151,762	+53,950	+55%	31,084	+25,936	+504%	4,578
2018	205,170	194,912	161,777	+63,965	+65%	33,135	+27,987	+544%	4,734
2019	218,848	207,906	172,562	+74,750	+76%	35,344	+30,196	+587%	5,049
Sub-Alternative 3b, ACL = 90%ABC									
2015	164,136	147,722	122,610	+24,798	+25%	25,113	+19,965	+388%	3,737
2016	178,791	160,912	133,557	+35,745	+37%	27,355	+22,207	+431%	4,035
2017	192,469	173,222	143,774	+45,962	+47%	29,448	+24,300	+472%	4,337
2018	205,170	184,653	153,262	+55,450	+57%	31,391	+26,243	+510%	4,484
2019	218,848	196,963	163,479	+65,667	+67%	33,484	+28,336	+550%	4,783
Sub-Alternative 3c, ACL = 85%ABC									
2015	164,136	139,516	115,798	17,986	+18%	23,718	+18,570	+361%	3,529
2016	178,791	151,972	126,137	28,325	+29%	25,835	+20,687	+402%	3,811
2017	192,469	163,599	135,787	37,975	+39%	27,812	+22,664	+440%	4,096
2018	205,170	174,395	144,747	46,935	+48%	29,647	+24,499	+476%	4,235
2019	218,848	186,021	154,397	56,585	+58%	31,624	+26,476	+514%	4,518

Table 4.2.3. Continued.

Gutted Weight									
Year	**ABC**	**Total ACL**	**Commercial ACL**	**Difference**	**Percent Difference**	**Recreational ACL**	**Difference**	**Percent Difference**	**Estimated Recreational Numbers of Fish**
Sub-Alternative 3a, ACL = 95%ABC									
2015	139,098	132,143	109,679	+26,788	+32%	22,464	+18,101	+415%	3,945
2016	151,518	143,942	119,472	+36,581	+44%	24,470	+20,107	+461%	4,259
2017	163,109	154,954	128,612	+45,721	+55%	26,342	+21,979	+504%	4,578
2018	173,873	165,179	137,099	+54,208	+65%	28,080	+23,717	+544%	4,734
2019	185,464	176,191	146,239	+63,348	+76%	29,953	+25,590	+587 %	5,049
Sub-Alternative 3b, ACL = 90%ABC									
2015	139,098	125,188	103,906	+21,015	+25%	21,282	+16,919	+388%	3,737
2016	151,518	136,366	113,184	+30,293	+37%	23,182	+18,819	+431%	4,035
2017	163,109	146,798	121,843	+38,952	+47%	24,956	+20,593	+472%	4,337
2018	173,873	156,486	129,883	+46,992	+57%	26,603	+22,240	+510%	4,484
2019	185,464	166,918	138,542	+55,651	+67%	28,376	+24,013	+550%	4,783
Sub-Alternative 3c, ACL = 85%ABC									
2015	139,098	118,234	98,134	+15,243	+18%	20,100	+15,737	+361%	3,529
2016	151,518	128,790	106,896	+24,005	+29%	21,894	+17,531	+402%	3,811
2017	163,109	138,643	115,074	+32,183	+39%	23,569	+19,206	+440%	4,096
2018	173,873	147,792	122,667	+39,776	+48%	25,125	+20,762	+476%	4,235
2019	185,464	157,645	130,845	+47,954	+58%	26,800	+22,437	+514%	4,518

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

The ACL in **Alternative 1 (No Action)** is based on the results of SEDAR 4 (2004), which indicated the stock was overfished and undergoing overfishing. The results of the new assessment (SEDAR 36 2013) demonstrate that the condition of snowy grouper has improved and the stock is no longer undergoing overfishing and is rebuilding, but remains overfished. Furthermore, the South Atlantic Council's SSC has recommended an ABC associated with the yield at 75%F_{MSY} (**Preferred Alternative 3** in **Action 1**), which is larger than the ABC resulting from SEDAR 4 (2004) under **Alternative 1 (No Action)**. Thus, there is not a biological need to maintain the ACL at the level specified under **Alternative 1 (No Action)**, and a larger ACL identified in **Alternatives 2 (Preferred)** and **3** would be appropriate to maintain a sustainable harvest of the stock.

Since **Sub-alternative 3c** has the largest buffer between the ABC and the ACL, it would be expected to yield the largest biological benefits of all the sub-alternatives under **Alternative 3**. Biological effects would also be expected to be higher under **Alternative 3** and its sub-alternatives when compared with **Preferred Alternative 2**. While the ACL currently under **Alternative 1 (No Action)** is lower than that proposed under **Preferred Alternative 2** and **Alternative 3** (including its sub-alternatives), it does not reflect the ABC recommendations of South Atlantic Council's SSC from the latest stock assessment for snowy grouper, and maintaining the ACL at a lower level may not be biologically needed. Furthermore, scientific and management uncertainties are included in the South Atlantic Council's ABC control rule,

which is factored into the ABC (and therefore ACL) values generated by **Preferred Alternative 2** and **Alternative 3** (including its sub-alternatives).

Thus, like **Alternative 1 (No Action)**, **Alternatives 2 (Preferred)** and **3**, which specify an ACL at or below the catch levels recommended by the South Atlantic Council's SSC, would not be expected to have adversely significant biological effects on the snowy grouper stock. Under **Action 2**, the biological benefits of the alternatives would be expected to be greatest for **Alternative 1 (No Action)** followed by **Sub-alternative 3c**, **Sub-alternative 3b**, **Sub-alternative 2a**, and **Preferred Alternative 2**.

The Magnuson-Stevens Fishery Conservation and Management Act National Standard 1 established the relationship between conservation and management measures, preventing overfishing, and achieving optimum yield (OY) from each stock, stock complex, or fishery. The National Standard 1 guidelines discuss the relationship of the overfishing limit (OFL) to the maximum sustainable yield (MSY) and annual catch target (ACT) or ACL to OY. The OFL is an annual amount of catch that corresponds to the estimate of maximum fishing mortality threshold applied to a stock or complex's abundance; MSY is the long-term average of such catches. The ACL is the limit that triggers AMs, and ACT, if specified, would be the management target for a species. Management measures for a species should, on an annual basis, prevent the ACL from being exceeded.

The South Atlantic Council and their SSC have established an ABC control rule that takes into consideration scientific and management uncertainty to ensure catches are maintained below a MSY level. Setting the ACL equal to the ABC leaves no buffer between the two harvest parameters, which may increase risk that harvest could exceed the ABC. The South Atlantic Council considered alternatives for snapper grouper species in the Comprehensive ACL Amendment (SAFMC 2011c) and Amendment 24 (SAFMC 2011d) that would set the ACL below the ABC, but selected ACL=ABC=OY as their preferred alternative.

The National Standard 1 Guidelines recommend a performance standard by which the efficacy of any system of ACLs and AMs can be measured and evaluated. According to the guidelines:
…if catch exceeds the ACL for a given stock or stock complex more than once in the last four years, the system of ACLs and AMs should be re-evaluated, and modified if necessary, to improve its performance and effectiveness 50 C.F.R. §600.310(g)(3).

If the ACL is exceeded more than once over the course of four years, the South Atlantic Council would reassess the system of ACLs and AMs for the species. Amendment 17B (SAFMC 2010b) and Amendment 27 (SAFMC 2013a) updated the Framework Procedure for the Snapper Grouper FMP to allow OFL, ABC, ACLs, AMs, and ACTs to be modified via framework amendment, which requires less time to implement compared to a FMP amendment. Furthermore, the current commercial AM with its in-season closure and recreational AMs that include a payback provision to shorten the length of the following year's recreational fishing season for snowy grouper could prevent both sectors from exceeding their ACLs.

With vastly improved commercial monitoring mechanisms recently implemented, it is unlikely that repeated commercial ACL overages would occur. The Commercial Landings Monitoring System (CLM) came online in June 2012 and is now being used to track commercial landings of federally-managed fish

species. This system is able to track individual dealer reports, track compliance with reporting requirements, project harvest closures using five different methods, and analyze why ACLs are exceeded. The CLM performs these tasks by taking into account: (1) spatial boundaries for each stock based on fishing area; (2) variable quota periods such as overlapping years or multiple quota periods in one year; and (3) overlapping species groups for single species as well as aggregated species. Data sources for the CLM system include the Standard Atlantic Fisheries Information System for Georgia and South Carolina, and the Bluefin Data file upload system for Florida and North Carolina. The CLM system is also able to track dealer reporting compliance with a direct link to the permits database in National Marine Fisheries Service (NMFS) Southeast Regional Office (SERO).

Additionally, the Southeast Fisheries Science Center (SEFSC) worked with SERO, the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council), and South Atlantic Council to develop a Joint Dealer Reporting Amendment (GMFMC & SAFMC 2013c), which was implemented on August 7, 2014. The Joint Dealer Reporting Amendment increased required reporting frequency for dealers to once per week, and required a single dealer permit for all finfish dealers in the Southeast Region. On January 27, 2014, the Generic For-Hire Reporting Amendment (GMFMC & SAFMC 2013a) was implemented (78 FR 78779), which required all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis. The CLM, the for-hire reporting, and the new dealer reporting requirements constitute major improvements to how commercial and for-hire fisheries are monitored, and go far beyond monitoring efforts that were in place when the National Standard 1 guidelines were developed. The new CLM quota monitoring system and actions in the Joint Generic Dealer and Generic For-Hire Reporting amendments are expected to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

Regardless of the alternatives or sub-alternatives selected, none is anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1 (No Action)** because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. Assuming that the proposed ACLs translate directly to fishing effort, and fishing effort translates to potential for interactions with protected species, **Sub-alternative 3c** would likely be the most biologically beneficial for sea turtles and smalltooth sawfish. After **Sub-alternative 3c**, the most biological beneficial alternatives for sea turtles and smalltooth sawfish are likely **Sub-alternative 3b, Sub-alternative 3a,** with **Preferred Alternative 2** being the least biologically beneficial.

The proposed alternatives under this action would not alter the way the commercial and recreational portion of the snapper grouper fishery for snowy grouper is prosecuted. Furthermore, hook-and-line gear, which is the predominant gear used to target snowy grouper, is among those recommended by the Sustainable Seafood Guide in the U.S. as a “best choice” or “good alternative” since this gear has minimal bycatch issues, and does little damage to physical or biogenic habitats (Blue Ocean 2010; Seafood Watch 2010). Therefore, no adverse effects on EFH, EFH HAPCs, or Coral HAPCs are anticipated.

4.2.2 Economic Effects

Under **Alternative 1 (No Action)**, the current ACL is 102,960 lbs ww or 87,254 lbs gw. The commercial ACL is 97,812 (95%) lbs ww while the recreational ACL is 5,148 (5%) lbs ww or 523 fish. The potential ex-vessel revenue generated by the commercial ACL is $329,113 using the gutted weight commercial ACL of 82,900 lbs gw and a price of $3.97 in 2013 U.S. dollars.

Under the status quo, the snowy grouper recreational landings exceeded the ACL in 2012 and 2013 by over 400%. **Section 3.3** notes that almost 40,000 lbs gw of snowy grouper were landed in 2012 and 2013 by the recreational sector while the recreational ACL was 4,400 lbs gw. Further, both MRIP and headboat databases each reported one to three snowy grouper per month, with some months reporting no snowy grouper catches. Recreational catches of snowy grouper are so infrequently surveyed that landings are highly uncertain. Unless there are improvements in controlling recreational harvest, the ACL under **Alternative 1 (No Action)** would continue to be exceeded based on 2012 and 2013 landings data. This would have negative long-term economic effects on both sectors and their associated communities.

Preferred Alternative 2 proposes that the ACL be set such that ACL=ABC=OY. Under this scenario, the resulting ACLs are higher, ranging from increases in the commercial ACL of about 33,000 lbs gw in 2015 to 71,000 lbs gw in 2019. Of course, these ACL values represent the potential harvest that is available and not what may be actually caught. The potential ex-vessel revenue increases could total approximately $131,000 in 2015 to $282,000 in 2019 (2013 U.S. dollars). The difference for the recreational sector ranges from increases of 3,629 fish in 2015 to 4,792 fish in 2019. Carter and Liese (2012) estimated that each (second) grouper caught per angler trip is, on average, valued by the customer at $102 in 2013 U.S. dollars. Using this value while cognizant of its limitation, the consumer surplus differences for the recreational sector ranges from increases of $370,158 in 2015 to $488,784 in 2019. This simply multiplies the average consumer surplus per grouper by the difference in the ACL (in numbers of fish) between **Preferred Alternative 2** and **Alternative 1 (No Action)**. However, these increases are relative to the status quo ACL and would not occur relative to the much higher current recreational landings. In addition, unless management and monitoring are effective in limiting recreational landings to the sector's ACL, these increases would be unlikely to occur.

Alternative 3 proposes three sub-alternatives that set the ACL equal to 95% ABC (**Sub-alternative 3a**), 90% ABC (**Sub-alternative 3b**), and 85% ABC (**Sub-alternative 3c**), thus creating buffers between the ABC and the ACL. This provides greater assurance that the ACL would not be exceeded and that overfishing would not occur. Under **Sub-alternative 3a**, the total ACL would be 132,143 lbs gw in 2015, and increase to 176,191 lbs gw in 2019. The commercial ACL would increase by 26,788 lbs gw (approximately $106,000 in ex-vessel revenue) to 109,679 lbs gw in 2015 and by 63,348 lbs gw (approximately $251,500 in ex-vessel revenue) to 146,239 lbs gw in 2019. The recreational ACL would increase by 18,101 lbs gw ($349,044 in consumer surplus) to 22,464 lbs gw in 2015 and by 25,590 lbs gw ($461,652 in consumer surplus) to 29,953 lbs gw in 2019. Again, no increases in consumer surplus are likely compared to recent recreational landings.

Under **Sub-alternative 3b**, the total ACL would be 125,188 lbs gw in 2015, and increase to 166,918 lbs gw in 2019. The commercial ACL would increase by 21,015 lbs gw (approximately $2,848,000 in ex-vessel revenue) to 103,906 lbs gw in 2015 and by 55,651 lbs gw (approximately $7,541,000 in ex-vessel

revenue) to 138,542 lbs gw in 2019. The recreational ACL would increase by 16,919 lbs gw ($327,828 in consumer surplus) to 21,282 lbs gw in 2015 and by 24,013 lbs gw ($434,520 in consumer surplus) to 28,376 lbs gw in 2019. As stated previously, no increases in consumer surplus are likely compared to recent recreational landings.

Under **Sub-alternative 3c**, the total ACL would be 118,234 lbs gw in 2015 and increase to 157,645 lbs gw in 2019. The commercial ACL would increase by 15,243 lbs gw (approximately $60,500 in ex-vessel revenue) to 98,134 lbs gw in 2015 and by 47,954 lbs gw (approximately $190,400 in ex-vessel revenue) to 130,845 lbs gw in 2019. The recreational ACL would increase by 15,737 lbs gw ($306,612 in consumer surplus) to 20,100 lbs gw in 2015 and by 22,437 lbs gw ($407,490 in consumer surplus) to 26,800 lbs gw in 2019. As above, no increases in consumer surplus are likely compared to recent recreational landings rates because they are much higher than the ACL proposed.

In general, the greater the buffer between the ABC and the ACL, the greater the expectations are for a healthier stock and the greater the long-term economic benefits for commercial and recreational fishermen due to the expectation of higher future harvest levels. However, it must be stated that unless both the commercial and recreational sectors are held to their respective ACLs, then there is no chance for increases in long-term economic benefits. As mentioned above, the recreational sector exceeded their snowy grouper ACL by about 400% in 2012 and 2013 under the no action alternative. This impacts both commercial and recreational sectors as AMs are applied.

Higher ACLs usually have greater short-term economic benefits to commercial and recreational fishermen. Long-term economic benefits can also be realized if the ACL options are expected to achieve long-term biological health of the resource. However, the chances of long-term health are improved (if the sectors can be held to their ACLs) if a buffer exists between the ABC and the ACL. Therefore, since **Alternative 3** incorporates information from the newest stock assessment and incorporates a buffer, it is expected to achieve the greatest long-term health of the stock and the greatest long-term economic benefits with **Sub-alterative 3c** offering the largest buffer and therefore the largest economic benefits. **Preferred Alternative 2** incorporates new information from the new stock assessment and has a higher ACL, and is expected to produce greater long-term economic benefits than **Alternative 1 (No Action)**. However, because it creates the largest buffer between the ABC and ACL, **Alternative 3, Sub-alternative 3c** would likely yield the greatest long-term economic benefits.

4.2.3 Social Effects

Changes in the ACL for any stock would 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 fleet, for-hire fleet, and private anglers. AMs can have significant direct and indirect social effects because, when triggered, can restrict harvest in the current season or subsequent seasons. While the negative effects are usually short-term, they may at times induce other indirect effects through changes in fishing behavior or business operations that could have long-term social effects, such as increased pressure on another species, or fishermen having to stop fishing altogether due to regulatory closures.

In general, the higher the ACL, the greater the short-term social and economic benefits that would be expected to accrue, assuming long-term recovery and rebuilding goals are met. Adhering to stock

recovery and rebuilding goals is assumed to result in net long-term positive social and economic benefits. Additionally, adjustments in an ACL based on updated information from a stock assessment would be the most beneficial in the long term to fishermen and coastal communities because catch limits would be based on the current conditions and best scientific information available.

The ACLs under **Preferred Alternative 2** and **Alternative 3** would all be higher than under **Alternative 1 (No Action)** while maintaining the level of removals below the recommended ABC, and the benefits to fishermen and fishing communities are expected to be greatest under **Preferred Alternative 2** (see **Table 4.2.2**). As the proposed ACL is reduced under **Sub-alternatives 3a-3c** (see **Table 4.2.3**), the benefits would be less than under **Preferred Alternative 2**. The lower ACLs in **Sub-alternatives 3a-3c** could have negative short-term effects on fishermen if the AMs were triggered when a lower ACL is met.

The updated commercial-recreational allocation (83%/17%) under **Preferred Alternative 2** and **Alternative 3** would also result in a higher ACL for the recreational sector, which would likely improve recreational fishing opportunities. Additionally, the reduced season due to recreational overages for snowy grouper (as has occurred in recent years) and any future associated AMs could be expected to happen less frequently under a higher recreational ACL. However, because the recreational overages have been estimated to be almost 400% in recent years, it is possible that a recreational AM would still be triggered even with a higher recreational ACL.

4.2.4 Administrative Effects

Negative administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action), Alternative 2 (Preferred)**, and **Alternative 3** (including its sub-alternatives) would not result in significant administrative cost or time burdens other than notifying fishery participants of the change in the sector ACLs and continued monitoring of the sector ACLs. The burden on law enforcement would not change under either alternative since commercial quota closures and bag limits implemented are currently enforced.

4.3 Action 3. Commercial Management Measures for Snowy Grouper

4.3.1 Biological Effects

Alternative 1 (No Action) would maintain the current commercial fishing year starting on January 1 and ending when the commercial ACL is met or projected to be met. In 2012, the commercial sector closed on December 19, and in 2013, it closed on August 10. Due to inclement weather conditions in the northern states during the winter months, and to extend fishing opportunities, commercial fishers for snowy grouper requested the South Atlantic Council consider splitting the current commercial fishing year (**Alternatives 2** and **3** including their sub-alternatives). Additionally, **Alternatives 2** through **5** (and their respective sub-alternatives) consider temporal and geographic components to various trip limits.

Trip limits have a different effect on fishermen in different areas depending on the distance to the fishing grounds (**Table 4.3.1** and **Figures 4.3.1-4.3.5**). On average, travel distance from Georgia, South Carolina, and North Carolina, is longer than Florida to reach depths where snowy grouper are normally fished (**Table 4.3.1** and **Figures 4.3.1-4.3.5**).

Alternatives for Action 3
*(preferred alternatives in **bold**)*

1 (No Action). The current commercial snowy grouper fishing year is the calendar year with no split of the commercial ACL into separate seasons. The current commercial snowy grouper trip limit is 100 pounds gutted weight (lbs gw).

2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

- **2a.** 100 lbs gw.
- **2b.** 150 lbs gw.
- **2c.** 200 lbs gw.

3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lbs gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

- **3a.** 100 lbs gw.
- **3b.** 150 lbs gw.
- **3c.** 200 lbs gw.
- **3d.** 250 lbs gw.
- **3e.** 300 lbs gw.

4. Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

- **4a.** 300 lbs gw.
- **4b. 200 lbs gw.**
- **4c.** 150 lbs gw.

Alternative 5. Modify the commercial snowy grouper trip limit to 150 lbs gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Brevard/Indian River County line north when the trip limit will be as follows:

- **5a.** 200 lbs gw.
- **5b.** 250 lbs gw.
- **5c.** 300 lbs gw.

Table 4.3.1. Estimated travel distances (miles) from select ports/inlets/locations from North Carolina through Florida to approximated depths of 200, 300, 330, 600, and 650 feet.

Location off North Carolina	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Oregon Inlet	34.2	38.2	38.8	40.3	40.4
Ocracoke	31.7	32.1	32.4	33.8	35.2
Morehead City	41.1	45.2	45.7	46.9	48.3
New River	64.1	66.3	66.6	68	70.1
Southport	57.6	61.8	62	62.5	64.6
Location off South Carolina	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Little River	70.3	71.8	72.2	76	79.1
Georgetown	54.2	55.7	56	57.6	66.9
Charleston	53.9	57.5	58.9	62.7	65.3
Hilton Head	68.7	75.6	76.3	79.2	81.2
Location off Georgia	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Savannah	73.3	77.8	78.4	80.9	83.1
St. Catherines	81.8	83.3	83.9	85.5	87.5
St. Simons	80.2	81.4	82.1	83.4	85.6
Fernandina	75	76.1	76.5	77.8	79
Jacksonville	68.1	69.6	70	71.4	72
Location off NE Florida	Distance (mi.) to Approx. 200ft	Distance (mi.) to Approx. 300ft	Distance (mi.) to Approx. 330ft	Distance (mi.) to Approx. 500ft	Distance (mi.) to Approx. 650ft
Ft. Pierce	18.4	23.4	24.7	26.3	27.6
Sebastian	25.5	31	32.7	34	35.4
Melbourne	32.3	36.8	38.1	40	43
New Smyrna	42.4	46.6	47.3	49.2	51.6
St. Augustine	59.2	60.7	61.1	62.3	63.3
Location off Fl Keys	Distance to Approx. 200ft	Distance to Approx. 300ft	Distance to Approx. 330ft	Distance to Approx. 500ft	Distance to Approx. 650ft
Key Largo	7.6	9.2	10.1	12.4	14.5
Islamorada	5.9	7.5	8.3	11.9	15.2
Marathon	6.4	7.6	8	9.7	16.8
Key West	6.9	7.9	8.3	10.3	13.8

Source: Roger Pugliese, SAFMC Staff, prepared 2/6/14.

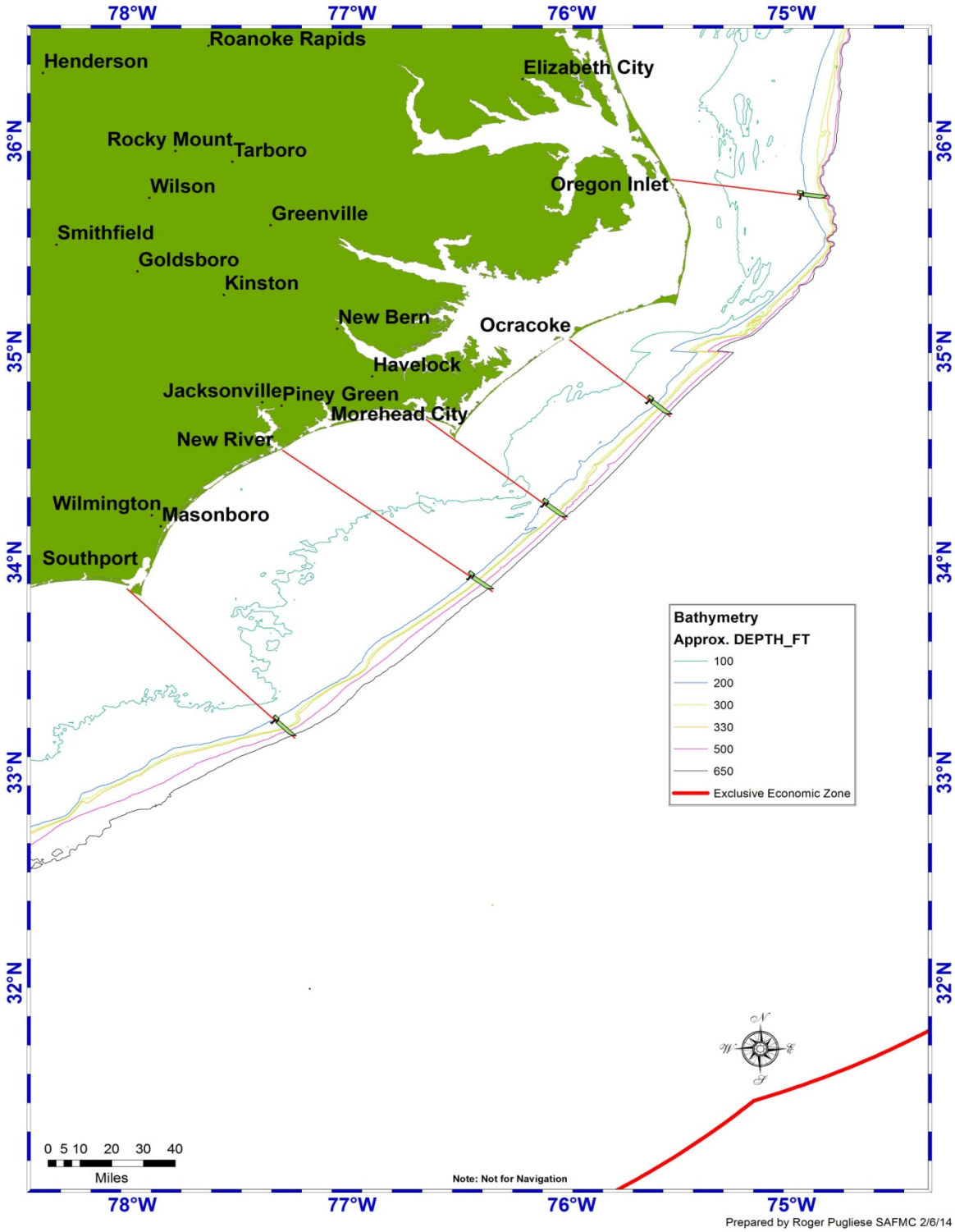

Figure 4.3.1. Estimated travel distances (miles) from select ports/inlets/locations in North Carolina to approximated depths of 200, 300, 330, 600, and 650 feet. Note: The USCG confirmed in August 2014 that Oregon Inlet is safe for navigation.

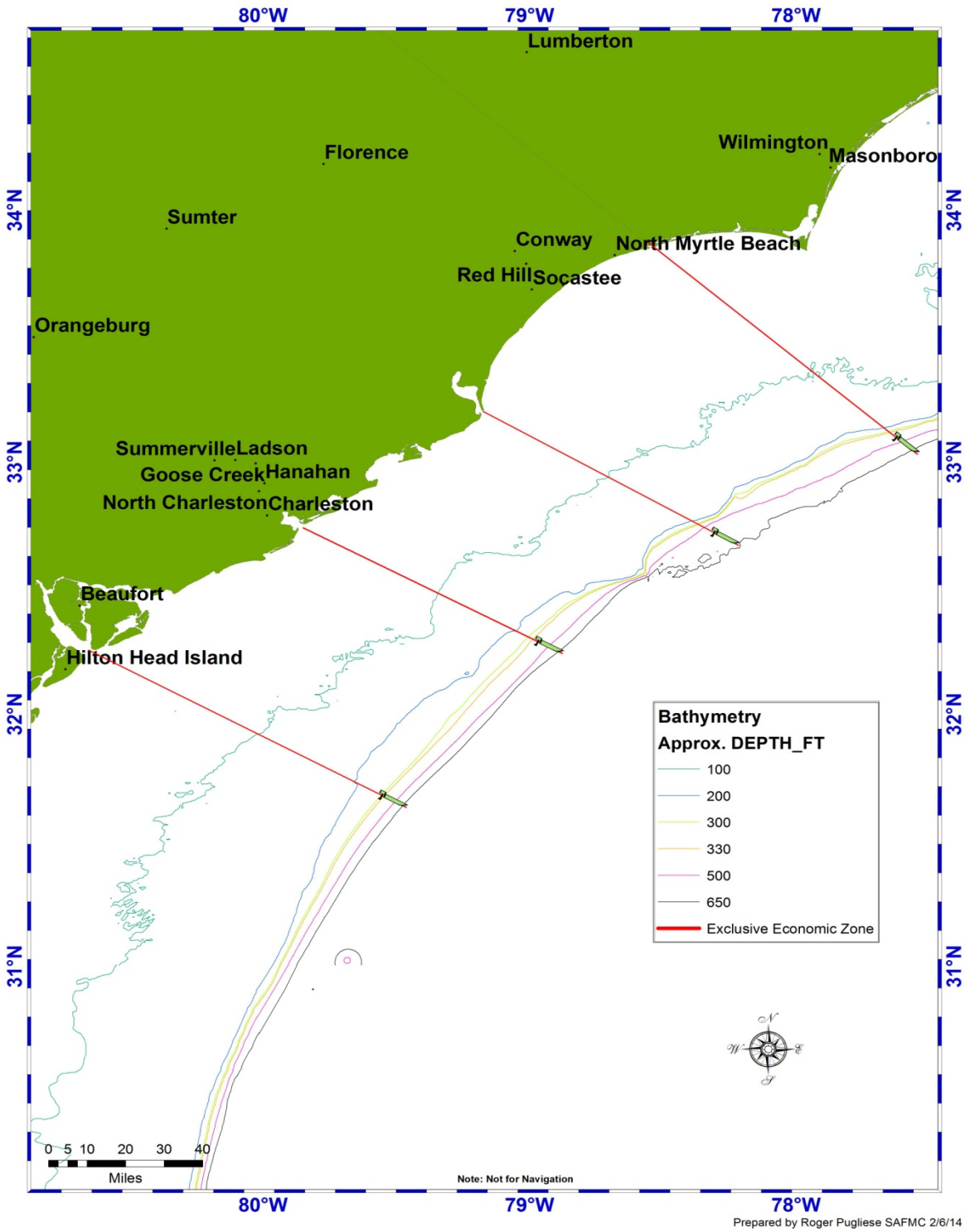

Figure 4.3.2. Estimated travel distances (miles) from select ports/inlets/locations in South Carolina to approximated depths of 200, 300, 330, 600, and 650 feet.

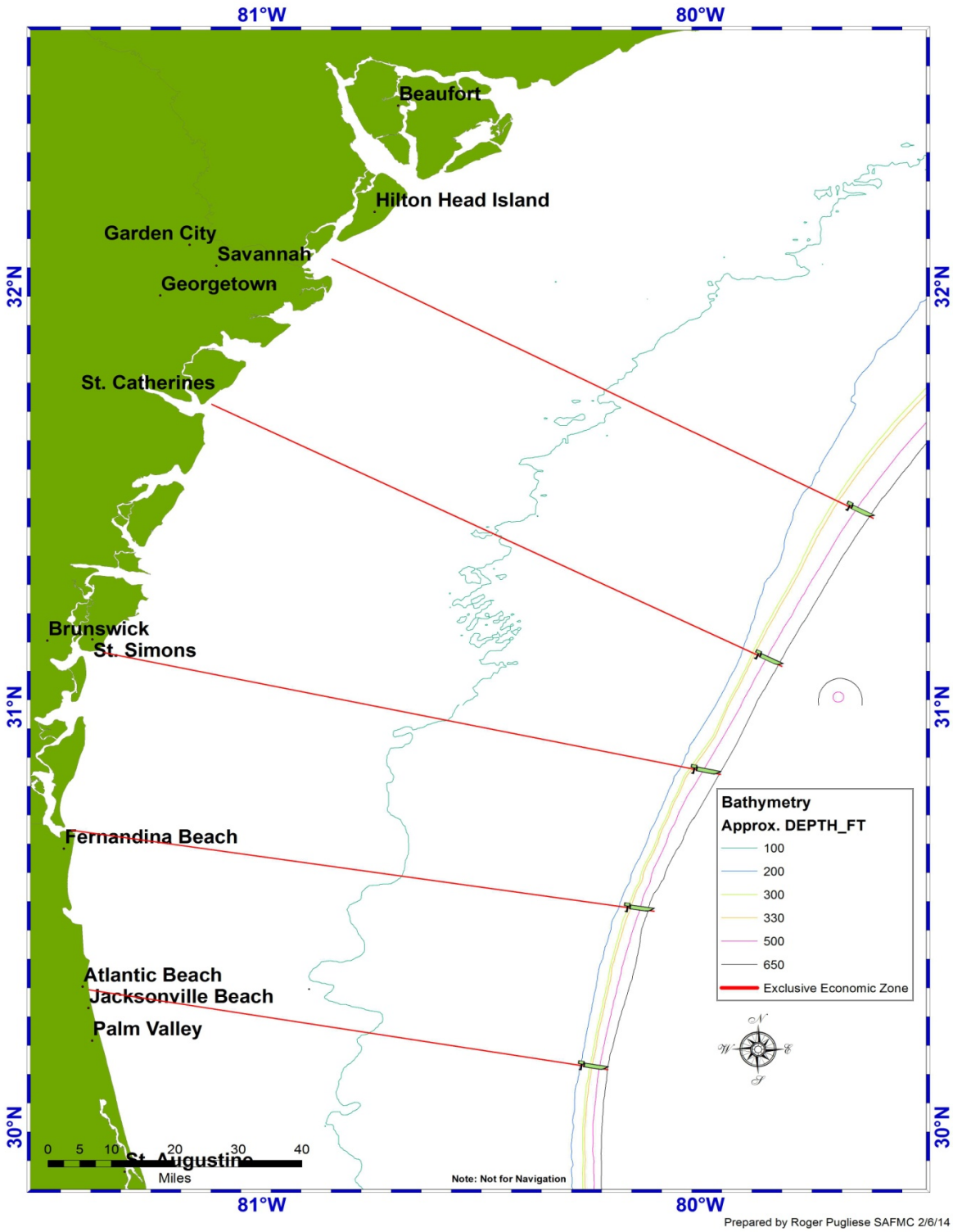

Figure 4.3.3. Estimated travel distances (miles) from select ports/inlets/locations in Georgia and Northeast Florida to approximated depths of 200, 300, 330, 600, and 650 feet.

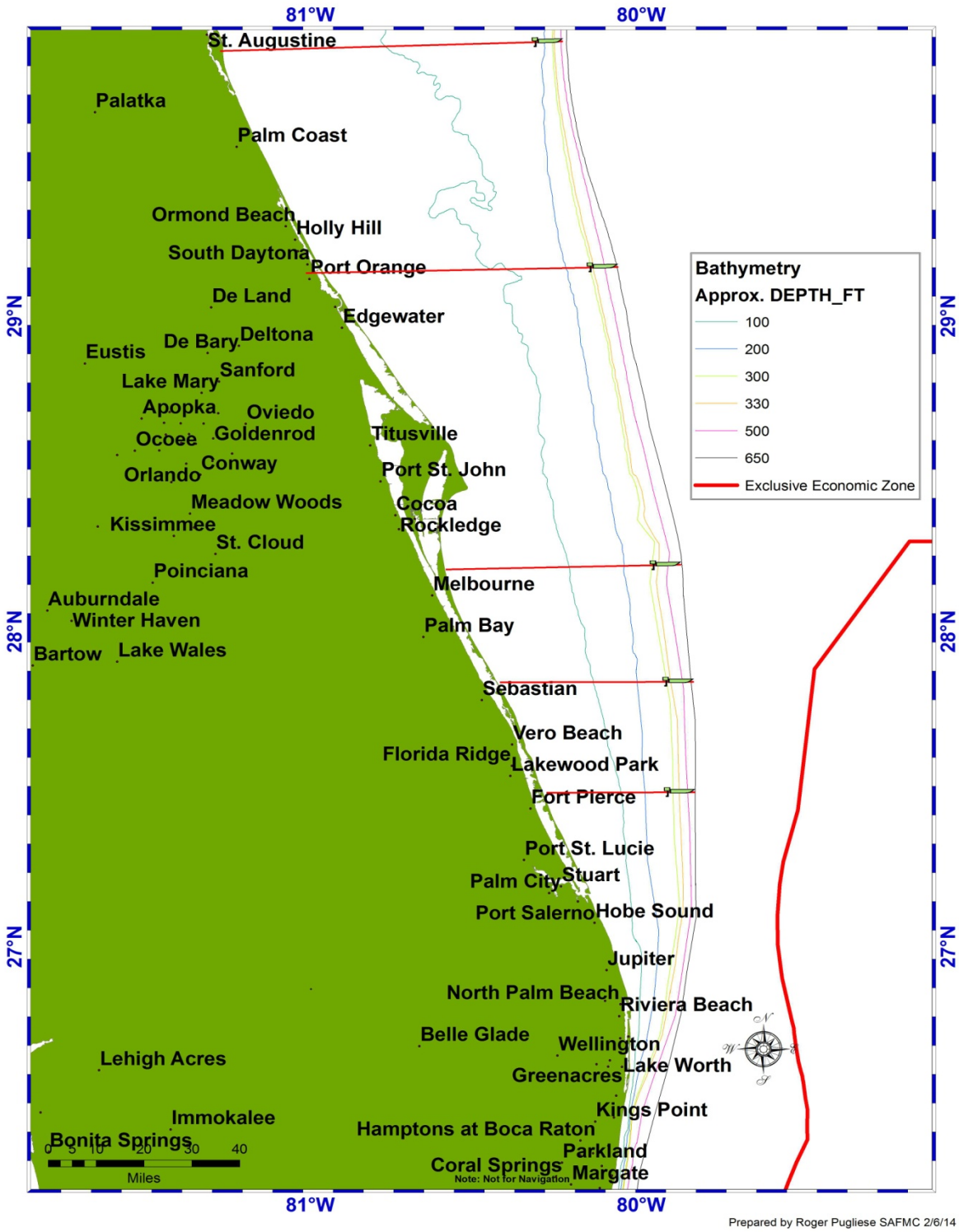

Figure 4.3.4. Estimated travel distances (miles) from select ports/inlets/locations in Florida East Coast to approximated depths of 200, 300, 330, 600, and 650 feet.

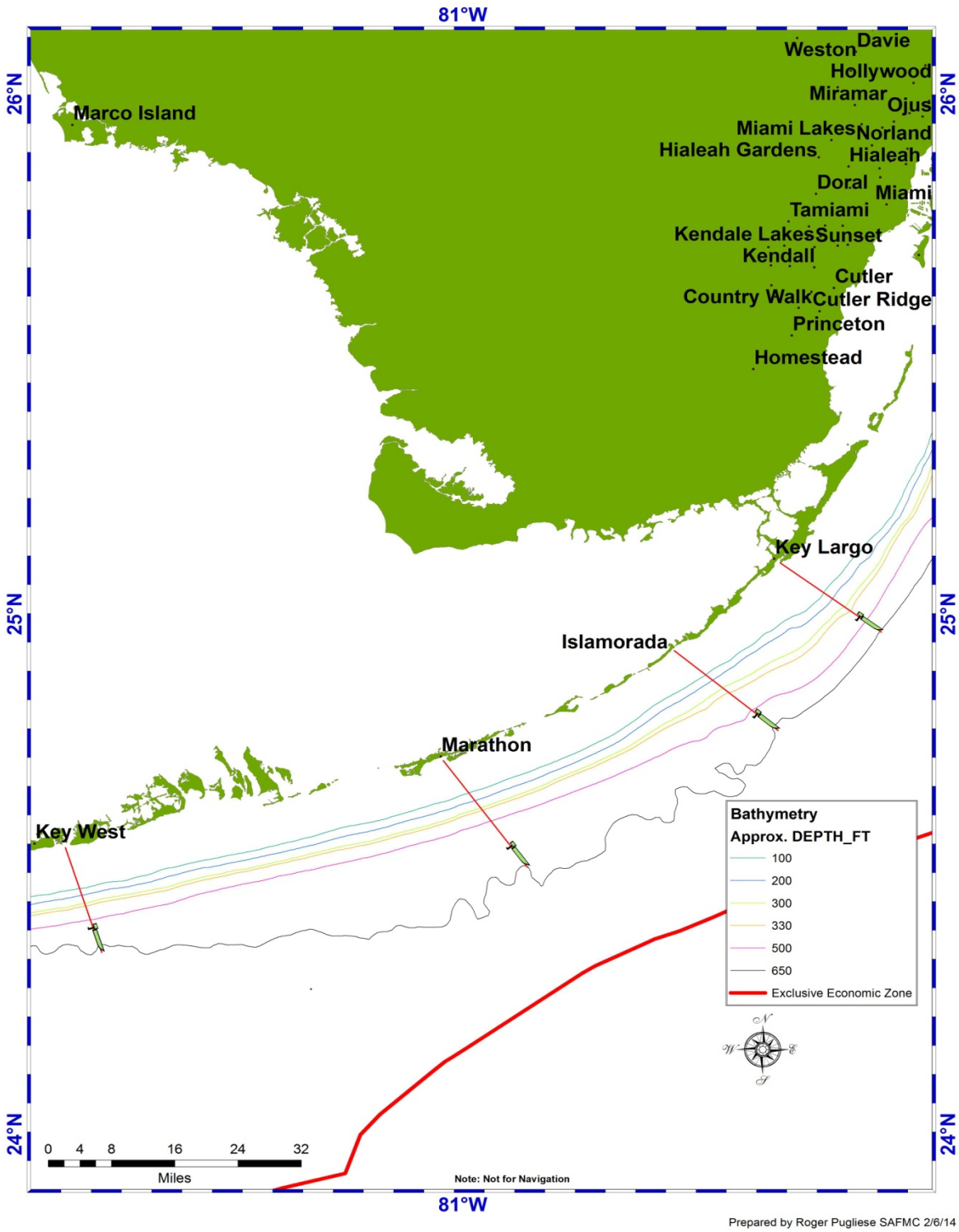

Figure 4.3.5. Estimated travel distances (miles) from select ports/inlets/locations in the Florida Keys to approximated depths of 200, 300, 330, 600, and 650 feet.

Snowy grouper landings for the commercial sector for 2012 and 2013 were explored to predict future landings **(Figure 4.3.6** and **Table 4.3.2)**. Recent landings were impacted by fishing regulations; changes in landings by state are shown in **Table 4.3.3**. From January 31, 2011 to May 10, 2012 harvest of snowy grouper in depths greater than 240 feet was prohibited (Amendment 17B, SAFMC 2010b). Additionally, the snowy grouper commercial sector was closed on December 19, 2012 and August 10, 2013 because it was determined the ACL had been met. The existing commercial trip limit of 100 lbs gw (**Alternative 1, No Action**) has not prevented fishermen from harvesting the full ACL in recent years. Most of the commercial landings were harvested using hook-and-line gear (**Figure 4.3.7**).

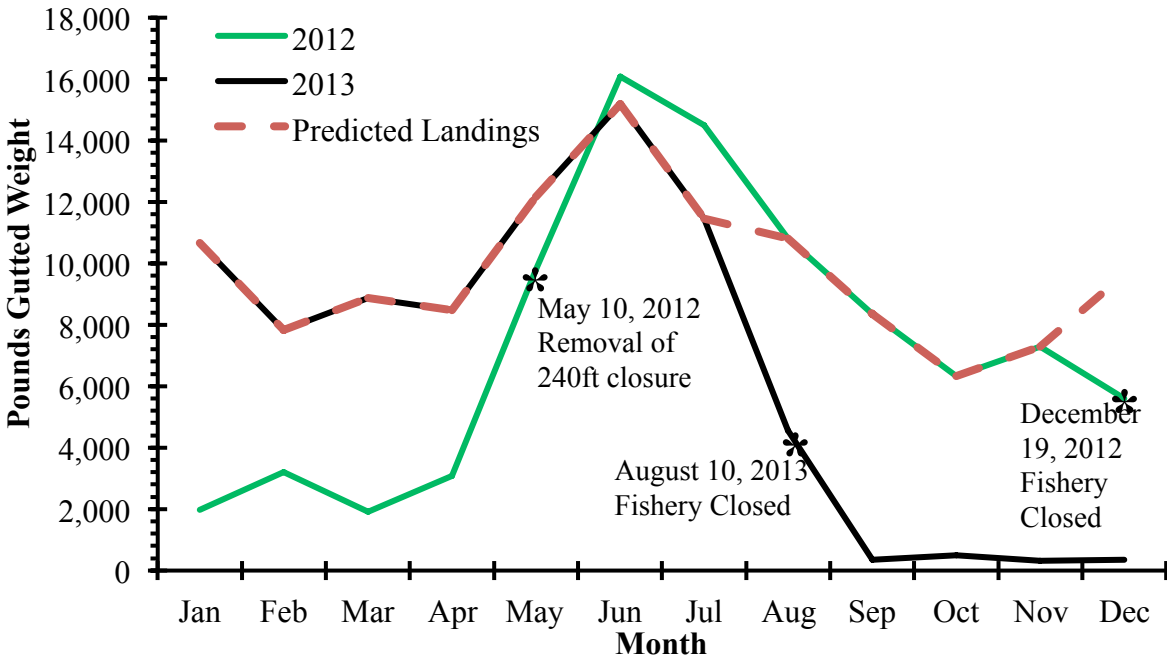

Figure 4.3.6. Monthly commercial snowy grouper landings in the South Atlantic for 2012 and 2013, and predicted landings for 2014.
The predicted landings follow the months when the fishery was open and not impacted by the 240 ft closure implemented by Amendment 17B (SAFMC 2010b). The predicted landings for the month of December were generated by adjusting the December 2012 landings, since the fishery was not open for this entire month.

Table 4.3.2. Monthly commercial snowy grouper landings in the South Atlantic for 2012 and 2013, and predicted landings for 2014.
The predicted landings follow the months when the fishery was open and not impacted by the 240 ft closure implemented by Amendment 17B (SAFMC 2010b). The predicted landings for the month of December were generated by adjusting the December 2012 landings, since the fishery was not open for this entire month.

Month	2012	Cumulative	%Cumul.	2013	Cumulative	%Cumul.	Predicted	Cumulative	%Cumul.
Jan	1,978	1,978	2%	10,669	10,669	13%	10,669	10,669	9%
Feb	3,206	5,184	6%	7,825	18,494	23%	7,825	18,494	16%
Mar	1,909	7,093	8%	8,874	27,368	34%	8,874	27,368	23%
Apr	3,082	10,175	11%	8,469	35,837	44%	8,469	35,837	31%
May	9,776	19,951	22%	12,169	48,006	59%	12,169	48,006	41%
Jun	16,074	36,025	41%	15,186	63,192	78%	15,186	63,192	54%
Jul	14,497	50,522	57%	11,449	74,641	92%	11,449	74,641	64%
Aug	10,814	61,336	69%	4,556	79,197	98%	10,814	85,455	73%
Sep	8,351	69,687	78%	356	79,553	99%	8,351	93,806	80%
Oct	6,323	76,010	86%	501	80,054	99%	6,323	100,129	86%
Nov	7,286	83,296	94%	318	80,372	100%	7,286	107,415	92%
Dec	5,593	88,889	100%	356	80,728	100%	9,633	117,048	100%
Total	88,889			80,728			117,047		

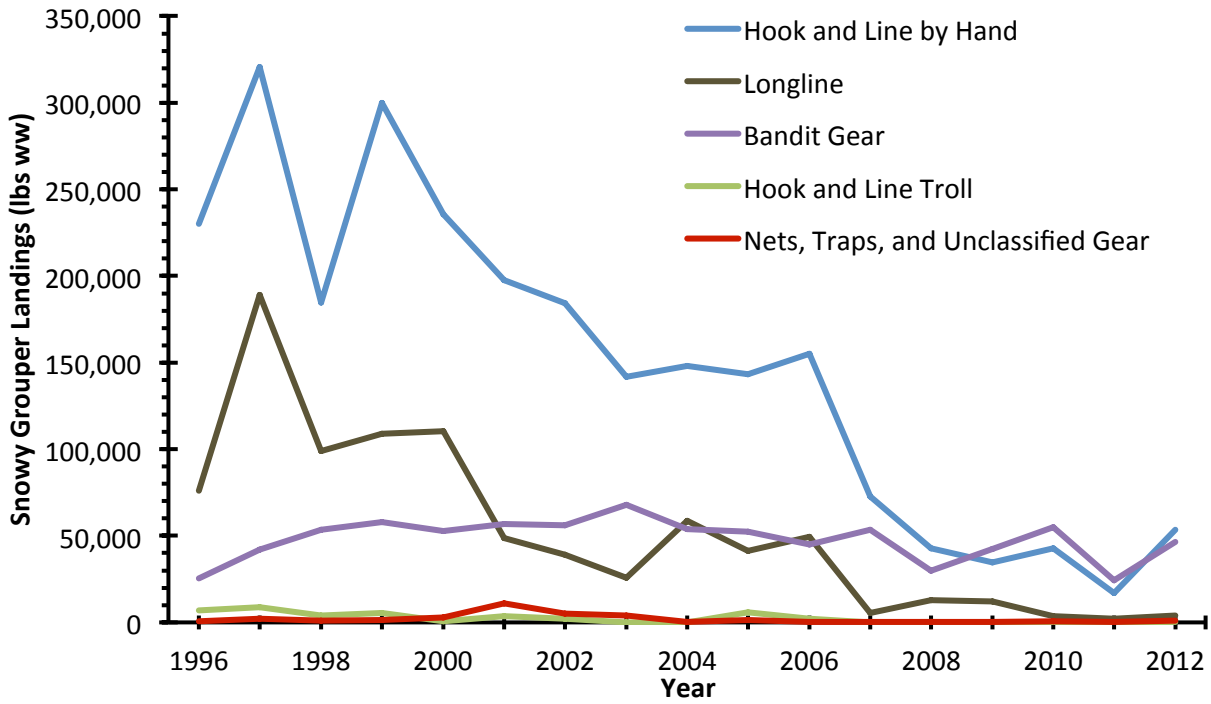

Figure 4.3.7. Annual commercial landings of snowy grouper by gear type in the South Atlantic during 1996-2012.

Table 4.3.3. Commercial and recreational landings (lbs ww) of snowy grouper, by state, from 1996 to 2008 in the South Atlantic.

Commercial snowy grouper landings (lbs ww)							
Year	**GA/FLE***	**%GA/FLE**	**NC**	**%NC**	**SC**	**%SC**	**Total**
1996	150,660	44%	123,223	36%	64,948	19%	338,831
1997	283,042	50%	162,936	29%	116,607	21%	562,585
1998	153,325	45%	123,210	36%	65,375	19%	341,910
1999	181,975	38%	217,496	46%	73,965	16%	473,436
2000	143,860	36%	186,788	46%	71,390	18%	402,038
2001	137,846	43%	106,748	34%	73,488	23%	318,082
2002	129,512	45%	110,614	39%	46,743	16%	286,869
2003	107,528	45%	104,645	44%	27,336	11%	239,509
2004	100,146	38%	97,470	37%	63,114	24%	260,730
2005	85,247	35%	86,146	35%	72,440	30%	243,833
2006	71,322	28%	102,567	41%	78,410	31%	252,299
2007	70,340	53%	48,363	37%	13,450	10%	132,153
2008	46,338	54%	26,714	31%	12,716	15%	85,768

Recreational snowy grouper landings (lbs ww) excluding Monroe County.									
	FLE	**%FLE**	**GA**	**%GA**	**NC**	**%NC**	**SC**	**%SC**	**Total**
1996	732	17%	11	0%	1,213	27%	2,471	56%	4,427
1997	158,444	65%	21	0%	84,599	35%	177	1%	244,362
1998	3,750	84%		0%	563	13%		4%	4,491
1999	61,871	86%	16	0%	10,157	14%	109	0%	72,153
2000	4,056	16%		0%	22,055	84%	13	0%	26,123
2001	11,182	20%	3	0%	44,294	79%	495	1%	55,974
2002	655	3%	3	0%	20,694	96%	313	1%	21,665
2003	9,374	34%		0%	17,608	65%	245	1%	27,227
2004	47,075	65%		0%	24,824	35%	2	0%	71,901
2005	79,377	73%		0%	29,121	27%	303	0%	108,800
2006	154,839	91%		0%	14,498	9%		0%	169,337
2007	30,311	50%		0%	30,511	50%	163	0%	60,985
2008	2,184	13%		0%	14,798	87%	24	0%	17,006

*Commercial snowy grouper landings for Georgia and east Florida were combined to avoid violation of confidentiality of the landings.

Examination of commercial logbook landings from 2012 and 2013 **(Figure 4.3.8** and **Table 4.3.4)** revealed that 171 (16%) out of 1,097 trips in 2012, and 184 (19%) out of 956 trips in 2013 reported landings in excess of the 100 lbs gw trip limit under **Alternative 1 (No Action)**.

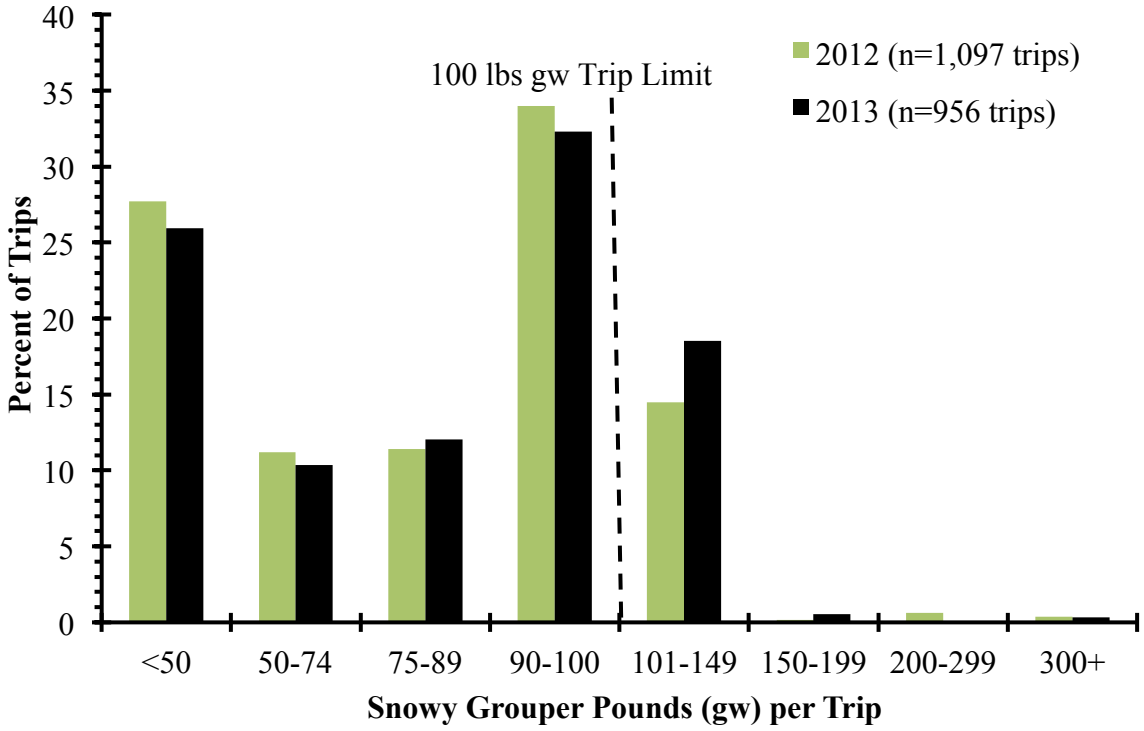

Figure 4.3.8. Frequency distribution of snowy grouper commercial landings per trip from 2012 to 2013 in the South Atlantic.

Table 4.3.4. Percentage of South Atlantic snowy grouper commercial trips broken up into eight different trip bins for 2012 and 2013. Each trip bin represents pounds of snowy grouper landed per trip.

Trip Bin	2012	2013
	%	%
<50	27.7	25.9
50-74	11.2	10.4
75-89	11.4	12.0
90-100	34.0	32.3
101-149	14.5	18.5
150-199	0.2	0.5
200-299	0.6	0.0
300+	0.4	0.3
Total	100	100

Commercial logbook data from 2012 and 2013 were analyzed to estimate the expected change in landings for the proposed commercial trip limits under **Alternatives 2** through **5** (and their respective sub-alternatives) (**Tables 4.3.5** through **4.3.9**), using the ACLs resulting from the alternatives under **Action 2**. Closure dates were predicted using the ACLs generated from the assessment and specified for 2015, since

these ACLs are closest to when Regulatory Amendment 20 would be expected to implemented. Values for 2015 are more conservative than those in 2016-2019.

Table 4.3.5. Percent increases in monthly landings for various commercial snowy grouper trip limits under all the alternatives considered in Action 3. The current trip limit is 100 lbs gw.

Month	Trip Limit			
	150 lbs gw	200 lbs gw	250 lbs gw	300 lbs gw
Jan	27.1	56.9	87.0	117.2
Feb	29.0	58.6	88.3	118.0
Mar	26.6	55.3	84.5	113.6
Apr	36.1	72.2	108.3	144.4
May	35.7	71.6	107.5	143.4
Jun	34.2	70.3	106.5	142.7
Jul	30.3	61.5	92.8	124.1
Aug	27.3	54.3	81.7	109.5
Sep	31.7	63.8	96.2	128.9
Oct	32.1	65.6	100.1	135.2
Nov	28.5	58.9	90.0	121.2
Dec	31.9	67.0	102.0	137.3

Alternative 1 (No Action) would maintain the current 12-month time period for harvest of the commercial ACL. **Alternative 2** would split the commercial ACL (from **Action 2**) equally (50%) into two seasonal commercial quotas. The first seasonal quota would be effective January through April, and the second seasonal quota from May to December. **Sub-alternative 2a** would maintain the current trip limit of 100 lbs gw for both commercial fishing seasons, while **Sub-alternatives 2b** and **2c** would increase the commercial trip limit to 150 lbs gw and 200 lbs gw, respectively, for both commercial fishing seasons. **Table 4.3.6** shows the predicted closure dates for the snowy grouper commercial sector in the South Atlantic under the different trip limits (**Sub-alternatives 2a-2c**) proposed for the split seasons proposed in **Alternative 2**.

Table 4.3.6. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic under the split seasons proposed in Alternative 2 in Action 3.
Predicted closure dates for Alternative 1 (No action) are the same as those for Season 2 in Sub-Alternative 2a in Action 3. 2015 ACL values are used in the table below, and 50% of the ACL is used in each season.

ACL Alternatives (Action 2)	Trip limit sub-alternatives (lbs gw) (Action 3)					
	2a. 100		2b. 150		2c. 200	
	Season 1	Season 2	Season 1	Season 2	Season 1	Season 2
1. No Action quota=41,446 lbs gw	No Closure	24-Aug	18-Apr	10-Jul	28-Mar	24-Jun
2 (Preferred). ACL=ABC quota=57,726 lbs gw	**No Closure**	**26-Dec**	**No Closure**	**10-Sep**	**No Closure**	**19-Jul**
3a. ACL=95% ABC quota=54,840 lbs gw	No Closure	8-Dec	No Closure	26-Aug	25-Apr	14-Jul
3b. ACL=90% ABC quota=51,953 lbs gw	No Closure	16-Nov	No Closure	13-Aug	19-Apr	9-Jul
3c. ACL=85% ABC quota=49,067 lbs gw	No Closure	22-Oct	No Closure	31-Jul	13-Apr	4-Jul

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Sub-alternative 2a (same as **Alternative 1, No Action**), with a trip limit of 100 lbs gw, would not be expected result in a commercial closure in season 1 regardless of the ACL alternatives chosen under **Action 2**. However, under **Sub-alternative 2a**, commercial harvest during season 2 would close as early as August 24 under the ACL in **Alternative 1 (No Action)** and as late as December 26 under the ACL in **Preferred Alternative 2** for **Action 2** (**Table 4.3.6**).

With an increase in the commercial trip limit to 150 lbs gw (**Sub-alternative 2b**), commercial harvest of snowy grouper during season 1 would not close under any of the ACL alternatives in **Action 2**, except for **Alternative 1 (No Action)**, when it would close on April 18 (**Table 4.3.6**). Commercial harvest during season 2 would close as early as July 10 under **Alternative 1 (No Action)**, and extend as long as September 10 under for the ACL under **Preferred Alternative 2** in **Action 2** (**Table 4.3.6**).

Sub-alternative 2c (trip limit of 200 lbs gw), would not result in a commercial closure in season 1 for the ACL under **Preferred Alternative 2** in **Action 2**, but, commercial harvest during season 1 would close between late March and late April under the other ACL sub-alternatives in **Action 2**. Commercial harvest for snowy grouper during the second season would close as early as June 24 and extend only as long as July 19 under the **Preferred Alternative 2** ACL in **Action 2** (**Table 4.3.6**).

By dividing the commercial ACL into two fishing quotas (**Alternatives 2** and **3**), fishermen would theoretically be given the opportunity to fish for snowy grouper at the beginning of the year and during the summer. The divided commercial quota is intended to provide fishermen in the northern and southern areas of the South Atlantic a chance to fish for snowy grouper when weather conditions are favorable in their respective areas. However, since the ACL would be increased under **Preferred Alternative 2** in

Action 2, a commercial harvest closure during season 1 is not expected for most of the ACLs being considered. Without an in-season closure during season 1 for most of the scenarios examined, a split season has little to no effect on extending the fishing season. The biological impacts of a split season for snowy grouper are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and AMs would be triggered if the ACL or quotas were exceeded. In-season commercial closures for snowy grouper are expected in season 2 for the different ACLs if there is an increase in the trip limit. Any differences between **Alternative 1 (No Action)** and **Alternative 2** are a function of the trip limit sub-alternatives under **Alternative 2** and not splitting the ACL into seasonal quotas. Alternatives with larger trip limits (**Sub-alternative 2c**) could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made to the quota monitoring system, and the South Atlantic Council has approved a Dealer Reporting Amendment (GMFMC & SAFMC 2013c; effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier closures of snowy grouper. Early closures can lead to regulatory discards and release mortality for snowy grouper is 100%, which would not be beneficial to the stock. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

Alternative 3 would also split the commercial snowy grouper fishing year into two seasonal quotas. However, the first seasonal quota would be 40% of the total ACL, from January 1 through April 30; and 60% of the total ACL from May 1 through December 31. Under **Alternative 3**, the current trip limit of 100 lbs gw would be maintained for season 1 (January through April), and for the season 2 (May through December), various trip limits of 100 lbs gw (**Sub-alternative 3a**) through 300 lbs gw (**Sub-alternative 3e**), would be established.

Predicted closure dates for commercial harvest of snowy grouper under the different trip limits (**Sub-alternatives 3a-3e**) for the split seasons proposed in **Alternative 3** are shown in **Table 4.3.7**. In season 1, there would be no closure of the commercial sector under all the ACL alternatives in **Action 2**, except for **Alternative 1 (No Action)** (**Table 4.3.7**). In season 2, the commercial sector would close before the end of December under all the trip limit sub-alternatives (**Table 4.3.7**). As expected, the most liberal ACL under **Preferred Alternative 2** in **Action 2**, would extend the commercial sector the longest under all the trip limit sub-alternatives in **Action 3** (**Table 4.3.7**). For the commercial ACL resulting from **Preferred Alternative 2** in **Action 2**, the smallest trip limit of 100 lbs gw (**Sub-alternative 3a**) would result in a harvest closure on December 26, and the largest trip limit of 300 lbs gw (**Sub-alternative 3e**) would result in a closure of commercial harvest for snowy grouper on July 16 (**Table 4.3.7**). **Sub-alternatives 3b**, **3c**, and **3d** would result in harvest closures between those from **Sub-alternatives 3a** and **3e** (**Table 4.3.7**). Similar to **Alternative 2** and its sub-alternatives, the biological impacts of the split season under **Alternative 3** (and its sub-alternatives) are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and AMs (e.g. in-season closures) would be triggered if the ACL or quotas were exceeded. Furthermore, for both **Alternatives 2** and **3** (and their corresponding sub-alternatives), any unused poundage from the first season would carry over into the second season; however, any remaining commercial quota from the second season would not carry over into the next year.

Table 4.3.7. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic under Alternative 3 in Action 3.
2015 ACL values are used in the table below.

ACL Alternatives (Action 2)	Season 1 quota (lbs gw)	Date ACL met with 100 lbs trip limit	Season 2 quota (lbs gw)	Trip Limit sub-alternatives (Action 3) (lbs gw)				
				3a. 100	3b. 150	3c. 200	3d. 250	3e. 300
1. No Action	33,156	21-Apr	49,735	1-Sep	27-Jul	5-Jul	24-Jun	17-Jun
2. (Preferred) ACL = ABC	**46,180**	**No Closure**	**69,271**	**26-Dec**	**12-Oct**	**27-Aug**	**2-Aug**	**16-Jul**
3a. ACL=95% ABC	43,872	No Closure	65,807	8-Dec	23-Sep	16-Aug	25-Jul	9-Jul
3b. ACL=90% ABC	41,562	No Closure	62,344	16-Nov	7-Sep	6-Aug	17-Jul	2-Jul
3c. ACL=85% ABC	39,254	No Closure	58,880	22-Oct	24-Aug	27-Jul	8-Jul	27-Jun

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Preferred Alternative 4 would modify the current 100 lbs gw commercial trip limit for snowy grouper to 300 lbs gw (**Sub-alternative 4a**), 200 lbs gw (**Preferred Sub-alternative 4b**), or 150 lbs gw (**Sub-alternative 4c**), from January 1 until the ACL is met or projected to be met. Predicted closure dates under the different trip limits proposed in **Preferred Alternative 4** are shown in **Table 4.3.8**. For the ACL in **Preferred Alternative 2** in **Action 2**, the commercial sector would close as early as June 5 under the 300 lbs gw trip limit (**Sub-alternative 4a**), July 19 under the 200 lbs gw trip limit (**Preferred Sub-alternative 4b**), and as late as September 10 under the 150 lbs gw trip limit (**Sub-alternative 4c**) (**Table 4.3.8**). The commercial sector would close earlier in the year under all the other combinations of alternatives under **Actions 2** and **3** (**Table 4.3.8**).

Alternative 5 would modify the commercial trip limit for snowy grouper from the current 100 lbs gw to 150 lbs gw all year or until the ACL is met or projected to be met with the following exception: during May through August, from the Florida Brevard/Indian River County line north, the trip limit would be 200 lbs gw (**Sub-alternative 5a**), 250 lbs gw (**Sub-alternative 5b**), or 300 lbs gw (**Sub-alternative 5c**). Predicted closure dates under the sub-alternatives for **Alternative 5** are shown in **Table 4.3.9**. For the commercial ACL resulting from **Preferred Alternative 2** in **Action 2**, the length of the commercial fishing season for snowy grouper would be extended the most under the trip limit of 200 lbs gw (**Sub-alternative 5a**), but still close on September 16 (**Table 4.3.9**). The commercial sector would close on September 2 under the trip limit of 250 lbs gw (**Sub-alternative 5b**), and on August 22 under the trip limit of 300 lbs gw (**Sub-alternative 5c**) (**Table 4.3.9**). Under all the other ACL alternatives in Action 2, the commercial sector would close as early as June 24 and as late as August 31 (**Table 4.3.9**).

Table 4.3.8. Predicted closure dates for the snowy grouper commercial fishery in the South Atlantic for different proposed trip limits and ACLs included in **Preferred Alternative 4** in Action 3 and various alternatives under Action 2.
2015 ACL values are used in the table below.

ACL Alternatives (lbs gw) (Action 2)	Trip limit sub-alternatives (lbs gw) (Action 3)		
	4a. 300	**4b. 200**	**4c. 150**
1. No Action. ACL=82,891	4-May	**6-Jun**	30-Jun
2 (Preferred). ACL=ABC= 115,451	**5-Jun**	**19-Jul**	**10-Sep**
3a. ACL=95% ABC=109,679	1-Jun	**10-Jul**	26-Aug
3b. ACL=90% ABC =103,906	26-May	**30-Jun**	13-Aug
3c. ACL=85% ABC=98,134	20-May	**23-Jun**	31-Jul

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place.

Table 4.3.9. Predicted closure dates for the South Atlantic snowy grouper commercial fishery by applying three different increased trip limits for the area north of Indian River County, Florida, under Alternative 5 in Action 3.
2015 ACL values are used in the table below.

ACL Alternatives (lbs gw) (Action 2)	Trip limit sub-alternatives (lbs gw) (Action 3)		
	5a. 200	**5b. 250**	**5c. 300**
1.No Action. ACL=82,891	3-Jul	28-Jun	24-Jun
2 (Preferred). ACL=ABC=115,451	**16-Sep**	**2-Sep**	**22-Aug**
3a. ACL=95% ABC=109,679	31-Aug	20-Aug	11-Aug
3b. ACL=90% ABC=103,906	18-Aug	8-Aug	31-Jul
3c. ACL=85% ABC=98,134	5-Aug	28-Jul	21-Jul

Note: ACLs would increase from 2015 to 2019, and remain at 2019 levels until a new stock assessment takes place. The closure dates in this table apply a 150 lbs gw trip limit from January to April and September to December. Then in the months of May to August a 150 lbs gw trip limit is applied in Indian River County and south of Indian River County, and the 200, 250, and 300 lbs gw trip limits are applied north of Indian River County.

The biological effects of the **Alternatives 2** through **5** (and their sub-alternatives) proposed in **Action 3** would be expected to be neutral compared with **Alternative 1 (No Action)**, because ACLs and AMs are in place to cap harvest, and take action if ACLs are exceeded. Alternatives with larger trip limits could present a greater biological risk to snowy grouper in terms of exceeding the ACL since the rate of harvest would be greater. However, improvements have been made to the quota monitoring system, and the

South Atlantic Council has approved a Dealer Reporting Amendment (GMFMC & SAFMC 2013c; effective August 7, 2014), which should enhance data reporting. Larger trip limits could also result in earlier commercial closures of snowy grouper (**Tables 4.3.6** through **4.3.9**). Early commercial closures could lead to regulatory discards and release mortality for snowy grouper is 100%, which would not be beneficial to the stock. SEDAR 36 (2013) indicated that snowy grouper remains overfished, but is rebuilding. An increase in trip limits to 200 lbs gw or more may result in earlier closures of the commercial sector than the current 100 lbs gw trip limit, especially since monthly landings could increase by 27-137% (**Table 4.3.5)**. Early commercial closures could result in bycatch of snowy grouper if fishermen target co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) after the closure occurs. Similarly smaller trip limits could increase bycatch if fishermen continue to target co-occurring species when the snowy grouper trip limit is met. Therefore, little difference in the biological effects of the trip limit alternatives is expected.

Regardless of the alternative/action combination selected, none of them are anticipated to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Regardless of the actions/alternatives selected, an increase in the potential for interactions with smalltooth sawfish is not anticipated. Similarly, no combination of actions/alternatives is anticipated to adversely affect any of the primary constituent elements of the NWA loggerhead critical habitat, including the nearshore reproductive habitat. **Alternative 1 (No Action)** is likely to perpetuate the existing level of risk between the fishery and sea turtles. However, the biological impact of the remaining actions/alternatives on sea turtles is unclear. Sea turtles nest along the East Coast of the United States from April-October, with peak nesting occurring from May-July. Sea turtle nesting brings gravid females closer to shore where they are more susceptible to interaction with snapper grouper fishing gear. For **Alternative 2, Action 3,** the most biologically beneficial combination of actions and alternatives is **Alternative 1 (No Action)** for **Action 2** and **Sub-alternative 2c** for **Action 3,** based strictly on the number of months fishing is projected to occur during sea turtle nesting season. This is the only combination of actions/alternatives that would not allow fishing during the entire peak nesting season. A number of action/alternative scenarios are slightly less biological beneficial than this one, simply because the amount of fishing effort gradually increases under each scenario with respect to nesting season. **Sub-alternative 2a** is likely to have the least biological benefit to sea turtles.

For **Alternative 3, Action 3,** the most biologically beneficial combination of actions and alternatives is **Alternative 1 (No Action)** for **Action 2** and **Sub-alternative 3e** for **Action 3,** based strictly on the number of months fishing is projected to occur during sea turtle nesting season. A number of action/alternative scenarios are slightly less biological beneficial that this one, simply because the amount of fishing effort changes with each. **Preferred Alternative 2** and **Action 3**, **Sub-alternative 3a** is likely to have the least biological benefit to sea turtles because it covers the entire nesting and several additional weeks. While this combination is likely to be the least beneficial, any combination of alternatives from **Action 2** with **Action 3, Sub-alternative 3a** is likely to have few biological benefits to sea turtles because commercial harvest of snowy grouper would remain open during the entire nesting season.

For **Preferred Alternative 4**, **Action 3**, the most biologically beneficial combination of actions and alternatives is **Alternative 3c** for **Action 2** and **Sub-alternative 4a** for **Action 3,** based strictly on the

number of months fishing is projected to occur during sea turtle nesting season. This combination of actions/alternatives would close harvest of snowy grouper relatively soon after nesting season commences and would only operate during the very beginning of the peak nesting season. Conversely, **Preferred Alternative 2** and **Action 3, Sub-alternative 4c** is likely to have the least biological benefit to sea turtles. Commercial harvest of snowy grouper would be open during the entire peak nesting season and would close just a few weeks before nesting season ended.

For **Alternative 5**, **Action 3**, the most biologically beneficial combination of actions and alternatives is **Alternative 1 (No Action)** for **Action 2** and **Sub-alternative 4c** for **Action 3**, based strictly on the number of months fishing is projected to occur during sea turtle nesting season. Conversely, **Preferred Alternative 2** and **Action 3**, **Sub-alternative 5a** is likely to have the least biological benefit to sea turtles. Commercial harvest of snowy grouper would be open during the entire peak nesting season and would close just a few weeks before nesting season ended.

The proposed alternatives under this action would not alter the way the commercial portion of the snapper grouper fishery for snowy grouper is prosecuted. Furthermore, hook-and-line gear, the gear predominantly used by snowy grouper fishermen is recommended gear in the U.S. by the Sustainable Seafood Guide as a "best choice" or "good alternative" since this gear has minimal bycatch issues, and does little damage to physical or biogenic habitats (Blue Ocean 2010; Seafood Watch 2010). Therefore, no adverse effects on EFH, EFH HAPCs, or Coral HAPCs are anticipated.

4.3.2 Economic Effects

Under **Alternative 1 (No Action)**, the commercial snowy grouper fishing season would continue with no split in the ACL. In 2012, snowy grouper was closed on December 19, and 107% of the quota was met. In 2013, the commercial sector for snowy grouper was closed on August 10 and 97% of the commercial ACL was met. The recent trend of exceeding the ACL and then applying AMs is expected to continue under the current trip limit and season structure. This type of fluctuation in harvest often results in regulatory discards (as noted above under Biological Effects) and ex-vessel revenue fluctuations and leads to long-term adverse economic effects.

The South Atlantic Council is proposing an increase in the commercial ACL under **Action 2**, which is expected to extend the length of the fishing season. **Action 3** proposes splitting the fishing season in an effort to extend the length of the fishing season as well as options to change the trip limit.

Alternative 2 proposes splitting the commercial snowy grouper fishing season with an equal division of the ACL between January to April and May to December. The three sub-alternatives propose trip limits of 100 lbs gw (**Sub-alternative 2a**), 150 lbs gw (**Sub-alternative 2b**), and 200 lbs gw (**Sub-alternative 2c**). **Alternative 2** and its sub-alternatives likely provide the economic benefit of maintaining landings of snowy grouper on more of a year round basis, which can have economic benefits in the form of helping to maintain markets and a more stable income stream.

The benefits of commercial trip limits are arguable. Commercial trip limits, in general, are not economically efficient because they limit vessels from benefiting from economies of scale. They have a tendency to increase some fishing trip costs when a trip must stop targeting a specific species because its

trip limit has been reached. Unless a vessel that has reached its limit of the targeted fish can easily switch to targeting a different species on the same trip, trip costs associated with the species where the limit has been reached will increase because it will require more trips by vessels to catch the ACL. Depending on vessel characteristics and the distance required to travel to fish, a trip limit that is too low could result in targeted trips being cancelled altogether if the vessel cannot target other species on the same trip. A larger trip limit (like those proposed under **Sub-alternatives 2b and 2c**) could result in more profitable trips because fishermen would be able to take larger amounts of fish for similar operating costs. However, these potential short-term economic benefits depend on geographic location and would likely lead to long-term adverse economic effects. Distance to fishing grounds for snowy grouper differs depending on port as shown in **Table 4.3.1**. Therefore, lower trip limits would likely be more appealing to fishermen located closer to fishing grounds for snowy grouper while higher trip limits would likely appeal more to fishermen located further away from fishing grounds where snowy grouper can be accessed.

As noted above in the Biological Effects section, the biological benefits of **Alternative 2** over **Alternative 1 (No Action)** would be due to a higher ACL (**Action 2**) since a closure during season 1 is not expected. Therefore, the biological benefit of **Alternative 2** compared to **Alternative 1 (No Action)** largely hinges on the ranking of its trip limit sub-alternatives. While larger trip limits can lead to exceeding the ACL (although this is largely preventable through recent improvements in the quota monitoring system) or early closures, smaller trip limits could result in increased bycatch if a trip is not ended and targeting of co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) continues. Biologically, there is therefore little difference between **Alternative 1 (No Action)** and **Alternative 2**.

Beyond the biological effects, there are economic benefits to the split of the ACL into seasonal quotas due to the greater ability to provide a steady supply of seafood and maintain markets. The economic benefits from the trip limit sub-alternatives are less clear since the differences in economic benefits between the sub-alternatives depend on commercial vessel docking location and the vessel's cost structure. Therefore, a split in the ACL (**Alternative 2**) into seasonal quotas is expected to provide long-term economic benefits over **Alternative 1 (No Action)** because it would help spread harvest throughout a greater portion of the year and maintain market supply but there is little difference in economic benefits between the sub-alternatives.

Like **Alternative 2**, **Alternative 3** would split the commercial fishing year into two seasonal quotas. However, the first seasonal quota would be 40% of the total ACL (from January 1 to April 30) while the second seasonal quota would be 60% of the total ACL (from May 1 to December 31). Under **Alternative 3**, the current trip limit of 100 lbs gw would be maintained for season 1 (January through April), and for the season 2 (May to December), various trip limits of 100 lbs gw (**Sub-alternative 3a**) through 300 lbs gw (**Sub-alternative 3e**) at 50 pound increments, would be established.

Expected closure dates under **Sub-alternatives 3a-3e** for the split seasons proposed in **Alternative 3** are shown in **Table 4.3.7** for each of the **Action 2** alternatives. There would be no closure of the commercial sector in season 1 under all the ACL alternatives in **Action 2**, except for **Alternative 1 (No Action)**. In season 2, the commercial sector would close before the end of December under all the sub-alternatives in **Action 3**. Under **Preferred Alternative 2** in **Action 2**, season 2 would last the longest

under all the sub-alternatives in **Action 3**. Under this scenario, **Sub-alternative 3a** (100 lbs gw trip limit) would result in a commercial closure in late December while **Sub-alternative 3e** (300 lbs gw trip limit) would result in an early closure to commercial harvest of snowy grouper in the middle of July. **Sub-alternatives 3b**, **3c**, and **3d** would result in harvest closures in between these two times. As stated above, like **Alternative 2**, the biological impacts of the split season under **Alternative 3** (and its sub-alternatives) are likely to be neutral since overall harvest would be limited to the sector ACL and split-season quotas, and AMs (e.g. in-season closures) would be triggered if the ACL or quotas were exceeded. The economic benefits of **Alternative 3** over **Alternative 1 (No Action)** would result from the ability of fishermen and dealers to maintain a more stable supply of seafood year round which could help maintain customers. The economic benefits between the sub-alternatives are distributional while the aggregate benefits depend on vessel dockage location and the cost structure for individual operations. The difference between the sub-alternatives can therefore not be ranked.

Preferred Alternative 4 would change the current 100 lbs gw commercial trip limit for snowy grouper to 300 lbs gw (**Sub-alternative 4a**), 200 lbs gw (**Preferred Sub-alternative 4b**), or 150 lbs gw (**Sub-alternative 4c**) from January 1 until the ACL is met or projected to be met. The expected closure dates for commercial harvest of snowy grouper under **Sub-alternatives 4a-4c** are shown in **Table 4.3.8** for each alternative under **Action 2** with **Preferred Alternative 2** being the alternative on which this discussion is focused. Under the ACL in **Preferred Alternative 2** in **Action 2**, the commercial sector would close later in the year than the other alternatives under **Action 2**. Closures are expected to occur in early June under the 300 lbs gw trip limit **(Sub-alternative 4a)**, mid-July under the 200 lbs gw trip limit **(Preferred Sub-alternative 4b)**, and early September under the 150 lbs gw trip limit **(Sub-alternative 4c)**. The differences in the biological benefits among the sub-alternatives are neutral for reasons stated above. The economic benefits between the sub-alternatives are distributional while the aggregate benefits depend on vessel dockage location and the cost structure for individual operations. The difference between the sub-alternatives therefore cannot be ranked.

Alternative 5 would change the commercial trip limit for snowy grouper from the current 100 lbs gw to 150 lbs gw until the ACL is met or projected to be met with one exception. During May through August, from the Florida Brevard/Indian River County line north, the trip limit would be 200 lbs gw (**Sub-alternative 5a**), 250 lbs gw (**Sub-alternative 5b**), or 300 lbs gw (**Sub-alternative 5c**). **Table 4.3.9** shows the expected closure dates under the sub-alternatives for **Alternative 5** using the alternatives ACLs under **Action 2**. Under **Preferred Alternative 2** in **Action 2**, the commercial fishing season would last the longest under the 200 lbs gw trip limit (**Sub-alternative 5a**), closing in mid-September. Commercial harvest of snowy grouper would close earlier in September under the 250 lbs gw trip limit (**Sub-alternative 5b**), and in late August under the 300 lbs gw trip limit (**Sub-alternative 5c**). Under all the other ACL alternatives in **Action 2**, the commercial sector would close earlier due to the smaller ACL. Again, the differences in the biological benefits among the sub-alternatives are neutral for reasons stated above. The economic benefits between the sub-alternatives are distributional while the aggregate benefits depend on vessel dockage location and the cost structure for individual operations. The difference between the sub-alternatives therefore, cannot be ranked.

In summary, economic benefits under **Alternatives 2** and **3** are expected to exceed **Alternative 1 (No Action)** and enhance the ability to better maintain seafood supply and increase profitability by doing so. The economic effects resulting from **Alternatives 4 (Preferred)** and **5** compared to **Alternative 1 (No**

Action) are distributional and cannot be ranked because the benefits of trip limits depend on where a vessel is docked and the vessel's cost structure, for which no data exist.

4.3.3 Social Effects

Snowy grouper is an important commercial species for deepwater catch combinations and at specific times of the year when other species are closed. The effects on the commercial fleet due to changing the snowy grouper commercial fishing year into split seasons and changing the trip limit would also depend on the ACL set in **Actions 1** and **2,** and the rate of catch.

Detailed information about the fishing communities where fishermen and businesses could be affected by changes to management of the commercial sector for snowy grouper is included in **Section 3.3.3**. Florida communities among those with the highest commercial landings and commercial value in the region include Cocoa, Miami, Titusville, Port Orange, Mayport, Fort Pierce, and Palm Beach Gardens (**Figure 3.3.3.1**). Additionally, Miami and Fort Pierce have high relative engagement with commercial fishing (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by management changes for snowy grouper. No Georgia communities are included in the top 15 communities with the region's highest commercial landings and value for snowy grouper (**Figure 3.3.3.1**). However, there are fishermen in Georgia communities such as Savannah and Townsend who may harvest snowy grouper and these fishermen could be affected by modifications to the snowy grouper trip limit and season.

Three of the top commercial communities for snowy grouper include the South Carolina communities of Murrells Inlet, Little River, and Charleston (**Figure 3.3.3.1**). Additionally, these have high relative engagement with commercial fishing (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by changes in the snowy grouper trip limit and the season. Four of the top commercial communities for snowy grouper include the North Carolina communities of Beaufort, Morehead City, Shallotte, Wanchese, and New Bern (**Figure 3.3.3.1**). Additionally, Beaufort and Wanchese have high relative engagement with and reliance commercial fishing, and Morehead City has high relative engagement with commercial fishing (**Figure 3.3.3.2**), which would contribute to how fishermen in these communities are affected by management changes for snowy grouper.

The potential social effects of establishment of a split season and changes to the trip limit for snowy grouper would depend on the costs and benefits of trade-offs of these management measures. In general, a split season (**Alternatives 2** and **3**) would be most beneficial to fishermen in the northern part of the region and for fishermen targeting other species in the beginning of the year, because it would ensure that a portion of the commercial ACL would be available later in the year. Establishing a split season under **Alternatives 2** and **3** could result in fishermen shifting effort to or from a certain species (including targets on multi-species trips) based on economic, regulatory, biological, or environmental changes in the fishery resulting from changes in access to the snow grouper resource. Although split seasons for snowy grouper may not immediately produce any effects on the fleet and associated businesses and communities, there could be positive and negative effects on commercial fishermen in different areas of the South Atlantic if conditions change in the future.

For changes in the trip limit, the potential social effects would depend on how fishermen are affected by either higher trip limits and a shorter season, or lower trip limits and longer seasons. In general, it is likely that higher trip limits would be most beneficial to larger vessels, vessels with longer travel times to fishing grounds (see **Table 4.3.1**), and to fishing businesses that target multiple species and do not need one particular species to be open all the time. Conversely, a lower trip limit would likely have minimal effects on smaller vessels, vessels with shorter travel times to fishing grounds (see **Table 4.3.1**), and fishing businesses that would benefit from a longer season for snowy grouper.

Maintaining the current 100-lbs gw trip limit under **Alternative 1 (No Action)** could contribute to a longer season, but would continue to limit trip efficiency under an increased ACL under **Action 2**. For most of Florida waters, trips targeting snowy grouper require much less travel than in Georgia, South Carolina, and North Carolina, with the exception of trips out of the more northern coast of Florida, and below Marathon (**Table 4.3.1**). Snowy grouper are only one component of trips that target multiple species but for some trips, is the most economically important part of the catch combination. Maintaining a single season under **Alternative 1 (No Action)** would also be least beneficial to northern areas of the region if the commercial component continues to meet the ACL (even if increased under **Action 2**) and trigger an early closure, as has occurred in recent years.

The proposed split seasons in **Alternatives 2** and **3** would likely be most beneficial to fishermen in North Carolina, South Carolina, and Georgia because it would ensure some portion of the ACL would be available in the summer months. Because the current fishing year starts in January 1, fishermen in North Carolina, South Carolina, and Georgia have less access to snowy grouper in the early months due to weather, or could risk unsafe conditions to fish, if an increased trip limit results in additional participation in snowy grouper harvest. Maintaining the commercial ACL for the whole fishing year under **Alternative 1 (No Action)**, **Preferred Alternative 4**, and **Alternative 5** would limit benefits for these fishermen from increased trip limits and any increase in the ACL due to restricted access

Under **Sub-alternatives 2b** and **2c**, the increased trip limit through the entire fishing year would be expected to contribute to increased trip efficiency, which would benefit fishermen and their communities but could shorten the season depending on the ACL (**Table 4.3.6**). **Sub-alternative 2a** (100 lbs gw) would be the least beneficial and would maintain the current limitations on trip efficiency for Florida fishermen, particularly in communities such as Mayport, and fishermen in North Carolina, South Carolina, and Georgia due to the longer travel time to fishing grounds (**Table 4.3.1**). Similar effects would be expected under **Alternative 3**, in that as the trip limit increases for the second split season under **Sub-alternatives 3a-3e**, the likelihood of a shorter season would increase (**Table 4.3.7**). The highest trip limits, under **Sub-alternatives 3e, 4a,** and **5c** (300 lbs ww) would have the highest likelihood of resulting in the most benefits to most commercial fishermen in the region. However, the higher trip limits could result in a higher rate of harvest and an earlier closure due to meeting the commercial ACL, which could have negative effects on fishermen by reducing access to the snowy grouper resource. The negative effects of the trade-off for a shorter season and a higher trip limit (particularly under **Sub-alternative 4a**) could be minimized by the opening of other species, particularly in May after the spawning season closure for shallow water groupers.

An increase in the trip limit under **Sub-alternatives 4a-4c** that would be allowed January through April would be beneficial for Florida fishermen that also target golden tilefish. The golden tilefish fishing

year opens on January 1, and this could help reduce snowy grouper discards. As the trip limit increases under **Sub-alternatives 4a-4c**, the expected length of the season decreases (**Table 4.3.8**). However, the higher trip limit at the beginning of the year could help profits because most other grouper species are closed for the spawning season, leaving snowy grouper as one of few options for purchase by dealers and fish houses. Additionally, other species are open to harvest starting in May, providing other fish to target if snowy grouper closes in the summer.

The step-up trip limit from May through August under **Alternative 5** would likely help improve trip efficiency for some trips but because travel time to fishing grounds in Florida, and specifically in the Florida Keys, is much shorter than travel time for fishermen in other South Atlantic states (**Table 4.3.1**), the benefits could be less on Florida fishermen than on fishermen in Georgia, South Carolina, and North Carolina as the season or split season would be shorter. However, if the season closes early due to higher trip limits (such as 300 lbs gw under **Sub-alternative 5c**) as shown in **Table 4.3.9**, the benefits of a higher trip limit would be reduced.

In general, commercial trip limits may help slow the rate of harvest, lengthen a season, and prevent the ACL from being exceeded. However, trip limits that are too low may make fishing trips inefficient and too costly if fishing grounds are too far away, which could affect business decisions and fishing behavior for commercial fishermen. The costs and benefits to fishermen when considering changes in the commercial trip limit depend on if a longer season with a consistent supply of snowy grouper is more important than maximizing efficiency on fishing trips, even if the season is shorter in length. An additional consideration is the possibility that participation in the snowy grouper portion of the snapper grouper fishery may increase if the commercial trip limit is increased, because more fishermen would want to take advantage of the higher trip limit. Additional participation could increase competition, affect market supply and market prices, and contribute to a faster rate of harvest that closes snowy grouper harvest earlier than in recent years. Another consideration in the South Atlantic is the time to travel to fishing grounds to catch snowy grouper varies among the different states and communities (**Table 4.3.1**). Last, a split season combined with different trip limits (**Alternatives 2** and **3**) can affect fishermen across the region in different ways.

4.3.4 Administrative Effects

Currently, there is not a split season for the snowy grouper commercial sector (**Alternative 1, No Action**). **Alternatives 2** and **3** (including their sub-alternatives) could add to the administrative burden in the form of cost, time, or law enforcement efforts because two quotas instead of one would need to be monitored and enforced. However, even if the commercial ACLs are met during each of the fishing seasons under **Alternatives 2** and **3** (including their sub-alternatives), the administrative resources required to implement in-season closures would not be much different from what is currently in place under **Alternative 1 (No Action)**. Because there is already a trip limit in place, there would be little difference in the administrative impacts of **Alternative 1 (No Action)**, and **Alternatives 4** and **5** and their sub-alternatives. The administrative and law enforcement resources currently used to implement and enforce the 100 lbs gw commercial trip limit would be the same as those needed to implement and enforce the increase in trip limits proposed by the various sub-alternatives under **Alternatives 2** through **5**. Higher trip limits could have slightly greater administrative effects because they increase the likelihood that the commercial ACL or quota would be met and a commercial closure would occur. **Alternatives 2**

through **5** (including their respective sub-alternatives) would require notifying the commercial snapper grouper fishery and law enforcement personnel of an impending trip limit change for snowy grouper. However, this type of administrative burden is considered routine, and the overall administrative effects of the alternatives considered under this action would not vary much with respect to each other.

4.4 Action 4. Modify the Recreational Bag Limit for Snowy Grouper

4.4.1 Biological Effects

A quantitative bag limit analysis for this action was not possible due to insufficient sample sizes from MRIP and headboat databases. Each data source reported one to three snowy grouper per month, with some months reporting no snowy grouper catches. Recreational catches of snowy grouper are so infrequently surveyed that any analysis would result in high uncertainty. Therefore, the discussion of the biological effects in this section is qualitative.

Alternatives for Action 4
*(preferred alternatives in **bold**)*

1. (No Action.) The current recreational grouper bag and possession limit is as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.

2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year.

4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

The biological benefits of **Alternatives 2 (Preferred)** through **5** would be expected to be greater than **Alternative 1 (No Action)**, if they restrict the time during which recreational harvest of snowy grouper could occur. Thus, with respect to **Alternative 1 (No Action)**, the biological benefits of **Alternatives 2 (Preferred)-5** would be significant if targeting of snowy grouper and co-occurring species (i.e., blueline tilefish, yellowedge grouper, and silk snapper) was reduced during the time when recreational harvest of snowy grouper was prohibited. However, release mortality of snowy grouper is 100%. If targeting of co-occurring species were to continue during a recreational closure, the biological benefits for snowy grouper might not be significant because snowy grouper would still be caught and discarded dead.

Alternative 1 (No Action) would retain the current recreational bag limit of one snowy grouper per vessel per day within the aggregate grouper bag limit. The current recreational ACL of 523 fish was exceeded by 395% in 2012 and 411% in 2013 (**Table 4.4.1**) under the current bag limit. However, in 2013, the recreational ACL had not been exceeded when the sector was closed on May 31. Recreational landings continued despite the closure resulting in an overage of the ACL (**Table 4.4.2**). Furthermore, recreational landings estimates are very uncertain because they are infrequently encountered by MRIP and headboats.

Table 4.4.1. Recreational landings (numbers of fish) and closures using numbers from the SERO-Annual Catch Limits dataset (excluding Monroe County) for 2012-2013.

Species	Year	Fishing Season	Total Landings (N)	ACL (N)	ACL %	Closure Date
Snowy Grouper*	2012	Jan 1 - Dec 31	2,065	523	395%	
	2013		2,150	523	411%	05/31/13

The accountability measure for snowy grouper required that the 2013 fishing season be shortened if the average 2010-2012 recreational landings exceeded the ACL. Note: For 2012, the average 2010-2012 should have been used and for 2011, the average of 2010 and 2011 landings should have been used. *Recreational ACL for snowy grouper did not exist until Amendment 17B (SAFMC 2010b) was implemented on January 31, 2011. The recreational allocation was established in Amendment 15B (SAFMC 2008b) and implemented on 12/16/09; however, the recreational AM was established in Amendment 17B (SAFMC 2010b).
Source: SERO web-site: http://sero.nmfs.noaa.gov/sustainable_fisheries/acl_monitoring/recreational_sa/index.html

In 2012, recreational landings were highest in May and June, while in 2013, they were highest in September and October (**Table 4.4.2**) despite the recreational sector being closed in May that year. **Preferred Alternative 2** would modify the current recreational bag limit to one snowy grouper per vessel per day within the aggregate grouper bag limit from May through August, and prohibit the recreational harvest during the rest of the year. **Alternative 3** would allow the same bag limit for two months (May and June) during the year, while **Alternatives 4** and **5** would allow one snowy grouper per vessel per day within the aggregate bag limit for the month of May and June, respectively. **Alternative 1 (No Action)** would provide the least biological benefit since the recreational ACL has been exceeded by 400% in recent years under the status quo. The ACL was exceeded in 2013, in part, because recreational fishing did not stop after the recreational sector had been closed. However, spikes in recreational landings can also occur that are the effect of sampling rather than fishing. For example, examination of recreational landings data in **Table 4.4.3**, which include Monroe County, reveals that there were 15,200 snowy grouper caught during one, two-month wave in just Monroe County during 2012. In contrast, in 2013 there were 3,897 snowy grouper caught in the entire South Atlantic including Monroe County. Therefore, the chair of the SSC agreed that "examination of recreational data from the Marine Recreational Information Program revealed an elevated spike in one wave of landings that might be an effect of sampling rather than fishing effort" (Snapper Grouper Committee June 2014). **Alternatives 4** and **5** would be expected to have greater biological benefits than **Alternatives 2 (Preferred)** and **3**, since they would allow recreational harvest of snowy grouper for just one month versus two months under **Alternative 3** and four months under **Preferred Alternative 2**. However, the biological effects of **Alternatives 1 (No Action)-5** would be similar if a recreational closure does not slow the rate of fishing.

The spawning season for snowy grouper in the Carolinas is from April through September with no obvious peak period (Wyanski et al. 2000, 2013). In the Florida Keys, Moore and Labinsky (1984) reported snowy grouper in spawning condition from April through July. Wyanski et al. (2000) also suggested that snowy grouper may form spawning aggregations as 1,160 specimens (some of which were assessed macroscopically as being in spawning condition) were reported from four trawl collections in June 1978. Wyanski et al. (2013) reported a lower proportion of spawning female snowy grouper at the beginning and end of the spawning season of April through September. **Alternative 4**, which would allow for recreational harvest of snowy grouper in May, may be expected to have a higher biological benefit of all the alternatives considered in **Action 4**.

Table 4.4.2. Recreational landings (numbers of fish) by wave (two-month intervals) of snowy grouper in the South Atlantic (excluding Monroe County, Florida).

Year	Jan/Feb (Wave 1)	Mar/Apr (Wave 2)	May/June (Wave 3)	July/Aug (Wave 4)	Sept/Oct (Wave 5)	Nov/Dec (Wave 6)	Total
2012	2	1	1,049	651	330	32	2,065
2013	77	238	112	330	1,332	62	2,150

Source: SERO-ACL dataset.

Based on **Preferred Alternative 2** selected in **Action 2**, the recreational ACL would increase from the current 523 fish to 4,152 fish in 2015, and up to 5,315 fish in 2019 (**Table 4.2.2**). If the recreational ACLs continue to be exceeded at the levels of 2012 and 2013 (almost 400%), none of the proposed increases in the recreational ACL under **Action 2** would keep the recreational ACL from being exceeded, particularly if fishing for snowy grouper continues after a closure occurs. The recreational AM, implemented in 2011 along with the ACL, has a provision to reduce the length of the following fishing season by the amount necessary, if the recreational ACL is exceeded in the current year. For 2012 and beyond, the most recent three-year running average is used to determine if the recreational ACL was exceeded. Current recreational AMs have not been able to prevent the recreational ACLs from being exceeded. Despite the recreational ACL overages, the recent stock assessment for snowy grouper indicates the stock is rebuilding and overfishing is no longer occurring. ACL overages can reduce the probability of rebuilding according to the schedule. Therefore, an in-season closure of the recreational sector for snowy grouper may be warranted regardless of the alternative selected as a preferred in **Action 2**. The South Atlantic Council is developing an amendment (Snapper Grouper Amendment 34 and Golden Crab Amendment 9), which considers alternatives for AMs that include an in-season closure for the snowy grouper recreational sector.

SEDAR 4 (2004) commercial landings included Monroe County, Florida; however, the recreational data were not post-stratified from the rest of the West Florida landings. Therefore, Monroe County recreational landings were not included in the stock assessment when SEDAR 4 (2004) was conducted. Thus, the current recreational ACL (523 fish) is based on landings that do not include Monroe County recreational landings. When SEDAR 36 (2013) was conducted, a method for extracting Monroe County recreational landings from the rest of West Florida had been developed. Therefore, the decision was made to include Monroe County recreational landings in SEDAR 36 (2013). As a result, the new ABC and ACL that would be based on the results of SEDAR 36 (2013) would include Monroe County, Florida. SEDAR 36 (2013) attributed all landings from Monroe County, Florida to the South Atlantic. The reasoning was that snowy grouper is a deepwater species and, according to both commercial and recreational fishermen from Monroe County, Florida the majority of deepwater fishing occurs in the northeastern portion of the Florida Keys, within the jurisdiction of the South Atlantic Council. **Table 4.4.3** shows the estimated recreational harvest of snowy grouper for 2012 and 2013 including Monroe County. In the future, changes in recreational ACLs would include landings from Monroe County, Florida.

Actual snowy grouper harvest by sector from 2005 through 2012 is shown in **Table 4.4.4**. The ACL overages resulted in harvest percentages being different from the intended 95% commercial/5% recreational.

Table 4.4.3. Recreational landings (numbers of fish) by wave (two-month intervals) of snowy grouper in the South Atlantic. Snowy grouper landings with (Total SA Landings) and without (Current SA Landings) landings from Monroe County are included.
Specific Monroe County Headboat landings were not provided to protect confidentiality of the data.

Year	Source	Jan/Feb	Mar/Apr	May/June	July/Aug	Sept/Oct	Nov/Dec	Total
2012	MRFSS	0	0	1,039	644	322	0	2,005
	Headboat	2	1	10	7	8	32	60
	Current SA Landings	2	1	1,049	651	330	32	2,065
	Monroe MRFSS	0	82	15,200	0	0	0	15,282
	Monroe Headboat	0	0	0	<10	0	<10	<20
	Total SA Landings	2	83	16,249	661	330	42	17,367
2013	MRFSS	67	226	107	330	972	0	1,701
	Headboat	10	12	5	0	360	62	449
	Current SA Landings	77	238	112	330	1,332	62	2,150
	Monroe MRFSS	0	0	1,247	0	0	0	1,247
	Monroe Headboat	0	0	0	0	<400	<100	<500
	Total SA Landings	77	238	1,359	330	1,732	162	3,897

Table 4.4.4. Actual snowy grouper harvest by sector from 2005 through 2012 from the SERO-Annual Catch Limits dataset. Current allocation = 95% commercial, 5% recreational.

Year	Commercial (ww)	% Harvested by Comm	Recreational (ww)	% Harvested by Rec	Total (ww)
2005	243,833	69%	108,800	31%	352,633
2006	252,299	60%	169,337	40%	421,636
2007	132,154	68%	60,985	32%	193,139
2008	85,768	83%	17,006	17%	102,775
2009	89,225	54%	77,173	46%	166,398
2010	102,245	68%	48,123	32%	150,368
2011	43,473	97%	1,496	3%	44,969
2012	104,889	69%	46,176	31%	151,065

Each alternative, regardless of the one selected, is unlikely to have adverse effects on listed *Acropora* species, large whales, or any DPS of Atlantic sturgeon. Previous ESA consultations determined the hook-and-line sector of the snapper grouper fishery was not likely to adversely affect *Acropora* species, large whales, or any DPS of Atlantic sturgeon. For the species that may interact with the fishery (i.e., sea turtles and smalltooth sawfish), there is likely to be no additional biological benefit from **Alternative 1**

(No Action) because it would perpetuate the existing level of risk for interactions between these ESA-listed species and the fishery. While it would perpetuate the existing level of risk of interaction, **Alternative 1 (No Action)** is likely to be the least biologically beneficial. The biological benefits to sea turtles and smalltooth sawfish are likely to be greatest from **Alternatives 4 or 5** since they both prohibit harvest for all but one month. **Alternative 3** is likely to have the next greatest biological benefit to sea turtles and smalltooth sawfish followed by **Preferred Alternative 2.**

The proposed alternatives under this action would not alter the way the recreational portion of the snapper grouper fishery for snowy grouper is prosecuted. Furthermore, hook-and-line gear, the gear predominantly used by snowy grouper fishermen is recommended gear in the U.S. by the Sustainable Seafood Guide as a "best choice" or "good alternative" since this gear has minimal bycatch issues, and does little damage to physical or biogenic habitats (Blue Ocean 2010; Seafood Watch 2010). Therefore, no adverse effects on EFH, EFH HAPCs, or Coral HAPCs are anticipated.

4.4.2 Economic Effects

The current recreational bag limit for snowy grouper is limited to one fish per vessel per day (**Alternative 1, No Action**). This minimal allowance has resulted in the recreational ACL being exceeded by approximately 400% in 2012. However, the recreational ACL had not been exceeded when the recreational sector was closed in 2013. The overage in that year occurred due to continued fishing after the closure was announced. **Alternatives 2 (Preferred)**, **3**, **4**, and **5** propose various alternatives that reduce the number of months when snowy grouper can be taken. While **Preferred Alternative 2** proposes a four-month season (May-August) with no retention allowed during the rest of the year, **Alternative 3** proposes a two-month season (May and June) with no retention for the rest of the year. **Alternatives 4** and **5** propose retention for one month, in May and June only, respectively. Based simply on the amount of time allowed for retention of snowy grouper, it is likely that **Alternatives 4** and **5** would provide the highest long-run economic benefits because those have the least risk associated with exceeding the ACL due to a one-month season only. **Alternative 1 (No Action)** would be the least beneficial of the five alternatives because it has the longest amount of time when retention is allowed and is therefore likely most harmful to the biological health of the stock and unlikely, assuming current harvest trends, to result in higher future landings or higher for-hire vessel revenues and consumer surplus. Over the short term, however, this alternative would provide for the highest for-hire vessel revenues and consumer surplus due to overages. To the extent that overages are likely to result in derailing the recovery of the stock, future ACLs would likely be lower. This would affect both the commercial and recreational sectors by reducing commercial vessel revenues and profits, for-hire revenues and profits, and consumer surplus.

If any of the alternatives under **Action 4** are chosen other than **Alternative 1 (No Action)** and the chosen alternative is effective in maintaining recreational landings at or below the status quo ACL, short-term economic benefits to the recreational sector would be lower relative than those being achieved right now. This is because recent landings have exceeded the current ACL by such a large amount. Although, these economic benefits would be greater than those that would occur under a situation where there is no increase in the ACL (**Alternative 1** under **Action 2**). That is, the recreational sector would benefit in the long-term from **Alternatives 2 (Preferred), 3, 4,** or **5** if they are effective. The short-term benefits would vary depending on whether an increase in the ACL occurs under **Action 2**.

Section 4.4.1 notes that the majority of landings in 2012 occurred during May and June. While these are popular months for recreational fishing, snowy grouper spawning takes place April through September in the Carolinas and April through July in the Florida Keys and may have led to higher landings during these months. Wyanski et al. (2013) report a lower proportion of spawning female snowy grouper at the beginning and end of the spawning season of April through September. This information implies that **Alternative 4**, which allows for the earliest retention (May) and for only one month, could result in the least amount of harvest followed by **Alternative 5**, then **Alternative 3**, **Preferred Alternative 2**, and **Alternative 1 (No Action)**. However, as has been noted under other actions in this document, snowy grouper has a release mortality rate of 100%. Therefore, a decrease in the season length may decrease the retention of snowy grouper but not the fishing and release mortality. It would likely be up to private anglers and for-hire captains and crew to attempt to avoid catches of snowy grouper by fishing at different depths and decreasing release mortality. If the release mortality can be decreased or snowy grouper can be avoided, then there is the possibility of future increases in long-term economic benefits. Any future economic benefits would be as a result of an increase in stock health leading to future increased harvest.

4.4.3 Social Effects

In general, the social effects of specifying when snowy grouper can be recreationally landed would be associated with the biological costs of each alternative (see **Section 4.4.1**), as well as the times of year recreational anglers are targeting snowy grouper and how a designated recreational fishing season would affect current recreational fishing opportunities. Although recreational landings make up only a small portion of the overall landings of snowy grouper, there has been an overage of almost or over 400% in recent years of the recreational ACL and subsequent reduced season length because the recreational AM was triggered. Additionally, the continual overage of the recreational sector could result in negative effects on the snowy grouper stock, particularly in combination with other factors that could affect the stock. However, despite the recent overages in the recreational sector, SEDAR 36 (2013) indicates that overfishing is no longer occurring and the snowy grouper stock is rebuilding.

The bag limit of 1 fish/vessel/day within the aggregate bag limit under **Alternatives 1 (No Action)-5**, and any continued effects on recreational anglers due to the bag limit would be the same under all alternatives. A longer fishing season would improve recreational fishing opportunities and would be the longest under **Alternative 1 (No Action)**, followed by a four-month season under **Preferred Alternative 2**, and a two-month season under **Alternative 3**. The one-month season under **Alternatives 4** and **5** would result in the fewest opportunities for recreational fishing of snowy grouper. Because most recreational landings of snowy grouper are estimated to occur in May/June (**Table 4.4.2**), particularly landings in Monroe County (**Table 4.4.3**), allowing harvest during these months as under **Alternatives 1-5** would be beneficial to the recreational fishermen targeting snowy grouper.

4.4.4 Administrative Effects

The administrative effects of **Alternative 1 (No Action)-5** would not be considered very different from one another. Bag limits are already monitored and enforced currently under **Alternative 1 (No Action)**. **Alternatives 2 (Preferred)** through **5** would not add to the administrative burden in the form of cost, time, or law enforcement efforts, except for incorporating changes to the bag limits and time of year they would apply, which are considered routine.

Chapter 5. Reasoning for Council's Choice of Preferred Alternative

Action 1. Adjust the Rebuilding Strategy for Snowy Grouper

Snapper Grouper Advisory Panel (AP) Comments and Recommendations

The Snapper Grouper AP discussed Regulatory Amendment 20 at their May 2014 meeting. The AP supported the South Atlantic Fishery Management Council's (South Atlantic Council) **Preferred Alternative 3** for Action 1.

Law Enforcement Advisory Panel (LEAP) Comments and Recommendations

The LEAP received an overview of the actions contained in Regulatory Amendment 20 at their March 2014 meeting. The LEAP was encouraged to comment on the amendment, as appropriate. However, the LEAP made no comments or recommendations.

Scientific and Statistical Committee (SSC) Comments and Recommendations

The SSC discussed the snowy grouper assessment during their May 2014 meeting. The SSC recommended the assessment as the best scientific information available and considered it appropriate for management of snowy grouper in the South Atlantic. The revisions in the data and methods were deemed reasonable and the assessment useful for catch level recommendations.

Since the South Atlantic snowy grouper stock is under a rebuilding plan, the SSC discussed catch level recommendations consistent with this plan (i.e., set ABC = yield at $F_{REBUILD}$). However, since the yield at 75%F_{MSY} (which has a 69% probability of rebuilding) is

Alternatives for Action 1
*(preferred alternatives in **bold**)*

1 (No Action). The current rebuilding strategy is specified as maintaining a modified/constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. The total allowable catch (TAC) specified for 2009, of 102,960 pounds whole weight (lbs ww) remains in effect beyond 2009 until modified. The current acceptable biological catch (ABC) is 102,960 lbs ww consistent with this rebuilding strategy.

2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{Rebuild}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{Rebuild}$ and ABC projections will change with each assessment. Specify a probability of success of:

2a: 50%.
2b: 70%.

ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

3. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F= 75%F_{MSY}) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at 75%F_{MSY} and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

4. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{current}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at $F_{current}$ and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.

very similar to yield at $F_{REBUILD}$ (which has a 70% probability of rebuilding) the SSC recommended that ABC be set as the yield at 75%F_{MSY} (**Preferred Alternative 3**).

South Atlantic Council's Choice for Preferred Alternative

During initial reviews of assessed stocks, the SSC calculated a P* of 30% for snowy grouper, and a probability of rebuilding success of 70%. However, since rebuilding of snowy grouper began prior to existence of the P* approach, the existing rebuilding plan is based on a 50% chance of reaching SSB_{MSY} by the end of the rebuilding period. SEDAR 36 (2013) was the first assessment of snowy grouper under both the Reauthorized Magnuson-Stevens Fishery Conservation and Management (Magnuson-Stevens Act) and the P* methodology. Although the South Atlantic Council was not obligated to revise the rebuilding approach for snowy grouper, they chose to consider changes to the rebuilding strategy based on their rebuilding approach with other species, such as red grouper. Hence, at their March 2014 meeting, the South Atlantic Council voted to select **Alternative 4** (current **Preferred Alternative 3**), as a preferred alternative, which has a 69% probability of rebuilding success. At the same time; however, the South Atlantic Council requested that the SSC evaluate whether the probability of rebuilding under this alternative was sufficiently close to that resulting from catch level recommendations under the existing rebuilding plan (i.e., set ABC = yield at $F_{REBUILD}$). As discussed above, the SSC discussed this during their May 2014 meeting, and recommended that ABC be set as the yield at 75%F_{MSY}.

Therefore, **Preferred Alternative 3** best meets the purpose and need, and also best meets the objectives of the Snapper Grouper FMP, as amended, while minimizing, to the extent practicable, adverse social and economic effects and complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Action 2. Adjust Annual Catch Limits for Snowy Grouper

Snapper Grouper Advisory Panel Comments and Recommendations

The Snapper Grouper AP discussed Regulatory Amendment 20 at their May 2014 meeting. The AP supported the South Atlantic Council's **Preferred Alternative 2** for Action 2.

***Alternatives for Action 2** (preferred alternatives in **bold**)*

1 (No Action). The current acceptable biological catch (ABC) = 102,960 pounds whole weight (lbs ww) or 87,254 pounds gutted weight (lbs gw). The total annual catch limit (ACL) (=ABC), commercial ACL, and recreational ACL are shown below:

		Pounds gutted weight (lbs gw)		
ABC	**ACL**	**Com ACL (95%)**	**Rec ACL (5%)**	**Rec # Fish**
87,254	87,254	82,900	4,400	523

2. Specify that ACL=ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
Note: See Table 4.2.2 for values.

3. Update the ABC from the recent SEDAR assessment. Set ACL=X%ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
Note: See Table 4.2.3 for values.

3a. Set ACL=95%ABC=OY
3b. Set ACL=90%ABC=OY
3c. Set ACL=85%ABC=OY

Law Enforcement Advisory Panel Comments and Recommendations

The LEAP received an overview of the actions contained in Regulatory Amendment 20 at their March 2014 meeting. The LEAP was encouraged to comment on the amendment, as appropriate. However, the LEAP made no comments or recommendations.

Scientific and Statistical Committee Comments and Recommendations

Specification of the annual catch limit (ACL) is a management decision; hence, the SSC had no comments or recommendations on Action 2.

South Atlantic Council's Choice for Preferred Alternative

The optimum yield (OY) is a long-term average amount of desired yield from a stock, stock complex, or fishery that will provide the greatest overall benefit to the Nation, particularly with respect to food production and recreational opportunities, and taking into account the protection of marine ecosystems. The Magnuson-Stevens Act does not preclude OY from being equal to the ABC or ACL. The Magnuson-Stevens Act indicates that OY "is prescribed as such on the basis of the maximum sustainable yield from the fishery, as reduced by any relevant economic, social, or ecological factor". The South Atlantic Council felt that setting OY equal to ABC and below the maximum sustainable yield would provide greater assurance that overfishing is prevented, the long-term average biomass is near or above B_{MSY}, and overfished stocks are rebuilt within the allotted timeframe for the species in question.

ACL cannot exceed the ABC and may be set annually or on a multiyear plan basis. ACLs in coordination with accountability measures (AMs) must prevent overfishing. The National Standard 1 guidelines specify that Councils can choose to account for management uncertainty by setting the ACL below the ABC but states that ACL may typically be set very close to ABC. The Commercial Landings Monitoring System (CLM) came online in June 2012 and is now

being used to track commercial landings of federally-managed fish species. This system is able to track individual dealer reports, track compliance with reporting requirements, project harvest closures using five different methods, and analyze why ACLs are exceeded. With vastly improved commercial monitoring mechanisms recently implemented, it is unlikely that repeated commercial ACL overages would occur. Additionally, a Joint Dealer Reporting Amendment, which was implemented on August 7, 2014 has increased the required reporting frequency for dealers to once per week, and requires a single dealer permit for all finfish dealers in the Southeast Region. On January 27, 2014, the Generic For-Hire Reporting Amendment was implemented (78 FR 78779), which required all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis. The new CLM quota monitoring system and actions in the Joint Generic Dealer and Generic For-Hire Reporting amendments are expected to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

Due to improved data reporting, the South Atlantic Council has chosen to set ACL equal to ABC (**Preferred Alternative 2**) and to set ACL equal to OY to prevent a situation in which the OY from a fishery was not being achieved.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to prevent overfishing and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Action 3. Commercial Management Measures for Snowy Grouper

Snapper Grouper Advisory Panel Comments and Recommendations

The Snapper Grouper AP discussed Regulatory Amendment 20 at their May 2014 meeting. The AP approved a motion to select **Sub-alternative 2c** as their preferred alternative.

Law Enforcement Advisory Panel Comments and Recommendations

The LEAP received an overview of the actions contained in Regulatory Amendment 20 at their March 2014 meeting. The LEAP was encouraged to comment on the amendment, as appropriate. However, the LEAP made no comments or recommendations.

Scientific and Statistical Committee Comments and Recommendations

Modifications to trip limits and seasons are management decisions; hence, the SSC had no comments or recommendations on Action 3.

South Atlantic Council's Choice for Preferred Alternative

The South Atlantic Council engaged in extensive discussion about changes to the management of the commercial ACL for snowy grouper. The main concern was trying to address the current latitudinal inequity in access to the resource. For that reason, the South Atlantic Council considered implementing a split season that would essentially spread out effort over time and allow for more equitable access to snowy grouper throughout the South Atlantic Council's area of jurisdiction. Ultimately; however, the South Atlantic Council opted to retain

Alternatives for Action 3
*(preferred alternatives in **bold**)*

1 (No Action). The current commercial snowy grouper fishing year is the calendar year with no split of the commercial ACL into separate seasons. The current commercial snowy grouper trip limit is 100 pounds gutted weight (lbs gw).

2. Split the commercial snowy grouper ACL into two quotas: 50% to the period January 1 through April 30 and 50% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. The following trip limit would apply to each season:

- **2a.** 100 lbs gw.
- **2b.** 150 lbs gw.
- **2c.** 200 lbs gw.

3. Split the commercial snowy grouper ACL into two quotas: 40% to the period January 1 through April 30 and 60% to the period May 1 through December 31. Any remaining commercial quota from the January through April season carries over into the May through December season; any remaining commercial quota from the May through December season does not carry over into the next fishing year. Maintain the current 100 lbs gw trip limit for the January 1 through April 30 season and establish the following trip limit for the May through December season:

- **3a.** 100 lbs gw.
- **3b.** 150 lbs gw.
- **3c.** 200 lbs gw.
- **3d.** 250 lbs gw.
- **3e.** 300 lbs gw.

4. Modify the commercial snowy grouper trip limit from January 1 until the ACL is met or projected to be met:

- **4a.** 300 lbs gw.
- **4b. 200 lbs gw.**
- **4c.** 150 lbs gw.

5. Modify the commercial snowy grouper trip limit to 150 lbs gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Brevard/Indian River County line north when the trip limit will be as follows:

- **5a.** 200 lbs gw.
- **5b.** 250 lbs gw.
- **5c.** 300 lbs gw.

the commercial fishing year as the calendar year because snowy grouper are an important species in the early part of the year, when shallow water groupers are closed to commercial harvest. The South Atlantic Council acknowledged that fishermen in North Carolina have historically had limited access to snowy grouper at the beginning of the fishing year due to weather conditions. However, recent years have brought milder winters and fishermen have benefitted from having access to snowy grouper. South Atlantic Council members also mentioned that snowy grouper commands a higher price on the market during the early months of the year and cited that as another reason to retain the current commercial fishing year (**Preferred Alternative 4**).

The South Atlantic Council increased the commercial trip limit from 100 pounds gutted weight (lbs gw) to 200 lbs gw (**Preferred Sub-alternative 4b**) to respond to the increase in the commercial ACL identified in the preferred alternative under **Action 2**. The South Atlantic Council reasoned that since the ACL would increase every year under the preferred alternative in **Action 2**, maintaining the commercial trip limit at a reasonably low level would result in a longer season over time, if effort remains stable. In addition, keeping regulations relatively simple is beneficial for law enforcement.

The South Atlantic Council concluded that **Preferred Alternative 4** and **Preferred Sub-alternative 4b,** best meet the purpose and need to implement measures expected to prevent overfishing and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternatives also best meet the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Action 4. Modify the Recreational Bag Limit for Snowy Grouper

Snapper Grouper Advisory Panel Comments and Recommendations

The Snapper Grouper AP discussed Regulatory Amendment 20 at their May 2014 meeting. The AP supported **Alternative 4** as preferred.

Law Enforcement Advisory Panel Comments and Recommendations

The LEAP received an overview of the actions contained in Regulatory Amendment 20 at their March 2014 meeting. The LEAP was encouraged to comment on the amendment, as appropriate. However, the LEAP made no comments or recommendations.

Alternatives for Action 4
*(preferred alternatives in **bold**)*

1. (No Action.) The current recreational grouper bag and possession limit is as follows:

- Grouper and tilefish, combined--3. Within the 3-fish aggregate bag limit: No more than one fish may be gag or black grouper, combined; no more than one fish per vessel may be a snowy grouper; no more than one fish may be a golden tilefish; and no goliath grouper or Nassau grouper may be retained.

2. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/vessel/day May through August and no retention during the rest of the year.

3. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May and June with no retention during the remainder of the year.

4. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during May with no retention during the remainder of the year.

5. Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day during June with no retention during the remainder of the year.

Scientific and Statistical Committee Comments and Recommendations

Modifications to bag limit is a management decisions; hence, the SSC had no comments or recommendations on Action 4.

South Atlantic Council's Choice for Preferred Alternative

While discussing changes to management of snowy grouper, the South Atlantic Council decided that a recreational season for deepwater species would be beneficial since discards would be reduced. Furthermore, interactions with co-occurring species (i.e., blueline tilefish, yellowedge grouper, silk snapper, speckled hind, and warsaw grouper) might also be reduced by the action. Over time, as snowy grouper rebuilds, the recreational fishing season could be modified and the bag limit could be adjusted. Moreover, May through August is a time of the year when recreational fishermen throughout the region have access to the resource due to good weather conditions, and a recreational season for deepwater species during this time would create an "even playing field" for all participants. The South Atlantic Council acknowledged the limitations of the current system to monitor recreational landings and the frequency with which deepwater species are intercepted. Reducing the season to only 2 waves out of the year may have implications for monitoring landings.

The South Atlantic Council concluded that **Preferred Alternative 2** best meets the purpose and need to implement measures expected to prevent overfishing and achieve OY while minimizing, to the extent practicable, adverse social and economic effects. The preferred alternative also best meets the objectives of the Snapper Grouper FMP, as amended, while complying with the requirements of the Magnuson-Stevens Act and other applicable law.

Chapter 6. Cumulative Effects

6.1 Biological

1. Identify the significant cumulative effects issues associated with the proposed action and define the assessment goals.

The Council on Environmental Quality (CEQ 1997) cumulative effects guidance states that this step is done through three activities. The three activities and the location in the document are as follows:

I. The direct and indirect effects of the proposed actions **(Chapter 4)**;
II. Which resources, ecosystems, and human communities are affected **(Chapter 3)**; and
III. Which effects are important from a cumulative effects perspective **(information revealed in this Cumulative Effects Analysis (CEA)**

2. Establish the geographic scope of the analysis.

The immediate impact area is 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 (South Atlantic 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 **Section 3.2**. **Section 3.1.3** describes the essential fish habitat designation and requirements for species affected by this amendment.

3. Establish the timeframe for the analysis.

The timeframe for information used for this CEA begins with the establishment of the FMP in 1983 through 2013, when the most recent Southeast Data, Assessment, and Review (SEDAR 36, 2013) stock assessments for species affected by this amendment were completed. Additionally, actions expected to affect the snapper grouper fishery in the future (within 2-3 years), are also considered.

4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Section 4).

Listed 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 environment.

I. Fishery-related actions affecting the species addressed in this amendment.

A. Past

Several past amendments to the Snapper Grouper FMP have been implemented that directly and indirectly affected the snapper grouper fishery including the species and communities impacted by Regulatory Amendment 20. A list of those past fishery-related actions can be found in **Appendix D** of this amendment.

B. Present

Amendment 27 to the Snapper Grouper FMP (SAFMC 2013a), which was implemented on January 27, 2014, allows captains and crew of for-hire vessels to retain bag limit quantities of all snapper grouper species, updates the Snapper Grouper Framework Process to allow for expedited changes to harvest levels, and accountability measures (AMs).

The South Atlantic Headboat Reporting Amendment (GMFMC & SAFMC 2013b), which was implemented on January 27, 2014, requires that all federally permitted headboats on the South Atlantic report their landings information electronically, and on a weekly basis in order to improve the timeliness and accuracy of harvest data.

The Joint Generic Dealer Reporting Amendment (GMFMC & SAFMC 2013c) affects dealers in eight fishery management plans (FMPs) including the Snapper Grouper FMP. The final rule for the amendment requires that dealers report landings information electronically on a weekly basis to improve the timeliness and accuracy of landings data. The amendment was effective on August 7, 2014.

Regulatory Amendment 14 to the Snapper Grouper FMP (SAFMC 2014) would modify the commercial and recreational fishing years for greater amberjack and black sea bass; modify trip limits for gag; and revise the recreational AMs for black sea bass and vermilion snapper. The South Atlantic Council sent Regulatory Amendment 14 to NMFS for formal review on January 15, 2014. The proposed rule published on April 25, 2014, and comment period ended on May 27, 2014. The Final Rule published on November 7, 2014 and regulations became affective on December 8, 2014.

An emergency rule effective April 17, 2014, addressed the 2013 overfishing and overfished determination for blueline tilefish. The emergency rule temporarily set the blueline tilefish ACL at the equilibrium yield at $75\%F_{MSY}$ = 224,100 pounds whole weight (lbs ww); applied the allocations for blueline tilefish to the 224,100 lbs ww ACL (commercial = 112,207 lbs ww and recreational = 111,893 lbs ww); and adjusted the deep-water complex ACLs accordingly. The emergency rule was extended until April 17, 2015.

C. Reasonably Foreseeable Future

Amendment 36 to the Snapper Grouper FMP is currently under development and this amendment would establish spawning special management zones to enhance protection for spawning snapper grouper species including speckled hind and warsaw grouper.

Amendment 32 to the Snapper Grouper FMP would establish a rebuilding plan and modify harvest levels and management measures for blueline tilefish. This amendment would also remove blueline tilefish from the deep-water complex.

Amendment 29 to the Snapper Grouper FMP would update the acceptable biological catch (ABC) control rule for snapper grouper species using the "only reliable catch stocks" methodology, and update management measures for gray triggerfish to lengthen the fishing season.

Amendment 33 to the Snapper Grouper FMP would require fillets of snapper grouper species lawfully harvested from The Bahamas to be brought into the United States through the Atlantic exclusive economic zone (EEZ), to have the skin intact.

Amendment 34 addresses accountability measures for a number of managed species and allocations for dolphin.

II. Non-Council and other non-fishery related actions, including natural events affecting the species addressed in this amendment.

A. Past
B. Present
C. Reasonably foreseeable future

In terms of natural disturbances, it is difficult to determine the effect of non-Council and non-fishery related actions on stocks of snapper grouper species. Annual variability in natural conditions such as water temperature, currents, food availability, predator abundance, etc. can affect the abundance of young fish, which survive the egg and larval stages each year to become juveniles (i.e., recruitment). This natural variability in year class strength is difficult to predict as it is a function of many interactive and synergistic factors that cannot all be measured (Rothschild 1986). Furthermore, natural factors such as storms, red tide, cold water upwelling, etc. can affect the survival of juvenile and adult fishes; however, it is very difficult to quantify the magnitude of mortality these factors may have on a stock. Alteration of preferred habitats for snapper grouper species could affect survival of fish at any stage in their life cycles. However, estimates of the abundance of fish, which utilize any number of preferred habitats, as well as, determining the impact habitat alteration may have on snapper grouper species, is problematic.

How global climate changes will affect the snapper grouper fishery is unclear. Climate change can impact marine ecosystems through ocean warming by increased thermal stratification, reduced upwelling, sea level rise, increases in wave height and frequency, loss of

sea ice, and increased risk of diseases in marine biota. Decreases in surface ocean pH due to absorption of anthropogenic carbon dioxide emissions may impact a wide range of organisms and ecosystems, particularly organism that absorb calcium from surface waters, such as corals and crustaceans (IPCC 2007, and references therein).

The BP/Deepwater Horizon oil spill event, which occurred in the Gulf of Mexico on April 20, 2010, did not impact fisheries operating the South Atlantic. Oil from the spill site was not detected in the South Atlantic region, and did not likely pose a threat to the South Atlantic snapper grouper species addressed in this amendment.

5. Characterize the resources, ecosystems, and human communities identified in scoping in terms of their response to change and capacity to withstand stress.

Information on species most affected by this framework action are provided in **Section 3.2** of this document. The Snapper Grouper FMP managed species are part of a vast marine ecological environment, the health of which is dependent upon strong predator-prey relationships, habitat availability and health, fishing pressure, and natural variables such as current and temperature. Actions implemented under the Snapper Grouper FMP are intended to fortify the role of snapper grouper species within the larger ecosystem and maintain the ecological balance that would enable those species to thrive. Such Snapper Grouper FMP actions may help to increase snapper grouper species' ability to withstand stress from natural and anthropogenic sources.

The cumulative effects of the actions in this amendment and those past, present and future action affecting the snapper grouper fishery, are not expected to be significant. The actions in this amendment, combined with the actions in past and future amendments to the Snapper Grouper FMP, are intended to not only support biological resiliency of snapper grouper stocks but also aid the fishing industry in their ability to withstand stress caused by market and ecological fluctuations.

The species most likely to be impacted by alternatives considered in this amendment is snowy grouper. Trends in the condition of snowy grouper are determined through the SEDAR process. Stock status information for the species affected by this amendment is found in **Section 3.2** of this document, and in **Appendix E (Bycatch Practicability Analysis)**.

6. Characterize the stresses affecting these resources, ecosystems, and human communities and their relation to regulatory thresholds.

Fish populations

A complete discussion of fish populations including stock status may be found in **Section 3.2** of this document. Definitions of overfishing and overfished for snapper grouper species affected by this amendment can be found in the most recent stock assessment sources, which may be found at http://www.sefsc.noaa.gov/sedar/.

Stock assessments take into account the past and current regulatory environment and establish sustainability thresholds based on how stocks respond to those management measures

as well as biological and environmental factors affecting each species. Stock assessments and stock assessment updates are completed periodically dependent upon the amount and type of information available for the species and their commercial importance. Detailed discussions of the science and processes used to determine the stock status of assessed snapper grouper species is contained in the SEDAR stock assessment and assessment updates completed for snapper grouper species and are hereby incorporated by reference.

Climate change

Global climate changes could have significant effects on South Atlantic fisheries. However, the extent of these effects is not known at this time. Possible impacts include temperature changes in coastal and marine ecosystems that can influence organism metabolism and alter ecological processes such as productivity and species interactions; changes in precipitation patterns and a rise in sea level which could change the water balance of coastal ecosystems; altering patterns of wind and water circulation in the ocean environment; and influencing the productivity of critical coastal ecosystems such as wetlands, estuaries, and coral reefs (IPCC 2007; Kennedy et al. 2002).

It is unclear how climate change would affect snapper grouper species in the South Atlantic. Climate change can affect factors such as migration, range, larval and juvenile survival, prey availability, and susceptibility to predators. In addition, the distribution of native and exotic species may change with increased water temperature, as may the prevalence of disease in keystone animals such as corals and the occurrence and intensity of toxic algae blooms. Climate change may or may not significantly impact snapper grouper species in the future, but the level of impacts cannot be quantified at this time.

7. Define a baseline condition for the resources, ecosystems, and human communities.

The purpose of defining a baseline condition for the resource and ecosystems in the area of the proposed action is to establish a point of reference for evaluating the extent and significance of expected cumulative effects. The SEDAR assessments show trends in biomass, fishing mortality, fish weight, and fish length going back to the earliest periods of data collection. For some species such as snowy grouper, assessments reflect initial periods when the stock was above B_{MSY} and fishing mortality was fairly low. However, some species were heavily exploited or possibly overfished when data were first collected. As a result, the assessment must make an assumption of the biomass at the start of the assessment period thus modeling the baseline reference points for the species.

For a detailed discussion of the baseline conditions for snowy grouper, the species most likely to be impacted by this amendment, the reader is referred to **Section 3.2** of this amendment.

8. Identify the important cause-and-effect relationships between human activities and resources, ecosystems, and human communities.

Appendix D. History of Management includes a description of the regulatory actions affecting the snapper grouper resource, the South Atlantic marine ecosystem, and the human

communities that rely on the snapper grouper resource. Many actions such as adjustments to harvest limits, implementation of accountability measures (AMs), and protections of habitat and spawning stocks are needed to protect the fishing resource from human activities, which can degrade or deplete the resource. In compliance with the Magnuson-Stevens Fishery Conservation and Management Act, all actions promulgated to protect the snapper grouper resource and support sustainable fishing practices are also intended to minimize adverse socioeconomic impacts to the maximum extent practicable.

9. Determine the magnitude and significance of cumulative effects.

The actions contained in Regulatory Amendment 20, in combination with actions that have been implemented in the past, or will be implemented in the future, are not expected to result in any significant cumulative impacts. Regulatory Amendment 20 is necessary to prevent overfishing and continue rebuilding the snowy grouper stock while minimizing, to the extent practicable, adverse social and economic effects. Modifying the rebuilding strategy and adjusting the ABC, annual catch limits (ACLs), and management measures for snowy grouper as a result of the most recent stock assessment for the species would be expected to help achieve the goals of this amendment.

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. The 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.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.

10. Modify or add alternatives to avoid, minimize, or mitigate significant cumulative effects.

The cumulative effects on the biophysical environment are expected to be negligible. Avoidance, minimization, and mitigation are not applicable.

11. Monitor the cumulative effects of the selected alternative and adopt management.

The effects of the proposed action are, and will continue to be, monitored through collection of data by National Marine Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations. The proposed action relates to the harvest of an indigenous species in the Atlantic, and the activity being altered does not itself introduce non-indigenous species, and is not reasonably expected to facilitate the spread of such species through depressing the populations of native species. Additionally, these actions 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.

6.2 Socioeconomic Cumulative Impacts

A description of the human environment, including a description of the snapper grouper fishery and the snowy grouper component, as well as associated key fishing communities is contained in **Section 3.3.3** and a description of the history of management of snapper grouper contained in **Appendix D**. A detailed description of the expected social and economic impacts of the action in this document is contained in **Section 4**.

Participation in and the economic performance of the snowy grouper portion of the snapper grouper fishery has been affected by a combination of regulatory, biological, social, and external economic factors. Regulatory measures have obviously affected the quantity and composition of harvests of snowy grouper, through seasonal restrictions, trip or bag limits, and quotas. The limited access program for snapper grouper implemented in 1998/1999 substantially affected the number of participants in the snapper grouper fishery. Entry into the snapper grouper commercial fishery requires access to additional capital and two available permits to purchase (due to the passive reduction that requires two permits be eliminated for each new permit), which may limit opportunities for new entrants. Additionally, almost all fishermen or businesses with a snapper grouper commercial or for-hire permit also hold at least one (and usually multiple) additional commercial or for-hire permit to maintain the opportunity to participate in other fisheries. Commercial fishermen, for-hire vessel owners and crew, and private recreational anglers commonly participate in multiple fisheries throughout the year. Even within the snapper grouper fishery, effort can shift from one species to another due to environmental, economic, or regulatory changes. Overall, changes in management of one species in the snapper grouper fishery can impact effort and harvest of another species (in the snapper grouper fishery or in another fishery) because of multi-fishery participation that is characteristic in the South Atlantic region.

Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have likely played a role in determining the changing composition of the fisheries addressed by this document. Additional factors, such as changing career or lifestyle preferences, stagnant to declining prices due to imports, increased operating costs (gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for other than fishery uses have impacted both the commercial and recreational fishing sectors. In general, the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing the pressure on economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and businesses. Some reverse of this trend is possible and expected through management. However, certain pressures would remain, such as total effort and total harvest considerations, increasing input costs, import induced price pressure, and competition for coastal access.

The proposed actions in this amendment are part of the larger management program for snapper grouper, with primary management working through ACLs and AMs. The actions in the

Comprehensive ACL Amendment (SAFMC 2011c) established ACLs and AMs for species that are not experiencing overfishing. Actions in the Comprehensive ACL Amendment, however, are expected to have different effects in different areas. At any rate, the actions contained in this document are expected to prevent overfishing from occurring and to support the achievement of optimum yield for the respective species over time, resulting in social and economic gains. In addition to the species included in the Comprehensive ACL Amendment, the ACLs, AMs, and management measures have been developed and revised in multiple amendments in recent years (see **Appendix D**).

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term, with some exceptions of actions that alleviate some negative social and economic impacts. The intent of these amendments is to improve prospects for sustained participation in the respective fisheries over time and the proposed actions in this amendment are expected to result in some important long-term benefits to the commercial and for-hire fishing fleets, fishing communities and associated businesses, and private recreational anglers. The proposed changes in this amendment could affect access to snowy grouper--an economically and socially important species in the South Atlantic region--and may contribute to changes in the snapper grouper fishery within the context of the current economic and regulatory environment at the local and regional level.

Chapter 7. List of Preparers

Table 7.1.1. List of preparers of the document.

Name	SAFMC	Title
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John Carmichael	SAFMC	Assessment Scientist
Andrew Herndon	NMFS/PR	Fishery Biologist
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Mike Larkin	NMFS/SF	Data Analyst
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Jack McGovern	NMFS/SF	Fishery Biologist
Nikhil Mehta	NMFS/SF	IPT Lead/Fishery Biologist
Scott Sandorf	NMFS/SF	Technical Writer Editor
Monica Smit-Brunello	NOAA/GC	Attorney
Gregg Waugh	SAFMC	IPT Lead/Deputy Executive Director

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

Table 7.1.2. List of interdisciplinary plan team members for the document.

Name	Organization	Title
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Gregg Waugh	SAFMC	IPT Lead/Deputy Executive Director

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

Chapter 8. Agencies and Persons Consulted

Responsible Agency
NMFS, Southeast Region
263 13th Avenue South
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List of Agencies, Organizations, and Persons Consulted
SAFMC Law Enforcement Advisory Panel
SAFMC Snapper Grouper Advisory Panel
SAFMC Scientific and Statistical Committee
SAFMC Information and Education Advisory Panel
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
Gulf and South Atlantic Fisheries Development Foundation
Gulf of Mexico Fishery Management Council
National Marine Fisheries Service
- Washington Office
- Office of Ecology and Conservation
- Southeast Regional Office
- Southeast Fisheries Science Center

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Appendix A. Alternatives Considered but Eliminated from Detailed Analysis

I. ACTION 1. Adjust the Rebuilding Schedule for Snowy Grouper

Alternative 1. (No Action.) The current rebuilding schedule is specified as the maximum recommended period to rebuild if T_{MIN} > 10 years. The maximum recommended period equals T_{MIN} + one generation time = 34 years for snowy grouper. 2006 was Year 1.
Alternative 2. Modify the rebuilding schedule for snowy grouper and restart the rebuilding timeline:
Sub-Alternative 2a. Define a rebuilding schedule for snowy grouper as the shortest possible period to rebuild in the absence of fishing mortality (T_{MIN}). This would equal xx years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2b. Define a rebuilding schedule for snowy grouper as the mid-point between the shortest possible and maximum period to rebuild. This would equal yy years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2c. Define a rebuilding schedule for snowy grouper as the maximum recommended period to rebuild if T_{MIN} > 10 years. This would equal zz years (SEDAR 36 2013). 2015 is Year 1.
Sub-Alternative 2d. Others??

Discussion
A 34 year rebuilding schedule for snowy grouper was established in Amendment 15A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP). An action to adjust the rebuilding schedule is not needed in Regulatory Amendment 20 to the Snapper Grouper FMP.

MOTION: MOVE ACTION 1 (REBUILDING SCHEDULE) TO THE CONSIDERED BUT REJECTED APPENDIX.
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

II. ACTION 2. Adjust the Rebuilding Strategy for Snowy Grouper

MOTION: MOVE ALTERNATIVE 2, ACTION 2 (REBUILDING STRATEGY) TO THE CONSIDERED BUT REJECTED APPENDIX.
Alternative 2. Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate ($F=F_{MSY}$) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at F_{MSY} and ABC projections will change with each assessment. Retain the requirement of at least a 50% probability of rebuilding the stock to B_{MSY}. ABC would change each year until 20xx; the ABC for 20xx would remain in effect until modified.
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Discussion
The South Atlantic Fishery Management Council is retaining the requirement of at least a 50% probability of success. **Alternative 2** was rejected because the probability of rebuilding by the end of 2039 is 26.4%, which is considerably less than 50%, indicating that the rebuilding parameters of F_{MSY} and 50% probability of success are not compatible for this stock at this time.

In the previous SEDAR assessment, the stock was projected to achieve rebuilding at F_{MSY}. In the projections document (SEFSC 2005) it is stated: "*Note: In the constant-F projection, the median estimate of F/F_{MSY} was 1.06." This is an unusual result, because in general, $F < F_{MSY}$ is required to bring a depressed population to B_{MSY}. However, this population is estimated to have experienced above-average recruitment in recent years (Fig. 20). This results in an age structure skewed towards younger fish, not vulnerable to fishing. Thus, a slightly higher F than expected can still lead to B_{MSY} in this time frame, although the higher F would not be sustainable indefinitely without a stock decline."

III. ACTION 4. Modify the Commercial Trip Limit for Snowy Grouper

MOTION: MOVE ALTERNATIVES 2 & 3 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

MOTION: MOVE ALTERNATIVES 4-7 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 2. Establish a 250 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Georgia; no possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit in Florida all year.

Alternative 3. Establish a 300 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Georgia; no possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit in Florida all year.

Alternative 4. Establish a 250 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit south of Cape Canaveral, Florida all year.

Alternative 5. Establish a 300 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit south of Cape Canaveral, Florida all year.

Alternative 6. Establish a 250 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida; no

possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit south of Cape Canaveral, Florida to Marathon, Florida all year.

Alternative 7. Establish a 300 pound whole weight (lbs ww) commercial snowy grouper trip limit May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida; no possession allowed the rest of the year. Retain the 100 pound whole weight (lbs ww) commercial trip limit south of Cape Canaveral, Florida to Marathon, Florida all year.

MOTION: MOVE ALTERNATIVE 8 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 8. Establish a 50 pound whole weight (lbs ww) commercial trip limit in all areas once 90% of the commercial ACL has been projected to have been met. Clarify whether this applies to all areas or only the area with the 100 pound whole weight (lbs ww) trip limit.

MOTION: MOVE ACTION 4 TO CONSIDERED BUT REJECTED APPENDIX (NOTE: THIS REFERS TO THE REMAINING ITEMS IN ACTION 4 THAT WERE MOT MOVED TO ACTION 3.)
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 3. Modify the commercial snowy grouper trip limit of 150 lbs gw from January through April and a different trip limit from May through the end of the year:

Sub-alternative 3a. 50 lbs gw
Sub-alternative 3b. 100 lbs gw

Alternative 4. Modify the commercial snowy grouper trip limit of 100 lbs gw January through April for all areas; for May through August from North Carolina through Cape Canaveral, Florida and south of Marathon, Florida as shown below; and 100 lbs gw May through August for the rest of the area. From September through the end of the year, or until the ACL is met or projected to be met, the trip limit would be set at 100 lbs gw.

Sub-alternative 4a. 200 lbs gw.
Sub-alternative 4b. 250 lbs gw
Sub-alternative 4c. 300 lbs gw.

Discussion: The trip limit alternatives in Action 4 was merged with split season alternatives Action 3 to create an action that has both a split season and trip limits.

IV. ACTION 5. Modify the Recreational Bag Limit for Snowy Grouper

MOTION: MOVE ALTERNATIVES 3 & 4 UNDER ACTION 5 (RECREATIONAL BAG LIMIT) TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 3. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/person/day May through August and no retention during the rest of the year.
Discussion
Alternative 3 would not be expected to keep recreational landings below the expected recreational ACL based on past catches as shown in Tables 7-10.

Alternative 4. Modify the recreational snowy grouper bag limit from 1/vessel/day to 1/person/day.
Discussion
Alternative 4 would not be expected to keep recreational landings below the expected recreational ACL based on past catches as shown in Tables 7-10.

MOTION: MOVE ALTERNATIVE 8 TO THE CONSIDERED BUT REJECTED APPENDIX
APPROVED BY COMMITTEE
APPROVED BY COUNCIL

Alternative 8. Modify the recreational snowy grouper bag limit as shown above and modify the AM for the snowy grouper recreational sector, such that NMFS 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 _____ and end on the date NMFS projects the recreational ACL will be met.
Discussion
Alternative 8 would be expected to keep recreational landings below the expected recreational ACL. However, given that the ACLs are so small and data are so uncertain this would be a very difficult task and uncertain as to whether catches could be held below the recreational ACL.

Discussion: The recreational ACL for snowy grouper is small, and it is likely the recreational ACL would be met within the time period specified under Alternatives 3 and 4. Alternative 8 was not considered to be a reasonable alternative because recreational landings for snowy grouper are very small, and there is a large amount if variability in the estimates. Thus, it is difficult for the National Marine Fisheries Service to determine when the recreational ACL would be met.

Appendix B. Glossary

Acceptable Biological Catch (ABC): Maximum amount of fish stock than can be harvested without adversely affecting recruitment of other components of the stock. The ABC level is typically higher than the total allowable catch, leaving a buffer between the two.

ALS: Accumulative Landings System. NMFS database which contains commercial landings reported by dealers.

Biomass: Amount or mass of some organism, such as fish.

B_{MSY}: Biomass of population achieved in long-term by fishing at F_{MSY}.

Bycatch: Fish harvested in a fishery, but not sold or kept for personal use. Bycatch includes economic discards and regulatory discards, but not fish released alive under a recreational catch and release fishery management program.

Caribbean Fishery Management Council (CFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The CFMC develops fishery management plans for fisheries off the coast of the U.S. Virgin Islands and the Commonwealth of Puerto Rico.

Catch Per Unit Effort (CPUE): The amount of fish captured with an amount of effort. CPUE can be expressed as weight of fish captured per fishing trip, per hour spent at sea, or through other standardized measures.

Charter Boat: A fishing boat available for hire by recreational anglers, normally by a group of anglers for a short time period.

Cohort: Fish born in a given year. (See year class.)

Control Date: Date established for defining the pool of potential participants in a given management program. Control dates can establish a range of years during which a potential participant must have been active in a fishery to qualify for a quota share.

Constant Catch Rebuilding Strategy: A rebuilding strategy where the allowable biological catch of an overfished species is held constant until stock biomass reaches B_{MSY} at the end of the rebuilding period.

Constant F Rebuilding Strategy: A rebuilding strategy where the fishing mortality of an overfished species is held constant until stock biomass reached BMSY at the end of the rebuilding period.

Directed Fishery: Fishing directed at a certain species or species group.

Discards: Fish captured, but released at sea.

Discard Mortality Rate: The percent of total fish discarded that do not survive being captured and released at sea.

Derby: Fishery in which the TAC is fixed and participants in the fishery do not have individual quotas. The fishery is closed once the TAC is reached, and participants attempt to maximize their harvests as quickly as possible. Derby fisheries can result in capital stuffing and a race for fish.

Effort: The amount of time and fishing power (i.e., gear size, boat size, horsepower) used to harvest fish.

Exclusive Economic Zone (EEZ): Zone extending from the shoreline out to 200 nautical miles in which the country owning the shoreline has the exclusive right to conduct certain activities such as fishing. In the United States, the EEZ is split into state waters (typically from the shoreline out to 3 nautical miles) and federal waters (typically from 3 to 200 nautical miles).

Exploitation Rate: Amount of fish harvested from a stock relative to the size of the stock, often expressed as a percentage.

F: Fishing mortality.

Fecundity: A measurement of the egg-producing ability of fish at certain sizes and ages.

Fishery Dependent Data: Fishery data collected and reported by fishermen and dealers.

Fishery Independent Data: Fishery data collected and reported by scientists who catch the fish themselves.

Fishery Management Plan: Management plan for fisheries operating in the federal produced by regional fishery management councils and submitted to the Secretary of Commerce for approval.

Fishing Effort: Usually refers to the amount of fishing. May refer to the number of fishing vessels, amount of fishing gear (nets, traps, hooks), or total amount of time vessels and gear are actively engaged in fishing.

Fishing Mortality: A measurement of the rate at which fish are removed from a population by fishing. Fishing mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Fishing Power: Measure of the relative ability of a fishing vessel, its gear, and its crew to catch fishes, in reference to some standard vessel, given both vessels are under identical conditions.

$F_{30\%SPR}$: Fishing mortality that will produce a static SPR = 30%.

$F_{45\%SPR}$: Fishing mortality that will produce a static SPR = 45%.

F_{OY}: Fishing mortality that will produce OY under equilibrium conditions and a corresponding biomass of B_{OY}. Usually expressed as the yield at 85% of F_{MSY}, yield at 75% of F_{MSY}, or yield at 65% of F_{MSY}.

F_{MSY}: Fishing mortality that if applied constantly, would achieve MSY under equilibrium conditions and a corresponding biomass of B_{MSY}

Fork Length (FL): The length of a fish as measured from the tip of its snout to the fork in its tail.

Gear restrictions: Limits placed on the type, amount, number, or techniques allowed for a given type of fishing gear.

Growth Overfishing: When fishing pressure on small fish prevents the fishery from producing the maximum poundage. Condition in which the total weight of the harvest from a fishery is improved when fishing effort is reduced, due to an increase in the average weight of fishes.

Gulf of Mexico Fishery Management Council (GFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The GFMC develops fishery management plans for fisheries off the coast of Texas, Louisiana, Mississippi, Alabama, and the west coast of Florida.

Head Boat: A fishing boat that charges individual fees per recreational angler onboard.

Highgrading: Form of selective sorting of fishes in which higher value, more marketable fishes are retained, and less marketable fishes, which could legally be retained are discarded.

Individual Fishing Quota (IFQ): Fishery management tool that allocates a certain portion of the TAC to individual vessels, fishermen, or other eligible recipients.

Longline: Fishing method using a horizontal mainline to which weights and baited hooks are attached at regular intervals. Gear is either fished on the bottom or in the water column.

Magnuson-Stevens Fishery Conservation and Management Act: Federal legislation responsible for establishing the fishery management councils and the mandatory and discretionary guidelines for federal fishery management plans.

Marine Recreational Fisheries Statistics Survey (MRFSS): Survey operated by NMFS in cooperation with states that collects marine recreational data.

Maximum Fishing Mortality Threshold (MFMT): The rate of fishing mortality above which a stock's capacity to produce MSY would be jeopardized.

Maximum Sustainable Yield (MSY): The largest long-term average catch that can be taken continuously (sustained) from a stock or stock complex under average environmental conditions.

Minimum Stock Size Threshold (MSST): The biomass level below which a stock would be considered overfished.

Modified F Rebuilding Strategy: A rebuilding strategy where fishing mortality is changed as stock biomass increases during the rebuilding period.

Multispecies fishery: Fishery in which more than one species is caught at the same time and location with a particular gear type.

National Marine Fisheries Service (NMFS): Federal agency within NOAA responsible for overseeing fisheries science and regulation.

National Oceanic and Atmospheric Administration: Agency within the Department of Commerce responsible for ocean and coastal management.

Natural Mortality (M): A measurement of the rate at which fish are removed from a population by natural causes. Natural mortality can be reported as either annual or instantaneous. Annual mortality is the percentage of fish dying in one year. Instantaneous is that percentage of fish dying at any one time.

Optimum Yield (OY): The amount of catch that will provide the greatest overall benefit to the nation, particularly with respect to food production and recreational opportunities and taking into account the protection of marine ecosystems.

Overfished: A stock or stock complex is considered overfished when stock biomass falls below the minimum stock size threshold (MSST) (e.g., current biomass < MSST = overfished).

Overfishing: Overfishing occurs when a stock or stock complex is subjected to a rate of fishing mortality that exceeds the maximum fishing mortality threshold (e.g., current fishing mortality rate > MFMT = overfishing).

P*: 'Acceptable' probability of overfishing; an uncertainty buffer between OFL and ABC.

Quota: Percent or annual amount of fish that can be harvested.

Recruitment (R): Number or percentage of fish that survives from hatching to a specific size or age.

Recruitment Overfishing: The rate of fishing above which the recruitment to the exploitable stock becomes significantly reduced. This is characterized by a greatly reduced spawning stock, a decreasing proportion of older fish in the catch, and generally very low recruitment year after year.

Scientific and Statistical Committee (SSC): Fishery management advisory body composed of federal, state, and academic scientists, which provides scientific advice to a fishery management council.

Selectivity: The ability of a type of gear to catch a certain size or species of fish.

South Atlantic Fisheries Management Council (SAFMC): One of eight regional councils mandated in the Magnuson-Stevens Fishery Conservation and Management Act to develop management plans for fisheries in federal waters. The SAFMC develops fishery management plans for fisheries off North Carolina, South Carolina, Georgia, and the east coast of Florida.

Spawning Potential Ratio (Transitional SPR): Formerly used in overfished definition. The number of eggs that could be produced by an average recruit in a fished stock divided by the number of eggs that could be produced by an average recruit in an unfished stock. SPR can also be expressed as the spawning stock biomass per recruit (SSBR) of a fished stock divided by the SSBR of the stock before it was fished.

% Spawning Per Recruit (Static SPR): Formerly used in overfishing determination. The maximum spawning per recruit produced in a fished stock divided by the maximum spawning per recruit, which occurs under the conditions of no fishing. Commonly abbreviated as %SPR.

Spawning Stock Biomass (SSB): The total weight of those fish in a stock that are old enough to spawn.

Spawning Stock Biomass Per Recruit (SSBR): The spawning stock biomass divided by the number of recruits to the stock or how much spawning biomass an average recruit would be expected to produce.

Total Allowable Catch (TAC): The total amount of fish to be taken annually from a stock or stock complex. This may be a portion of the Allowable Biological Catch (ABC) that takes into consideration factors such as bycatch.

Total Length (TL): The length of a fish as measured from the tip of the snout to the tip of the tail.

Appendix C. Other Applicable Law

1.1 Administrative Procedures Act

All federal rulemaking is governed under the provisions of the Administrative Procedures Act (APA) (5 U.S.C. Subchapter II), which establishes a "notice and comment" procedure to enable public participation in the rulemaking process. 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. This amendment complies with the provisions of the APA through the South Atlantic Fishery Management Council's (South Atlantic Council) extensive use of public meetings, requests for comments and consideration of comments. The proposed rule associated with this amendment will have a request for public comments, which complies with the APA.

1.2 Information Quality Act

The Information Quality Act (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 Information Quality Act (IQA). This document has used the best available information and made a broad presentation thereof. The process of public review of this document provides an opportunity for comment and challenge to this information, as well as for the provision of additional information.

The information contained in this document was developed using best available scientific information. Therefore, Regulatory Amendment 20 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 20) and Environmental Assessment are in compliance with the IQA.

1.3 Coastal Zone Management Act

Section 307(c)(1) of the federal Coastal Zone Management Act (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 South Atlantic 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. Based on the analysis of the environmental consequences of the proposed actions in Section 4.0, the South Atlantic Council has concluded this amendment would improve federal management of the of the snapper grouper fishery and is consistent to the maximum extent practicable with the Coastal Zone Management Plans of Florida, Georgia, South Carolina, and North Carolina. This determination will be

submitted to the responsible state agencies under Section 307 of the CZMA administering approved Coastal Zone Management Programs in the States of Florida, South Carolina, Georgia, and North Carolina.

1.4 Endangered Species Act

The Endangered Species Act (ESA) of 1973 (16 U.S.C. Section 1531 et seq.) requires that federal agencies must ensure actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of threatened or endangered species or the habitat designated as critical to their survival and recovery. The ESA requires NMFS to consult with the appropriate administrative agency (itself for most marine species, and the U.S. Fish and Wildlife Service for all remaining species) when proposing an action that may affect threatened or endangered species or adversely modify critical habitat. Consultations are necessary to determine the potential impacts of the proposed action. They are concluded informally when proposed actions may affect but are "not likely to adversely affect" threatened or endangered species or designated critical habitat. Formal consultations, resulting in a biological opinion, are required when proposed actions may affect and are "likely to adversely affect" threatened or endangered species or adversely modify designated critical habitat. NMFS completed a biological opinion (NMFS 2006) in 2006 evaluating the impacts of the continued authorization of the South Atlantic snapper grouper fishery under the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) and Amendment 13C to the Snapper Grouper FMP on ESA-listed species (see **Chapter 3**). The opinion stated the fishery was not likely to adversely affect North Atlantic right whale critical habitat, seabirds, or marine mammals (see NMFS 2006 for discussion on these species). However, the opinion did state that the snapper grouper fishery would adversely affect sea turtles and smalltooth sawfish, but would not jeopardize their continued existence. An incidental take statement was issued for green, hawksbill, Kemp's ridley, leatherback, and loggerhead sea turtles, as well as smalltooth sawfish. Reasonable and prudent measures to minimize the impact of these incidental takes were specified, along with terms and conditions to implement them. See NMFS (2006) for a full discussion of impacts to smalltooth sawfish.

Sea turtles are vulnerable to capture by bottom longline and vertical hook-and-line gear. The magnitude of the interactions between sea turtles and the South Atlantic snapper grouper fishery was evaluated in NMFS (2006) using data from the Supplementary Discard Data Program (SDDP). Three loggerheads and three unidentified sea turtles were caught on vertical lines; one leatherback and one loggerhead were caught on bottom longlines, all were released alive. The effort reported in the program represented between approximately 5% and 14% of all South Atlantic snapper grouper fishing effort. These data were extrapolated in NMFS (2006) to better estimate the number of interactions between the entire snapper grouper fishery and ESA-listed sea turtles. The extrapolated estimate was used to project future interactions (**Table C-1**).

The SDDP does not provide data on recreational fishing interactions with ESA-listed sea turtle species. However, anecdotal information indicates that recreational fishermen occasionally take sea turtles with hook-and-line gear. The biological opinion also used the extrapolated data from the SDDP to estimate the magnitude of recreational fishing on sea turtles (**Table C-1**).

Table C-1. Three-year South Atlantic anticipated takes sea turtles in the snapper grouper fishery.

Species	Amount of Take	Total
Green	Total Take	39
	Lethal Take	14
Hawksbill	Total Take	4
	Lethal Take	3
Kemp's Ridley	Total Take	19
	Lethal Take	8
Leatherback	Total Take	25
	Lethal Take	15
Loggerhead	Total Take	202
	Lethal Take	67

Source: NMFS 2006. NMFS (National Marine Fisheries Service). 2006. Endangered Species Act Section 7 consultation on the continued authorization of snapper grouper fishing under the Snapper Grouper FMP and Proposed Amendment 13C. Biological Opinion. June 7.

Regulations implemented through Amendment 15B to the Snapper Grouper FMP (74 FR 31225; June 30, 2009) required all commercial or charter/headboat vessels with a South Atlantic snapper grouper permit, carrying hook-and-line gear on board, to possess required literature and release gear to aid in the safe release of incidentally caught sea turtles and smalltooth sawfish. Comprehensive Ecosystem-Based Amendment 2 modified these requirements (76 FR 82183; December 30, 2011) by requiring different gear for vessels with different freeboard heights, mirroring the requirements in the Gulf of Mexico. These regulations are thought to decrease the mortality associated with accidental interactions with sea turtles and smalltooth sawfish.

Subsequent to the June 7, 2006, biological opinion, elkhorn and staghorn coral (*Acropora cervicornis* and *Acropora palmata*) were listed as threatened. In a consultation memorandum dated July 9, 2007, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect these *Acropora* species. On November 26, 2008, an *Acropora* critical habitat was designated. In a consultation memorandum dated December 2, 2008, NMFS concluded the continued authorization of the snapper grouper fishery is not likely to adversely affect *Acropora* critical habitat. On September 10, 2014, NMFS listed 20 new coral species under the ESA, five of those species occur in the Caribbean (including Florida) and all of these are listed as threatened. The 2 previously listed *Acropora* coral species remain protected as threatened. In a memorandum dated September 11, 2014, NMFS indicated that the previous determination remains valid and the South Atlantic snapper grouper fishery is still not likely to adversely affect *Acropora* corals.

The September 10, 2014, final listing rule provided some new information on the threats facing *Acropora*; however, none of the information suggested that previous determinations were no longer valid. For this reason, a memo dated September 11, 2014, indicates that previous determination remains valid and the South Atlantic snapper grouper fishery is still not likely to adversely affect *Acropora* corals. For the remaining 5 species of coral (*Mycetophyllia ferox, Dendrogyra cylindrus, Orbicella annularis, O.faveolata, and O.franksi*), the threats to corals from fishing identified in the status review for these species (SSR) include (1) trophic effects, (2) human- induced physical damage, and (3) destructive

fishing practices. The September 11, 2014, memo indicates South Atlantic snapper grouper fishery will not cause trophic effects because it does not capture herbivorous fish.

Additionally, on September 22, 2011, NMFS and the U.S. Fish and Wildlife Service determined the loggerhead sea turtle population consists of nine distinct population segments (DPSs) (76 FR 58868). Previously, loggerhead sea turtles were listed as threatened species throughout their global range. The snapper grouper fishery interacts with loggerhead sea turtles from what is now considered the Northwest Atlantic (NWA) DPS, which remains listed as threatened. Five DPSs of Atlantic sturgeon were also listed since the completion of the 2006 biological opinion. In a consultation memorandum dated February 15, 2012, NMFS concluded the continued authorization of the South Atlantic snapper grouper fishery is not likely to adversely affect the Atlantic sturgeon. The February 15, 2012, memorandum also stated that because the 2006 biological opinion had evaluated the impacts of the fishery on the loggerhead subpopulations now wholly contained within the NWA DPS, the opinion's conclusion that the fishery is not likely to jeopardize the continued existence of loggerhead sea turtles remains valid.

On July 10, 2014, NMFS published a final rule designating critical habitat for the Northwest Atlantic Ocean (NWA) Loggerhead Sea Turtle DPS in the *Federal Register* (79 FR 39856). The final rule, effective August 11, 2014, designates 38 marine areas within the Atlantic Ocean and Gulf of Mexico, which contain the physical or biological features essential for the conservation of the loggerhead sea turtle. A memorandum dated September 16, 2014, evaluated the effects of continued authorization of federal fisheries, including snapper grouper, on the newly-designated critical habitat. The memo concluded that activities associated with the snapper grouper fishery would not adversely affect any of the NWA loggerhead DPS critical habitat units.

1.5 Executive Order 12612: Federalism

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 amendment and associated regulations. Therefore, preparation of a Federalism assessment under E.O. 13132 is not necessary.

1.6 Executive Order 12866: Regulatory Planning and Review

E.O. 12866, signed in 1993, requires federal agencies to assess the costs and benefits of their proposed regulations, including distributional impacts, and to select alternatives that maximize net benefits to society. To comply with E.O. 12866, NMFS prepares a Regulatory Impact Review (RIR) for all fishery regulatory actions that implement a new fishery management plan (FMP) or that significantly amend an existing plan. RIRs provide a comprehensive analysis of the costs and benefits to society associated with proposed regulatory actions, the problems and policy objectives prompting the regulatory proposals, and the major alternatives that could be used to solve the problems. The reviews also serve as the basis for the agency's determinations as to whether proposed regulations are a "significant regulatory action" under the criteria provided in E.O. 12866 and whether proposed regulations will have a significant economic impact on a substantial number of small entities in compliance with the Regulatory Flexibility Act. A regulation is significant if it is likely to result in an annual effect on the economy of at least $100,000,000 or if it has other major economic effects. The RIR is included as **Appendix F**.

In accordance with E.O. 12866, the following is set forth by the South Atlantic Council: (1) this rule is not likely to have an annual effect on the economy of more than $100 million or to adversely affect in a material way the economy, a sector of the economy, productivity, jobs, the environment, public health or safety, or state, local, or tribal governments or communities; (2) this rule is not likely to create any serious inconsistencies or otherwise interfere with any action take or planned by another agency; (3) this rule is not likely to materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; (4) this rule is not likely to raise novel or policy issues arising out of legal mandates, or the principles set forth in the Executive Order; and (5) this rule is not controversial.

1.7 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 including, but not limited to, developing joint partnerships; promoting the restoration of recreational fishing areas that are limited by water quality and habitat degradation; fostering sound aquatic conservation and restoration endeavors; and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and evaluating the effects of federally-funded, permitted, or authorized actions on aquatic systems and recreational fisheries, and documenting those effects. 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 South Atlantic 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 amendment are consistent with the directives of E.O. 12962.

1.8 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 amendment are consistent with the directives of E.O. 13089.

1.9 Executive Order 13158: Marine Protected Areas

E.O. 13158 was signed on May 26, 2000, to strengthen the protection of U.S. ocean and coastal resources through the use of Marine Protected Areas (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 amendment are consistent with the directives of E.O. 13158.

1.10 Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) established a moratorium, with certain exceptions, on the taking of marine mammals in U.S. waters and by U.S. citizens on the high seas. It also prohibits the importing of marine mammals and marine mammal products into the United States. Under the MMPA, the Secretary of Commerce (authority delegated to NMFS) is responsible for the conservation and management of cetaceans and pinnipeds (other than walruses). The Secretary of the Interior is responsible for walruses, sea otters, polar bears, manatees, and dugongs.

Part of the responsibility that NMFS has under the MMPA involves monitoring populations of marine mammals to make sure that they stay at optimum levels. If a population falls below its optimum level, it is designated as "depleted." A conservation plan is then developed to guide research and management actions to restore the population to healthy levels.

In 1994, Congress amended the MMPA, to govern the taking of marine mammals incidental to commercial fishing operations. This amendment required the preparation of stock assessments for all marine mammal stocks in waters under U.S. jurisdiction; development and implementation of take-reduction plans for stocks that may be reduced or are being maintained below their optimum sustainable population levels due to interactions with commercial fisheries; and studies of pinniped-fishery interactions. The MMPA requires a commercial fishery to be placed in one of three categories, based on the relative frequency of incidental serious injuries and mortalities of marine mammals. Category I designates fisheries with frequent serious injuries and mortalities incidental to commercial fishing; Category II designates fisheries with occasional serious injuries and mortalities; and Category III designates fisheries with a remote likelihood or no known serious injuries or mortalities.

Under the MMPA, to legally fish in a Category I and/or II fishery, a fisherman must take certain steps. For example, owners of vessels or gear engaging in a Category I or II fishery, are required to obtain a marine mammal authorization by registering with the Marine Mammal Authorization Program (50 CFR 229.4). They are also required to accommodate an observer if requested (50 CFR 229.7(c)) and they must comply with any applicable take reduction plans.

The snapper grouper fishery in the South Atlantic is considered part of the larger "Southeastern U.S. Atlantic, Gulf of Mexico, and Caribbean snapper grouper and other reef fish bottom longline/hook-and-line" fisheries under List of Fisheries (LOF) (79 FR 14418, March 14, 2014). The fishery is categorized as a Category III fishery under the 2014 LOF because only a few interactions between marine mammals and the larger fishery as a whole have occurred in the last several years. No incidentally, killed or injured marine mammal species have been documented in the South Atlantic snapper grouper hook-and-line fishery.

1.11 Migratory Bird Treaty Act and Executive Order 13186

The Migratory Bird Treaty Act (MBTA) implemented several bilateral treaties for bird conservation between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and the former Union of Soviet Socialists Republics. Under the MBTA, it is

unlawful to pursue, hunt, take, capture, kill, possess, trade, or transport any migratory bird, or any part, nest, or egg of a migratory bird, included in treaties between the countries listed above, except as permitted by regulations issued by the Department of the Interior (16 U.S.C. 703-712). Violations of the MBTA carry criminal penalties. Any equipment and means of transportation used in activities in violation of the MBTA may be seized by the United States government and, upon conviction, must be forfeited to it.

Executive Order 13186 directs each federal agency taking actions that have, or are likely to have, a measurable negative effect on migratory bird populations to develop and implement a memorandum of understanding (MOU) with the U.S. Fish and Wildlife Service (USFWS) to conserve those bird populations. In the instance of unintentional take of migratory birds, NMFS would develop and use principles, standards, and practices that will lessen the amount of unintentional take in cooperation with the USFWS. Additionally, the MOU would ensure that NEPA analyses evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.

An MOU was signed on August 15, 2012, which will address the incidental take of migratory birds in commercial fisheries under the jurisdiction of NMFS. NMFS must monitor, report, and take steps to reduce the incidental take of seabirds that occurs in fishing operations. The United States has already developed the U.S. National Plan of Action for Reducing Incidental Catch of Seabirds in Longline Fisheries. Under that plan, many potential MOU components are already being implemented. The alternatives considered in this amendment are consistent with the directives of E.O. 13186.

1.12 National Environmental Policy Act

Regulatory Amendment 20 has been written and organized in a manner that meets National Environmental Policy Act (NEPA) requirements, and thus is a consolidated NEPA document, including a draft Environmental Assessment as described in NOAA Administrative Order (NAO) 216-6, Section 6.03.a.2.

Purpose and Need for Action
The purpose and need for this action are described in Section 1.4.

Alternatives
The alternatives for this action are described in Chapter 2.

Affected Environment
The affected environment is described in Chapter 3.

Impacts of the Alternatives
The impacts of the alternatives on the environment are described in Chapter 4.

1.14 Paperwork Reduction Act

The purpose of the Paperwork Reduction Act (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 OMB. This authority encompasses establishment of guidelines and policies, approval of information collection requests, and

reduction of paperwork burdens and duplications. PRA requires NMFS to obtain approval from the OMB before requesting most types of fishery information from the public.

1.15 Regulatory Flexibility Act

The Regulatory Flexibility Act (RFA) of 1980 (5 U.S.C. 601 et seq.) requires federal agencies to assess the impacts of regulatory actions implemented through notice and comment rulemaking procedures on small businesses, small organizations, and small governmental entities, with the goal of minimizing adverse impacts of burdensome regulations and record-keeping requirements on those entities. Under the RFA, NMFS must determine whether a proposed fishery regulation would have a significant economic impact on a substantial number of small entities. If not, a certification to this effect must be prepared and submitted to the Chief Counsel for Advocacy of the Small Business Administration (SBA). Alternatively, if a regulation is determined to significantly impact a substantial number of small entities, the Act requires the agency to prepare an initial and final Regulatory Flexibility Analysis to accompany the proposed and final rule, respectively. These analyses, which describe the type and number of small businesses, affected, the nature and size of the impacts, and alternatives that minimize these impacts while accomplishing stated objectives, must be published in the Federal Register in full or in summary for public comment and submitted to the chief counsel for advocacy of the Small Business Administration. Changes to the RFA in June 1996 enable small entities to seek court review of an agency's compliance with the Act's provisions.

The SBA recently modified the small entity size criteria for all major industry sectors in the U.S., including fish harvesters. A business involved in finfish harvesting is classified as a small business if independently owned and operated, is not dominant in its field of operation (including its affiliates), and its combined annual receipts are not in excess of $19.0 million (NAICS code 114111, finfish fishing) for all of its affiliated operations worldwide. For for-hire vessels, all qualifiers apply except that the annual receipts threshold is $7.0 million (NAICS code 487210, recreational industries). The SBA periodically reviews and changes, as appropriate, these size criteria. On June 20, 2013, the SBA issued a final rule revising the small business size standards for several industries effective July 22, 2013 (78 FR 37398). This rule increased the size standard for commercial finfish harvesters from $4.0 million to $19.0 million. Neither this rule, nor other recent SBA rules, changed the size standard for for-hire vessels. The RFA analysis is included as **Appendix G**.

1.16 Small Business Act

Enacted in 1953, the Small Business Act requires that agencies assist and protect small-business interests to the extent possible to preserve free competitive enterprise. The objectives of the act 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.

1.17 Public Law 99-659: Vessel Safety

Public Law 99-659 amended the Magnuson-Stevens Fishery Conservation and Management Act to require that a fishery management plan (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. Therefore, this amendment proposes neither procedures for making management adjustments due to vessel safety problems nor procedures to monitor, evaluate, or report on the effects of management measures on vessel or crew safety under adverse weather or ocean conditions.

Appendix D. History of Management

The snapper grouper fishery is highly regulated; some of the species included in this amendment have been regulated since 1983. The following table summarizes actions in each of the amendments to the original FMP, as well as some events not covered in amendment actions.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
FMP (SAFMC 1983)	08/31/83	PR: 48 FR 26843 FR: 48 FR 39463	-12" total length (TL) limit – red snapper, yellowtail snapper, red grouper, Nassau grouper -8" limit – black sea bass -4" trawl mesh size -Gear limitations – poisons, explosives, fish traps, trawls -Designated modified habitats or artificial reefs as Special Management Zones (SMZs)
Regulatory Amendment #1 (SAFMC 1987)	03/27/87	PR: 51 FR 43937 FR: 52 FR 9864	-Prohibited fishing in SMZs except with hand-held hook-and-line and spearfishing gear. -Prohibited harvest of goliath grouper in SMZs.
Amendment #1 (SAFMC 1988a)	01/12/89	PR: 53 FR 42985 FR: 54 FR 1720	-Prohibited trawl gear to harvest fish south of Cape Hatteras, NC and north of Cape Canaveral, FL. -Directed fishery defined as vessel with trawl gear and ≥200 lb s-g on board. -Established rebuttable assumption that vessel with s-g on board had harvested such fish in the exclusive economic zone (EEZ).
Regulatory Amendment #2 (SAFMC 1988b)	03/30/89	PR: 53 FR 32412 FR: 54 FR 8342	-Established 2 artificial reefs off Ft. Pierce, FL as SMZs.
Notice of Control Date	09/24/90	55 FR 39039	-Anyone entering federal wreckfish fishery in the EEZ off S. Atlantic states after 09/24/90 was not assured of future access if limited entry program developed.
Regulatory Amendment #3 (SAFMC 1989)	11/02/90	PR: 55 FR 28066 FR: 55 FR 40394	-Established artificial reef at Key Biscayne, FL as SMZ. Fish trapping, bottom longlining, spear fishing, and harvesting of Goliath grouper prohibited in SMZ.
Amendment #2 (SAFMC 1990a)	10/30/90	PR: 55 FR 31406 FR: 55 FR 46213	-Prohibited harvest/possession of goliath grouper in or from the EEZ -Defined overfishing for goliath grouper and other species

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Emergency Rule	8/3/90	55 FR 32257	-Added wreckfish to the fishery management unit (FMU) -Fishing year beginning 4/16/90 -Commercial quota of 2 million pounds -Commercial trip limit of 10,000 pounds per trip
Fishery Closure Notice	8/8/90	55 FR 32635	- Fishery closed because the commercial quota of 2 million pounds was reached
Emergency Rule Extension	11/1/90	55 FR 40181	-extended the measures implemented via emergency rule on 8/3/90
Amendment #3 (SAFMC 1990b)	01/31/91	PR: 55 FR 39023 FR: 56 FR 2443	-Added wreckfish to the FMU -Defined optimum yield and overfishing -Required permit to fish for, land or sell wreckfish -Required catch and effort reports from selected, permitted vessel; -Established control date of 03/28/90 -Established a fishing year for wreckfish starting April 16 -Established a process to set annual quota, with initial quota of 2 million pounds; provisions for closure -Established 10,000 pound trip limit -Established a spawning season closure for wreckfish from January 15 to April 15 -Provided for annual adjustments of wreckfish management measures
Notice of Control Date	07/30/91	56 FR 36052	-Anyone entering federal snapper grouper fishery (other than for wreckfish) in the EEZ off S. Atlantic states after 07/30/91 was not assured of future access if limited entry program developed.

Document	All Actions Effective By:	Proposed Rule Final Rule	Major Actions. Note that not all details are provided here. Please refer to Proposed and Final Rules for all impacts of listed documents.
Amendment #4 (SAFMC 1991)	01/01/92	PR: 56 FR 29922 FR: 56 FR 56016	-Prohibited gear: fish traps except black sea bass traps north of Cape Canaveral, FL; entanglement nets; longline gear inside 50 fathoms; bottom longlines to harvest wreckfish; powerheads and bangsticks in designated SMZs off S. Carolina -defined overfishing/overfished and established rebuilding timeframe: red snapper and groupers ≤ 15 years (year 1 = 1991); other snappers, greater amberjack, black sea bass, red porgy ≤ 10 years (year 1 = 1991) -Required permits (commercial & for-hire) and specified data collection regulations -Established an assessment group and annual adjustment procedure (framework) -Permit, gear, and vessel id requirements specified for black sea bass traps -No retention of snapper grouper spp. caught in other fisheries with gear prohibited in snapper grouper fishery if captured snapper grouper had no bag limit or harvest was prohibited. If had a bag limit, could retain only the bag limit -8" TL limit – lane snapper -10" TL limit – vermilion snapper (recreational only) -12" TL limit – red porgy, vermilion snapper (commercial only), gray, yellowtail, mutton, schoolmaster, queen, blackfin, cubera, dog, mahogany, and silk snappers -20" TL limit – red snapper, gag, and red, black, scamp, yellowfin, and yellowmouth groupers. -28" fork length (FL) limit – greater amberjack (recreational only) -36" FL or 28" core length – greater amberjack (commercial only) -bag limits – 10 vermilion snapper, 3 greater amberjack -aggregate snapper bag limit – 10/person/day, excluding vermilion snapper and allowing no more than 2 red snappers -aggregate grouper bag limit – 5/person/day, excluding Nassau and goliath grouper, for which no retention (recreational & commercial) is allowed -spawning season closure – commercial harvest greater amberjack > 3 fish bag prohibited in April south of Cape Canaveral, FL -spawning season closure – commercial harvest mutton snapper >snapper aggregate prohibited during May and June -charter/headboats and excursion boat possession limits extended

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Amendment #5 (SAFMC 1992a)	04/06/92	PR: 56 FR 57302 FR: 57 FR 7886	-Wreckfish: established limited entry system with individual transferable quotas (ITQs); required dealer to have permit; rescinded 10,000 lb. trip limit; required off-loading between 8 am and 5 pm; reduced occasions when 24-hour advance notice of offloading required for off-loading; established procedure for initial distribution of percentage shares of total allowable catch (TAC)
Emergency Rule	8/31/92	57 FR 39365	-Black Sea Bass (bsb): modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Emergency Rule Extension	11/30/92	57 FR 56522	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #4 (SAFMC 1992b)	07/06/93	FR: 58 FR 36155	-Black Sea Bass: modified definition of bsb pot; allowed multi-gear trips for bsb; allowed retention of incidentally-caught fish on bsb trips
Regulatory Amendment #5 (SAFMC 1992c)	07/31/93	PR: 58 FR 13732 FR: 58 FR 35895	-Established 8 SMZs off S. Carolina, where only hand-held, hook-and-line gear and spearfishing (excluding powerheads) was allowed
Amendment #6 (SAFMC 1993)	07/27/94	PR: 59 FR 9721 FR: 59 FR 27242	-Set up separate commercial TAC levels for golden tilefish and snowy grouper -Established commercial trip limits for snowy grouper, golden tilefish, speckled hind, and warsaw grouper -Included golden tilefish in grouper recreational aggregate bag limits -Prohibited sale of warsaw grouper and speckled hind -100% logbook coverage upon renewal of permit -Creation of the *Oculina* Experimental Closed Area -Data collection needs specified for evaluation of possible future individual fishing quota system
Amendment #7 (SAFMC 1994a)	01/23/95	PR: 59 FR 47833 FR: 59 FR 66270	-12" FL – hogfish -16" TL – mutton snapper -Required dealer, charter and headboat federal permits -Allowed sale under specified conditions -Specified allowable gear and made allowance for experimental gear -Allowed multi-gear trips in NC -Added localized overfishing to list of problems and objectives -Adjusted bag limit and crew specs. for charter and head boats -Modified management unit for scup to apply south of Cape Hatteras, NC -Modified framework procedure
Regulatory Amendment #6 (SAFMC 1994b)	05/22/95	PR: 60 FR 8620 FR: 60 FR 19683	-Established actions which applied only to EEZ off Atlantic coast of FL: Bag limits – 5 hogfish/person/day (recreational only), 2 cubera snapper/person/day > 30" TL; 12" TL – gray triggerfish
Notice of Control Date	04/23/97	62 FR 22995	-Anyone entering federal bsb pot fishery off S. Atlantic states after 04/23/97 was not assured of future access if limited entry program developed

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Amendment #8 (SAFMC 1997)	12/14/98	PR: 63 FR 1813 FR: 63 FR 38298	-Established program to limit initial eligibility for snapper grouper fishery: Must demonstrate landings of any species in the snapper grouper (SG) FMU in 1993, 1994, 1995 or 1996; and have held valid SG permit between 02/11/96 and 02/11/97 -Granted transferable permit with unlimited landings if vessel landed ≥ 1,000 pounds (lb) of snapper grouper species in any of the years -Granted non-transferable permit with 225 lb trip limit to all other vessels -Modified problems, objectives, optimum yield (OY), and overfishing definitions -Expanded Council's habitat responsibility -Allowed retention of snapper grouper species in excess of bag limit on permitted vessel with a single bait net or cast nets on board -Allowed permitted vessels to possess filleted fish harvested in the Bahamas under certain conditions.
Regulatory Amendment #7 (SAFMC 1998a)	01/29/99	PR: 63 FR 43656 FR: 63 FR 71793	-Established 10 SMZs at artificial reefs off South Carolina.
Interim Rule Request	1/16/98		-Council requested all Amendment 9 measures except black sea bass pot construction changes be implemented as an interim request under the Magnuson-Stevens Act
Action Suspended	5/14/98		-NMFS informed the Council that action on the interim rule request was suspended
Emergency Rule Request	9/24/98		-Council requested Amendment 9 be implemented via emergency rule
Request not Implemented	1/22/99		-NMFS informed the Council that the final rule for Amendment 9 would be effective 2/24/99; therefore they did not implement the emergency rule

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Amendment #9 (SAFMC 1998b)	2/24/99	PR: 63 FR 63276 FR: 64 FR 3624	-Red porgy: 14" TL (recreational and commercial); 5 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, in March and April -Black sea bass: 10" TL (recreational and commercial); 20 fish rec. bag limit; required escape vents and escape panels with degradable fasteners in bsb pots -Greater amberjack: 1 fish rec. bag limit; no harvest or possession > bag limit, and no purchase or sale, during April; quota = 1,169,931 lb; began fishing year May 1; prohibited coring -Specified size limits for several snapper grouper species (indicated in parentheses in inches TL): including yellowtail snapper (12), mutton snapper (16), red snapper (20); red grouper, yellowfin grouper, yellowmouth grouper, and scamp (20) -Vermilion snapper: 11" TL (recreational), 12" TL commercial -Gag: 24" TL (recreational); no commercial harvest or possession > bag limit, and no purchase or sale, during March and April -Black grouper: 24" TL (recreational and commercial); no harvest or possession > bag limit, and no purchase or sale, during March and April -Gag and Black grouper: within 5 fish aggregate grouper bag limit, no more than 2 fish may be gag or black grouper (individually or in combination) -All snapper grouper without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runner -Vessels with longline gear aboard may only possess snowy, warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish
Amendment #9 (SAFMC 1998b) resubmitted	10/13/00	PR: 63 FR 63276 FR: 65 FR 55203	-Commercial trip limit for greater amberjack
Emergency Interim Rule	09/08/99, expired 08/28/00	64 FR 48324 and 65 FR 10040	-Prohibited harvest or possession of red porgy
Emergency Action	9/3/99	64 FR 48326	-Reopened the Amendment 8 permit application process
Amendment #10 (SAFMC 1998c)	07/14/00	PR: 64 FR 37082 and 64 FR 59152 FR: 65 FR 37292	-Identified essential fish habitat (EFH) and established habitat areas of particular concern (HAPC) for species in the snapper grouper FMU

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Amendment #11 (SAFMC 1998d)	12/02/99	PR: 64 FR 27952 FR: 64 FR 59126	-Maximum sustainable yield (MSY) proxy: goliath and Nassau grouper = 40% static spawning potential ratio (SPR); all other species = 30% static SPR -OY: hermaphroditic groupers = 45% static SPR; goliath and Nassau grouper = 50% static SPR; all other species = 40% static SPR -Overfished/overfishing evaluations: BSB: overfished (minimum stock size threshold (MSST)=3.72 mp, 1995 biomass=1.33 mp); undergoing overfishing (maximum fishing mortality threshold (MFMT)=0.72, F1991-1995=0.95) Vermilion snapper: overfished (static SPR = 21-27%). Red porgy: overfished (static SPR = 14-19%). Red snapper: overfished (static SPR = 24-32%) Gag: overfished (static SPR = 27%) Scamp: no longer overfished (static SPR = 35%) Speckled hind: overfished (static SPR = 8-13%) Warsaw grouper: overfished (static SPR = 6-14%) Snowy grouper: overfished (static SPR = 5-15%) White grunt: no longer overfished (static SPR = 29-39%) Golden tilefish: overfished (couldn't estimate static SPR) Nassau grouper: overfished (couldn't estimate static SPR) Goliath grouper: overfished (couldn't estimate static SPR) -overfishing level: goliath and Nassau grouper = F>F40% static SPR; all other species: = F>F30% static SPR Approved definitions for overfished and overfishing. MSST = [(1-M) or 0.5 whichever is greater]*B_{MSY}. MFMT = F_{MSY}
Regulatory Amendment #8 (SAFMC 2000a)	11/15/00	PR: 65 FR 41041 FR: 65 FR 61114	-Established 12 SMZs at artificial reefs off Georgia; revised boundaries of 7 existing SMZs off Georgia to meet CG permit specs; restricted fishing in new and revised SMZs
Amendment #12 (SAFMC 2000b)	09/22/00	PR: 65 FR 35877 FR: 65 FR 51248	-Red porgy: MSY=4.38 mp; OY=45% static SPR; MFMT=0.43; MSST=7.34 mp; rebuilding timeframe=18 years (1999=year 1); no sale of red porgy during Jan-April; 1 fish bag limit; 50 lb. bycatch comm. trip limit May-December; modified management options and list of possible framework actions
Amendment #13A (SAFMC 2003)	04/26/04	PR: 68 FR 66069 FR: 69 FR 15731	-Extended for an indefinite period the regulation prohibiting fishing for and possessing snapper grouper spp. within the *Oculina* Experimental Closed Area
Notice of Control Date	10/14/05	70 FR 60058	-The Council is considering management measures to further limit participation or effort in the commercial fishery for snapper grouper species (excluding wreckfish)
Amendment #13C (SAFMC 2006)	10/23/06	PR: 71 FR 28841 FR: 71 FR 55096	- End overfishing of snowy grouper, vermilion snapper, black sea bass, and golden tilefish. Increase allowable catch of red porgy. Year 1 = 2006. 1. Snowy Grouper Commercial: Quota = 151,000 lb gutted

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			weight (gw) in year 1, 118,000 lbs gw in year 2, and 84,000 lbs gw in year 3 onwards. Trip limit = 275 lbs gw in year 1, 175 lbs gw in year 2, and 100 lbs gw in year 3 onwards Recreational: Limit possession to one snowy grouper in 5 grouper per person/day aggregate bag limit. 2. Golden Tilefish Commercial: Quota of 295,000 lbs gw, 4,000 lbs gw trip limit until 75% of the quota is taken when the trip limit is reduced to 300 lbs gw. Do not adjust the trip limit downwards unless 75% is captured on or before September 1. Recreational: Limit possession to 1 golden tilefish in 5 grouper per person/day aggregate bag limit. 3. Vermilion Snapper Commercial: Quota of 1,100,000 lbs gw. Recreational: 12" TL size limit. 4. Black Sea Bass Commercial: Commercial quota of 477,000 lbs gw in year 1, 423,000 lbs gw in year 2, and 309,000 lbs gw in year 3 onwards. Require use of at least 2" mesh for the entire back panel of black sea bass pots effective 6 months after publication of the final rule. Require black sea bass pots be removed from the water when the quota is met. Change fishing year from calendar year to June 1 – May 31. Recreational: Recreational allocation of 633,000 lbs gw in year 1, 560,000 lbs gw in year 2, and 409,000 lbs gw in year 3 onwards. Increase minimum size limit from 10" to 11" in year 1 and to 12" in year 2. Reduce recreational bag limit from 20 to 15 per person per day. Change fishing year from the calendar year to June 1 through May 31. 5. Red Porgy Commercial and recreational: 1. Retain 14" TL size limit and seasonal closure (retention limited to the bag limit); 2. Specify a commercial quota of 127,000 lbs gw and prohibit sale/purchase and prohibit harvest and/or possession beyond the bag limit when quota is taken and/or during January through April; 3. Increase commercial trip limit from 50 lbs ww to 120 red porgy (210 lbs gw) during May through December; 4. Increase recreational bag limit from one to three red porgy per person per day.
Notice of Control Date	3/8/07	72 FR 60794	-The Council may consider measures to limit participation in the snapper grouper for-hire sector
Amendment #14 (SAFMC 2007)	2/12/09	PR: 73 FR 32281 FR: 74 FR 1621	-Establish eight deepwater Type II marine protected areas (MPAs) to protect a portion of the population and habitat of long-lived deepwater snapper grouper species
Amendment #15A (SAFMC 2008a)	3/14/08	73 FR 14942	- Establish rebuilding plans and status determination criteria for snowy grouper, black sea bass, and red porgy
Amendment #15B (SAFMC	2/15/10	PR: 74 FR 30569 FR: 74 FR 58902	-Prohibit the sale of bag-limit caught snapper grouper species

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2008b)			-Reduce the effects of incidental hooking on sea turtles and smalltooth sawfish -Adjust commercial renewal periods and transferability requirements -Implement plan to monitor and assess bycatch -Establish reference points for golden tilefish -Establish allocations for snowy grouper (95% com & 5% rec) and red porgy (50% com & 50% rec)
Amendment #16 (SAFMC 2009a)	7/29/09	PR: 74 FR 6297 FR: 74 FR 30964	-Specify status determination criteria for gag and vermilion snapper -For gag: Specify interim allocations 51% com & 49% rec; rec & com shallow water grouper spawning closure January through April; directed com quota= 352,940 lbs gw; -reduce 5-fish aggregate grouper bag limit, including tilefish species, to a 3-fish aggregate -Captain and crew on for-hire trips cannot retain the bag limit of vermilion snapper and species within the 3-fish grouper aggregate -For vermilion snapper: Specify interim allocations 68% com & 32% rec; directed com quota split Jan-June=315,523 lbs gw and 302,523 lbs gw July-Dec; reduce bag limit from 10 to 5 and a rec closed season November through March -Require dehooking tools
Amendment #19 (Comprehensive Ecosystem-Based Amendment 1; SAFMC 2009b)	7/22/10	PR: 75 FR 14548 FR: 75 FR 35330	-Provide presentation of spatial information for EFH and EFH-HAPC designations under the Snapper Grouper FMP - Designation of deepwater coral HAPCs
Amendment #17A (SAFMC 2010a)	12/3/10 red snapper closure; circle hooks March 3, 2011	PR: 75 FR 49447 FR: 75 FR 76874	-Required use of non-stainless steel circle hooks when fishing for snapper grouper species with hook-and-line gear north of 28 deg. N latitude in the South Atlantic EEZ -Specify an ACL and an AM for red snapper with management measures to reduce the probability that catches will exceed the stocks' ACL -Specify a rebuilding plan for red snapper -Specify status determination criteria for red snapper -Specify a monitoring program for red snapper
Emergency Rule	12/3/10	75 FR 76890	- Delay the effective date of the area closure for snapper grouper species implemented through Amendment 17A
Amendment #17B (SAFMC 2010b)	January 31, 2011	PR: 75 FR 62488 FR: 75 FR 82280	-Specify ACLs, ACTs, and AMs, where necessary, for 9 species undergoing overfishing -Modify management measures as needed to limit harvest to the ACL or ACT -Update the framework procedure for specification of total allowable catch -Prohibited harvest of 6 deepwater species seaward of 240 feet to curb bycatch of speckled hind and warsaw grouper

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Notice of Control Date	12/4/08	74 FR 7849	-Establishes a control date for the golden tilefish portion of the snapper grouper fishery in the South Atlantic
Notice of Control Date	12/4/08	74 FR 7849	-Establishes control date for black sea bass pot sector in the South Atlantic
Regulatory Amendment #10 (SAFMC 2010c)	5/31/11	PR: 76 FR 9530 FR: 76 FR 23728	-Eliminate closed area for snapper grouper species approved in Amendment 17A
Regulatory Amendment #9 (SAFMC 2011a)	Bag limit: 6/22/11 Trip limits: 7/15/11	PR: 76 FR 23930 FR: 76 FR 34892	- Establish trip limits for vermilion snapper and gag, increase trip limit for greater amberjack, and reduce bag limit for black sea bass
Regulatory Amendment #11 (2011b)	5/10/12	PR: 76 FR 78879 FR: 77 FR 27374	- Eliminate 240 ft harvest prohibition for six deepwater species
Amendment # 25 (Comprehensive ACL Amendment) (SAFMC 2011c)	4/16/12	PR: 76 FR 74757 Amended PR: 76 FR 82264 FR: 77 FR 15916	-Establish acceptable biological catch (ABC) control rules, establish ABCs, annual catch limits (ACLs), and accountability measures (AMs) for species not undergoing overfishing -Remove some species from South Atlantic FMU and designate others as ecosystem component species -Specify allocations between the commercial and, recreational sectors for species not undergoing overfishing -Limit the total mortality for federally managed species in the South Atlantic to the ACLs
Amendment #24 (SAFMC 2011d)	7/11/12	PR: 77 FR 19169 FR: 77 FR 34254	-Specify MSY, rebuilding plan (including ACLs, AMs, and OY), and allocations for red grouper
Amendment #23 (Comprehensive Ecosystem-based Amendment 2; SAFMC 2011e)	1/30/12	PR: 76 FR 69230 FR: 76 FR 82183	- Designate the Deepwater MPAs as EFH-HAPCs - Limit harvest of snapper grouper species in SC SMZs to the bag limit - Modify sea turtle release gear
Amendment #20B	TBD	TBD	-Update wreckfish ITQ according to reauthorized Magnuson-Stevens Act
Amendment #18A (SAFMC 2012a)	7/1/12	PR: 77 FR 16991 FR: 77FR3 2408	- Limit participation and effort in the black sea bass sector - Modifications to management of the black sea bass pot sector - Improve the accuracy, timing, and quantity of fisheries statistics
Amendment #20A (SAFMC 2012b)	10/26/12	PR: 77 FR 19165 FR: 77 FR 59129	-Redistribute latent shares for the wreckfish ITQ program.

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Regulatory Amendment #12 (SAFMC 2012c)	10/9/12	FR: 77 FR 61295	-Adjust the ACL and OY for golden tilefish -Consider specifying a commercial Annual Catch Target (ACT) -Revise recreational AMs for golden tilefish
Amendment #18B (SAFMC 2013a)	5/23/13	PR: 77 FR 75093 FR: 77 FR 23858	-Limit participation and effort in the golden tilefish commercial sector through establishment of a longline endorsement -Modify trip limits -Specify allocations for gear groups (longline and hook and line)
Amendment # 26 (Comprehensive Ecosystem-Based Amendment 3)	TBD	TBD	-Modify bycatch and discard reporting for commercial and for-hire vessels
Regulatory Amendment #13 (SAFMC 2013b)	7/17/13	PR: 78 FR 17336 FR: 78 FR 36113	-Revise the ABCs, ACLs (including sector ACLs), and ACTs implemented by the Comprehensive ACL Amendment (SAFMC 2011c). The revisions may prevent a disjunction between the established ACLs and the landings used to determine if AMs are triggered
Regulatory Amendment #15 (SAFMC 2013c)	9/12/13	PR: 78 FR 31511 FR: 78 FR 49183	-Modify the existing specification of OY and ACL for yellowtail snapper in the South Atlantic -Modify the existing gag commercial ACL and AM for gag that requires a closure of all other shallow water groupers (black grouper, red grouper, scamp, red hind, rock hind, graysby, coney, yellowmouth grouper, and yellowfin grouper) in the South Atlantic when the gag commercial ACL is met or projected to be met
Amendment #28 (SAFMC 2013d)	8/23/13	PR: 78 FR 25047 FR: 78 FR 44461	-Establish regulations to allow harvest of red snapper in the South Atlantic
Regulatory Amendment #18 (SAFMC 2013e)	9/5/13	PR: 78 FR 26740 FR: 78 FR 47574	-Adjust ACLs for vermilion snapper and red porgy, and remove the 4-month recreational closure for vermilion snapper
Regulatory Amendment #19 (SAFMC 2013f)	ACL: 9/23/13 Pot closure: 10/23/13	PR: 78 FR 39700 FR: 78 FR 58249	-Adjust the ACL for black sea bass and implement an annual closure on the use of black sea bass pots from November 1 to April 30

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Amendment #27 (SAFMC 2013g)	1/27/14	PR: 78 FR 57337 FR: 78 FR 78770	-Establish the South Atlantic Council as the responsible entity for managing Nassau grouper throughout its range including federal waters of the Gulf of Mexico -Modify the crew member limit on dual-permitted snapper grouper vessels -Modify the restriction on retention of bag limit quantities of some snapper grouper species by captain and crew of for-hire vessels -Minimize regulatory delay when adjustments to snapper grouper species' ABC, ACLs, and ACTs are needed as a result of new stock assessments -Address harvest of blue runner by commercial fishermen who do not possess a South Atlantic Snapper Grouper Permit
Regulatory Amendment #14 (SAFMC 2013h)	12/8/14	PR: 79 FR 22936 FR: 79 FR 66316	-Modify the fishing year for greater amberjack -Modify the fishing years for black sea bass -Revise the AMs for vermilion snapper and black sea bass -Modify the trip limit for gag
Amendment #36	TBD	TBD	-Special management zones to protect spawning locations for snapper grouper species
Amendment #22	TBD	TBD	-Establish a recreational tagging program for snapper grouper species with small ACLs
Amendment #29 (SAFMC 2014a)	TBD	TBD	-Modify ABC control rule for data poor species, adjust ABCs for 14 snapper grouper species, revise ACLs for 4 species and 3 species groups, and update management measures for gray triggerfish.
Amendment #32 (SAFMC 2014b)	TBD	TBD	-Adjust management measures and ACLs for snowy grouper
Regulatory Amendment #16	TBD	TBD	-Consider removal of the November-April prohibition on the use of black sea bass pots
Regulatory Amendment #22	TBD	TBD	-Adjust management measures and ACLs for gag and wreckfish

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Amendment #35	TBD	TBD	-Remove four species from the Snapper Grouper FMP -Clarify regulations for golden tilefish endorsements

References:

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Appendix E. Bycatch Practicability Analysis

1 Population Effects for the Bycatch Species

1.1 Background

Regulatory Amendment 20 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Regulatory Amendment 20) would modify the annual catch limits for snowy grouper based on the results of a recent assessment that indicates the stock is no longer undergoing overfishing, is rebuilding, and remains overfished. Regulatory Amendment 20 also considers actions and alternative to specify seasonal commercial quotas within the fishing year, change the commercial trip limit and modify the recreational bag limit.

1.2 Finfish Bycatch Mortality

Release mortality rates are unknown for most managed species. Recent Southeast Data, Assessment, and Review (SEDAR) assessments include estimates of release mortality rates based on published studies. Stock assessment reports can be found at http://www.sefsc.noaa.gov/sedar/.

SEDAR 36 (2013) indicates that release mortality for snowy grouper is 100%. SEDAR 17 (2008) recommended a release mortality rate for vermilion snapper of 41% for the commercial sector and 38% for the recreational sector. The recent stock assessment for yellowtail snapper chose a rate of 10% release mortality as an approximation for the lower bound on release mortality for yellowtail snapper (FWRI 2012). SEDAR 10 (2006) estimated release mortality rates of 40% and 25% for gag taken by commercial and recreational fishermen, respectively. SEDAR 24 (2010) used release mortality rates of 48% commercial; 41% for-hire, and 39% private recreational for red snapper. Commercial and recreational release mortality rates were estimated as 20% for black grouper and red grouper in SEDAR 19 (2010). SEDAR 15 (2008) estimated a 20% release mortality rate for greater amberjack. SEDAR 41, which is under development, assumes a 12.5% release mortality rate for gray triggerfish. Snowy grouper are primarily caught in water deeper than 300 feet and golden tilefish are taken at depths greater than 540 feet; therefore, release mortality of the species are probably near 100% (SEDAR 4 2004, SEDAR 25 2011).

Release mortality of black sea bass is considered to be low (7% for the recreational sector and 1% for the commercial sector) (SEDAR 25 2011) indicating minimum size limits are probably an effective management tool for black sea bass. Collins et al. (1999) reported venting of the swim bladder yielded reductions in release mortality of black sea bass, and the benefits of venting increased with capture depth. The same study was analyzed by Wilde (2009) to suggest that venting increased the survival of black sea bass, although this was an exception to the general findings of Wilde's (2009) study. Commercial sector discard mortality for red porgy is 35%, and 8% for the recreational sector (2012 SEDAR 1 Update). SEDAR 32 (2013), estimates discard mortality for blueline tilefish is 100%, consistent with other deepwater species (i.e., snowy grouper, and golden tilefish); however, if new management is implemented to reduce the discard mortality rate, it might be appropriate for population projections to consider something lower than 100% (SEDAR 32 2013).

According to SEDAR 23 (2011), several data workshop participants observed that goliath grouper in the southeastern US (i.e., South Atlantic and Gulf of Mexico waters) are subject to unknown but significant levels of release mortality, especially adult specimens brought up from depth. Fishing mortality due to release mortality also occurs when goliath grouper are caught as incidental catch (i.e., when other species are targeted) and when fishers target (some repeatedly) goliath grouper for catch-and release fishing. Amendment 20A to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (SAFMC 2012b) states that there is very little information on bycatch in the wreckfish portion of the snapper grouper fishery; however, the mortality rate of any released wreckfish is likely to be 100%, because the fish are typically harvested in waters deeper than 300 m (Machias et al. 2003; SAFMC 1991).

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

Expected Impacts on Bycatch for the Regulatory Amendment 20 Action

The preferred alternatives in Regulatory Amendment 20 are not likely to change the current level of bycatch of target or non-target species in the South Atlantic. Preferred alternatives under Actions 1 and 2 would result in increased catch levels for snowy grouper in the commercial and recreational sectors. Bycatch of co-occurring species (blueline tilefish, yellowedge grouper, and silk snapper) could increase when targeting snowy grouper; however, it is likely most of the co-occurring species would be retained and not discarded. Increasing catch levels for snowy grouper could also have the effect of reducing bycatch of snowy grouper because fishermen would be able to retain the species when co-occurring species were targeted. Action 3 considers alternatives that would split the commercial annual catch limits into two seasonal quotas during the fishing year. These alternatives could reduce bycatch of snowy grouper if the alternatives lengthened the fishing season and allowed for snowy grouper to be retained when fishermen were targeting co-occurring species. The preferred alternative under Action 3 would increase the snowy grouper commercial trip limit. A larger trip limit could result in earlier closures of snowy grouper. Early closures can lead to regulatory discards and release mortality for snowy grouper is 100%. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species when the snowy grouper trip limit is met. The preferred alternative under Action 4 reduces the snowy grouper bag limit to reduce the chance that the recreational ACL is exceeded. This alternative could reduce bycatch of snowy grouper since it would restrict the time of year when targeting of the species occurred. However, incidental catch of snowy grouper could also occur when recreational fishermen target species, which co-occur with snowy grouper. Therefore, little difference in the current level of bycatch of target or non-target species in the South Atlantic is expected.

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

The Comprehensive Ecosystem-Based Amendment 2 (CE-BA 2; SAFMC 2011c) included actions that removed harvest of octocorals off Florida from the Coral, Coral Reefs, and Live/Hard Bottom Habitat FMP (Coral FMP); set the octocoral annual catch limit (ACL) for Georgia, South Carolina, and North Carolina equal to 0; modified management of special management zones (SMZs) 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. There is no bycatch associated with ocotocoral harvest within the management area of the Coral FMP since harvest is prohibited. CE-BA 2 also included an action that limited harvest and possession of snapper grouper and coastal migratory pelagics (CMP) species to the bag limit in SMZs off South Carolina. This action could reduce bycatch of regulatory discards around SMZs by restricting commercial harvest in the area, but it would probably have very little effect on the magnitude of overall bycatch of snapper grouper species in the South Atlantic.

Other actions have been taken in amendments that could reduce bycatch of and bycatch mortality of federally managed species in the South Atlantic. Amendment 13C to the FMP for Snapper Grouper in the South Atlantic Region (Snapper Grouper FMP; SAFMC 2006) required the use of 2-inch mesh in the back panel of black sea bass pots, which has likely reduced the magnitude of regulatory discards. Amendment 16 to the Snapper Grouper FMP (SAFMC 2009) required the use of dehooking devices, which could help reduce bycatch mortality of vermilion snapper, black sea bass, gag, red grouper, black grouper, and red snapper. Dehooking devices can allow fishermen to remove hooks with greater ease and more quickly from snapper grouper species without removing the fish from the water. If a fish does need to be removed from the water, dehookers could still reduce handling time in removing hooks, thus increasing survival (Cooke et al. 2001). Furthermore, Amendment 17A to the Snapper Grouper FMP (SAFMC 2010a) required circle hooks for snapper grouper species north of 28 degrees latitude, which is expected to reduce bycatch mortality of snapper grouper species. Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) established ACLs and accountability measures (AMs) and addressed overfishing for the following species in the snapper grouper management complex that were listed as undergoing overfishing: golden tilefish, snowy grouper, speckled hind, warsaw grouper, black sea bass, gag, red grouper, black grouper, and vermilion snapper. Golden tilefish, black sea bass, red grouper, black grouper, vermilion snapper, snowy grouper, and gag are no longer experiencing overfishing.

The Comprehensive ACL Amendment (SAFMC 2011a) 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. The Comprehensive ACL Amendment (SAFMC 2011a) also established additional measures to reduce bycatch in the snapper grouper fishery with the establishment of species complexes based on biological, geographic, economic, taxonomic, technical, social, and ecological factors. ACLs were assigned to these species complexes, and when the ACL for the complex is met or projected to be met, fishing for species included in the entire species complex is prohibited for the fishing year. ACLs and AMs likely has reduced bycatch of target species and species complexes as well as incidentally caught species.

Amendment 18A to the Snapper grouper FMP (SAFMC 2012a), included actions that could reduce bycatch of black sea bass and the potential for interactions with protected species. Actions in Amendment 18A limits the number of participants in the black sea bass pot sector, requires fishermen bring pots back to port at the completion of a trip, and limits the number of pots a fishermen can deploy. Amendment 24 to the Snapper grouper FMP (SAFMC 2011b) established a rebuilding plan for red grouper, which was overfished and undergoing overfishing. Red grouper is no longer overfished or undergoing overfishing. Amendment 24 (SAFMC 2011b) also established ACLs and AMs for red grouper, which could help to reduce bycatch of red grouper and co-occurring species. The final rule (78 FR 23858; April 23, 2013) for

Amendment 18B to the Snapper Grouper FMP (SAFMC 2013a), established an endorsement program for the commercial golden tilefish longline sector, which could have positive effects for habitat and protected species. Regulatory Amendment 14 to the Snapper Grouper FMP (SAFMC 2014) includes actions that could adjust management measures for a number of snapper grouper species, some of which could reduce the magnitude of discards. The final rule (78 FR 49183; September 12, 2013) for Regulatory Amendment 15 to the Snapper Grouper FMP (SAFMC 2013b) included actions for yellowtail snapper and gag that are expected to reduce bycatch of snapper grouper species. Amendment 36 to the Snapper Grouper FMP includes actions that could provide protection of spawning areas for many snapper grouper species, including speckled hind and warsaw grouper.

The South Atlantic Council's For-Hire Reporting Amendment has changed the reporting frequency by headboats from monthly to weekly, and requires 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. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments.

The South Atlantic Council will develop a joint amendment with the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) to require that all federally permitted charter vessels report landings information weekly to the Southeast Fisheries Science Center (SEFSC) electronically. Furthermore, a Dealer Reporting Amendment was effective on August 7, 2014, which required dealers to report landings electronically once per week. Additionally, the Gulf of Mexico and South Atlantic 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 snapper grouper species affected by Regulatory Amendment 20, as well as all other federally managed species in the southeast region.

Based on the outcome of the new 2013 SEDAR stock assessment for blueline tilefish (SEDAR 32 2013), and the subsequent determination that the stock is undergoing overfishing, an emergency rule has been implemented to temporarily remove blueline tilefish from the deepwater complex and modify the commercial and recreational ACLs consistent with the equilibrium yield at 75%F_{MSY}. Additionally, long-term management measures for blueline tilefish are being considered in Amendment 32, which has been approved by the South Atlantic Council. These actions may reduce harvest of blueline tilefish and, therefore, may also reduce bycatch of non-target species most often harvested with blueline tilefish.

Additional information on fishery related actions from the past, present, and future considerations can be found in Chapter 6 (Cumulative effects) of Regulatory Amendment 20.

1.5 Ecological Effects Due to Changes in the 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. As mentioned in the above section, the South Atlantic For-Hire Reporting Amendment, and the Dealer Reporting Amendment have been implemented to enhance landings data reporting. Better bycatch and discard data will 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. Management measures that affect gear and effort for a target species can influence fishing mortality in other species. Therefore, enhanced catch and bycatch monitoring would provide better data that could be used in multi-species assessments. These improvements in harvest monitoring efforts in the headboat and commercial sectors will also be extended to the charter sector of all fisheries in the southeast region.

The preferred alternatives in Regulatory Amendment 20 are not likely to change the current level of bycatch of target or non-target species in the South Atlantic. Preferred alternatives under Actions 1 and 2 would result in increased catch levels for snowy grouper in the commercial and recreational sectors. Bycatch of co-occurring species could increase when targeting snowy grouper; however, it is likely most of the co-occurring species would be retained and not discarded. Increasing catch levels for snowy grouper could also have the effect of reducing bycatch of snowy grouper because fishermen would be able to retain the species when co-occurring species were targeted. The preferred alternative under Action 3 would increase the snowy grouper commercial trip limit. A larger trip limit could result in earlier closures of snowy grouper. Early closures can lead to regulatory discards and release mortality for snowy grouper is 100%. Similarly smaller trip limits could increase bycatch if a trip is not ended and fishermen continue to target co-occurring species when the snowy grouper trip limit is met. The preferred alternative under Action 4 reduces the snowy grouper bag limit to reduce the chance that the recreational ACL is exceeded. This alternative could reduce bycatch of snowy grouper since it would restrict the time of year when targeting of the species occurred. However, incidental catch of snowy grouper could also occur when recreational fishermen target species, which co-occur with snowy grouper. Therefore, little difference in the current level of bycatch of target or non-target species in the South Atlantic is expected.

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

Regulatory Amendment 20 is not expected to result in major changes in bycatch of other fish species. Increased harvest of snowy grouper could have the effect of increasing bycatch of co-occurring species but also could have the effect of reducing bycatch of snowy grouper. Changes in trip limits could also affect bycatch by reducing bycatch of snowy grouper through extending a fishing season, or increasing bycatch of snowy grouper on a fishing trip after the trip limit has been met. Therefore, it is unlikely that the overall level of bycatch of snowy grouper or other fish species are likely to be significantly affected by the actions in this amendment.

Effects on Marine Mammals and Birds

Under Section 118 of the Marine Mammal Protection Act (MMPA), the National Marine Fisheries Service (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. Of the gear utilized within the snapper grouper fishery, only the black sea bass pot is considered to pose an entanglement risk to marine mammals. The southeast U.S. Atlantic black sea bass pot sector is included in the grouping of the Atlantic mixed species trap/pot fisheries, which the 2013 LOF classifies as a Category II (78 FR 53336, August 29, 2013). Gear types used in these fisheries are determined to have occasional incidental mortality and serious injury of marine mammals. For the South Atlantic snapper grouper fishery, the best available data on protected species interactions are from the SEFSC Supplementary Discard Data Program (SDDP) initiated in July of 2000. The SDDP sub-samples 20% of the vessels with an active permit. Since August 2001, only three interactions with marine mammals have been documented; each was taken by handline gear and each released alive (McCarthy SEFSC database). The longline and hook-and-line gear components of the snapper grouper in the South Atlantic are classified in the 2013 LOF as Category III fisheries.

Although the black sea bass pot sector can pose an entanglement risk to large whales due to their distribution and occurrence, sperm, fin, sei, and blue whales are unlikely to overlap with the black sea bass pot sector operated within the snapper grouper fishery since it is executed primarily off North Carolina and South Carolina in waters ranging from 70-120 feet deep (21.3-36.6 meters). There are no known interactions between the black sea bass pot sector and large whales. NMFS' biological opinion on the continued operation of the South Atlantic snapper grouper fishery determined the possible adverse effects resulting from the fishery are extremely unlikely. Thus, the continued operation of the snapper grouper fishery in the southeast U.S. Atlantic exclusive economic zone is not likely to adversely affect sperm, fin, sei, and blue whales (NMFS 2006).

North Atlantic right and humpback whales may overlap both spatially and temporally with the black sea bass pot sector. The 2007 revisions to the Atlantic Large Whale Take Reduction Plan folded the Atlantic mixed species trap/pot fisheries into the plan (72 FR 193; October 5, 2007). The new requirements (78 FR 58249; September 23, 2013) to prohibit the use of black sea bass pots during November through April each year will help further reduce the likelihood of North Atlantic right and humpback whale entanglement in black sea bass pot gear.

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.

Fishing effort reductions have the potential to reduce the amount of interactions between the fishery and marine mammals and birds. Although, the Bermuda petrel and roseate tern occur within the action area, these species are not commonly found and neither has been described as associating with vessels or having had interactions with the snapper grouper fishery. Thus, it is believed that the snapper grouper fishery is not likely to negatively affect the Bermuda petrel and the roseate tern.

1.7 Changes in Fishing, Processing, Disposal, and Marketing Costs

The preferred alternatives in Regulatory Amendment 20 are not expected to significantly alter fishing practices, processing, disposal, or marketing costs in the short term. In the long term, it is more likely that current fishing, processing, disposal, and marketing costs would be maintained at their status quo levels, since this action may reduce the instances where species are determined to be overfished.

Changes in Fishing Practices and Behavior of Fishermen

The actions proposed in Regulatory Amendment 20 are not expected to change fishing practices or fishing behavior, and is likely to have little effect on the overall magnitude of discards.

1.8 Social effects of the action proposed in Regulatory Amendment 20 are addressed in Chapter 4 of the amendment.

Social effects of the action proposed in Regulatory Amendment 20 are addressed in Chapter 4 of the amendment.

1.9 Changes in Research, Administration, and Enforcement Costs and Management Effectiveness

The actions contained within Regulatory Amendment 20 are not likely to change the current level of bycatch of target or non-target species in the South Atlantic. Research and monitoring is ongoing to understand the effectiveness of implemented management measures from other snapper grouper amendments and their effect on bycatch. In 1990, the Southeast Fisheries Science Center (SEFSC) initiated a logbook program for vessels with federal permits in the snapper grouper fishery from the Gulf of Mexico and South Atlantic. In 1999, logbook reporting was initiated for vessels catching king and Spanish mackerel (Gulf of Mexico and South Atlantic Fishery Management Councils). Approximately 20% of commercial fishermen from snapper grouper, dolphin wahoo, and Coastal Migratory Pelagics (CMP) fisheries are asked to fill out discard information in logbooks; however, a greater percentage of fishermen could be selected with emphasis on individuals that dominate landings. Recreational discards are obtained from the MRIP and logbooks from the NMFS headboat program. The preferred alternative in Regulatory Amendment 20 would not change any ongoing or require any new research, administrative, or enforcement costs.

Additional data collection activities for the recreational sector of the snapper grouper, dolphin wahoo, and CMP fisheries are being considered by the South Atlantic Fishery Management Council that could allow for a better monitoring of bycatch in the future. The South Atlantic Council is also developing an amendment to improve commercial logbook reporting for these fisheries. Some observer information for the snapper grouper fishery has been provided by the SEFSC, Marine Fisheries Initiative, and Cooperative Research Programs (CRP), but more is desired for the snapper grouper, dolphin wahoo, and CMP fisheries. Currently, for the snapper grouper fishery, fishermen are required to carry observers, if selected.

Cooperative research projects between science and industry are being used to a limited extent to collect bycatch information on the snapper grouper fishery in the South Atlantic. For example, Harris and Stephen (2005) characterized the entire (retained and discarded) catch of reef fishes from a selected commercial fisherman in the South Atlantic including total catch composition and disposition of fishes that were released. The Gulf and South Atlantic Fisheries Foundation, Inc. (Foundation) conducted a fishery observer program within the snapper grouper vertical hook-and-line (bandit rig) fishery of the South Atlantic United States. Through contractors they randomly placed observers on cooperating vessels to collect a variety of data quantifying the participation, gear, effort, catch, and discards within the fishery.

In the spring 2010, Archipelago Marine Research Ltd. worked with North Carolina Sea Grant and several South Atlantic Unlimited Snapper grouper Permit holders to test the effectiveness of electronic video monitoring to measure catch and bycatch. A total of 93 trips were monitored with video monitoring, 34 by self-reported fishing logbooks, and 5 by observers. Comparisons between electronic video monitoring data and observer data showed that video monitoring was a reliable source of catch and bycatch data.

Research funds for observer programs, as well as gear testing and testing of electronic devices are also available each year in the form of grants from the Foundation, Marine Fisheries Initiative, Saltonstall-Kennedy program, and the CRP. Efforts are made to emphasize the need for observer and logbook data in requests for proposals issued by granting agencies. A condition of funding for these projects is that data are made available to the Councils and NMFS upon completion of a study.

Stranding networks have been established in the Southeast Region. The NMFS SEFSC is the base for the Southeast United States Marine Mammal Stranding Program (http://sero.nmfs.noaa.gov/pr/strandings.htm). NMFS authorizes organizations and volunteers under the MMPA to respond to marine mammal strandings throughout the United States. These organizations form the stranding network whose participants are trained to respond to, and collect samples from live and dead marine mammals that strand along southeastern United State beaches. The SEFSC is responsible for: coordinating stranding events; monitoring stranding rates; monitoring human caused mortalities; maintaining a stranding database for the southeast region; and conducting investigations to determine the cause of unusual stranding events including mass strandings and mass mortalities (http://www.sefsc.noaa.gov/species/mammals/strandings.htm).

The Southeast Regional Office and the SEFSC participate in a wide range of training and outreach activities to communicate bycatch related issues. The NMFS Southeast Regional Office issues public announcements, Southeast Fishery Bulletins, or News Releases on different topics, including use of turtle exclusion devices, bycatch reduction devices, use of methods and devices to minimize harm to turtles and sawfish, information intended to reduce harm and interactions with marine mammals, and other methods to reduce bycatch for the convenience of constituents in the southern United States. These are mailed out to various organizations, government entities, commercial interests, and recreational groups. This information is also included in newsletters and publications that are produced by NMFS and the various regional fishery management councils. Announcements and news releases are also available on the internet and broadcasted over NOAA weather radio.

NMFS established the South East Fishery-Independent Survey in 2010 to strengthen fishery-independent sampling efforts in southeast U.S. waters, addressing both immediate and long-term fishery-independent data needs, with an overarching goal of improving fishery-independent data utility for stock assessments. Meeting these data needs is critical to improving scientific advice to the management process, ensuring overfishing does not occur, and successfully rebuilding overfished stocks on schedule.

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

Any changes in economic, social, or cultural values are discussed in Chapter 4 of Regulatory Amendment 20.

Changes in the Distribution of Benefits and Costs

The distribution of benefits and costs expected from actions in Regulatory Amendment 20 are discussed in Chapter 3. Economic and social effects of the actions proposed in Regulatory Amendment 20 are addressed in Chapter 4 of this document.

1.11 Social Effects

The social effects of all the measures are described in Chapter 4 of Regulatory Amendment 20.

1.12 Conclusion

This section 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 preferred alternatives in Regulatory Amendment 20 are not likely to significantly contribute or detract from the current level of bycatch in the snapper grouper fishery. The South Atlantic 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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Appendix F. Regulatory Impact Review

Introduction

The National Marine Fisheries Service (NMFS) requires a Regulatory Impact Review (RIR) for all regulatory actions that are of public interest. The RIR does three things: (1) It provides a comprehensive review of the level and incidence of impacts associated with a regulatory action; (2) it provides a review of the problems and policy objectives prompting the regulatory proposals and an evaluation of the major alternatives which could be used to solve the problem; and (3) it ensures that the regulatory agency systematically and comprehensively considers all available alternatives so that the public welfare can be enhanced in the most efficient and cost effective way.

The RIR also serves as the basis for determining whether any proposed regulations are a "significant regulatory action" under certain criteria provided in Executive Order 12866 (E.O. 12866) and whether the approved regulations will have a "significant economic impact on a substantial number of small business entities" in compliance with the Regulatory Flexibility Act of 1980.

Problems and Objectives

The purpose and need, issues, problems, and objectives of this action are presented in Chapter 1, Section 1.4, and is incorporated herein by reference.

Methodology and Framework for Analysis

This RIR assesses management measures from the standpoint of determining the resulting changes in costs and benefits to society. To the extent practicable, the net effects of the proposed measures for an existing fishery should be stated in terms of producer and consumer surplus, changes in profits, and employment in the direct and support industries. Where figures are available, they are incorporated into the analysis of the economic impacts of the different actions and alternatives.

Description of the Fishery

A description of the snapper grouper fishery is contained in Chapter 3 and is incorporated herein by reference.

Effects of Management Measures

This action will directly apply to the businesses that own and/or operate commercial and for-hire recreational fishing vessels that harvest snapper grouper species in the South Atlantic Exclusive Economic Zone (EEZ). It will also apply to recreational fishers who harvest those species from private or rental vessels in those waters.

Action 1

The preferred alternative of Action 1 would change the allowable biological catch (ABC) rule for snowy grouper. The preferred alternative is higher than the current ABC and is at the level recommended by the South Atlantic Fishery Management Council's (Council) Scientific and Statistical Committee (SSC) and is expected to have the second highest indirect long-term economic benefit for fishermen of all the alternatives and sub-alternatives considered due to the expectation of greater stock health and potentially higher future catch levels.

Action 2

The preferred alternative of Action 2 would set the Annual Catch Limit (ACL)=ABC=Optimal Yield. Because the ABC is being increased by Action, the ACL will increase, as well. Compared to the 2014 ACL, the commercial ACL will increase by 39% in 2015 and continue to increase annually to a point where the ACL in 2019 will be 86% higher than it was in 2014. Compared to the 2014 ACL, the recreational ACL will increase by 442% in 2015 and continue to increase annually to a point where the ACL in 2019 will be 623% higher than it was in 2014. These ACL values represent the potential harvest that is available and not what may be actually caught. The potential ex-vessel revenue increases could total approximately $127,000 in 2015 to $282,000 in 2019 (2013 U.S. dollars). The consumer surplus differences for the recreational sector range from increases of $370,158 in 2015 to $488,784 in 2019.

Action 3

The preferred alternative would change the current 100 lbs gw commercial trip limit for snowy grouper to 200 lbs gw from January 1 until the ACL is projected to be met by mid-July each year. All of the various sub-alternatives under the preferred alternative are projected to have the entire ACL caught prior to the end of the fishing year, therefore, the economic benefits between the sub-alternatives are distributional while the aggregate benefits depend on vessel dockage location and the cost structure for individual operations.

Action 4

Action 4 would modify the recreational bag limit for snowy grouper. Currently, vessels are allowed a maximum of one snowy grouper per day. The preferred alternative would allow vessels to retain a maximum of one snowy grouper per day only for the months of May through August. There would be no retention allowed for snowy grouper for the rest of the fishing year. Since ACLs have been in place for snowy grouper, the recreational sector's portion of the ACL has been exceeded each year. Even with the larger recreational sector ACL afforded by Actions 1 and 2, the recreational sector is expected to catch its entire portion of the overall ACL. By reducing the probability of exceeding the recreational ACL through the preferred alternative for this action, the snowy grouper stock is expected to recover more quickly than if past overages were allowed to continue. A rebuilt stock of snowy grouper would benefit both the commercial and recreational sectors in the long-term.

Public and Private Costs of Regulations

The preparation, implementation, enforcement, and monitoring of this or any Federal action involves the expenditure of public and private resources, which can be expressed as costs associated with the regulations. Costs associated with this action include, but are not limited to, Council costs of documentation preparation, meeting, and other costs; and NMFS administration costs of document preparation, meetings and review, and annual law enforcement costs. A preliminary estimate is up to from $100,000 to $150,000 before annual law enforcement costs, if any.

Determination of Significant Regulatory Action

Pursuant to E.O. 12866, a regulation is considered a "significant regulatory action" if it is expected to result in: (1) an annual effect of $100 million or more or adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, the environment, public health or safety, or State, local, or tribal governments or communities; (2) create a serious inconsistency or otherwise interfere with an action taken or planned by another agency; (3) materially alter the budgetary impact of entitlements, grants, user fees, or loan programs or the rights or obligations of recipients thereof; or (4) raise novel legal or policy issues arising out of legal mandates, the President's priorities, or the principles set forth in this executive order.

This rule would not have an adverse economic effect of $100 million or more, create a serious inconsistency or otherwise interfere with an action taken by another agency, materially alter the budgetary impact of programs or rights or obligations of recipients, or raise novel legal or policy issues. Hence, it is not a significant regulatory action.

Appendix G. Regulatory Flexibility Act 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 of applicable statutes, to fit regulatory and informational requirements to the scale of businesses, organizations, and governmental jurisdictions subject to regulation. To achieve this principle, agencies are required to solicit and consider flexible regulatory proposals and to explain the rationale for their actions to assure 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 various alternatives contained in the FMP or amendment (including framework management measures and other regulatory actions). The RFA is also intended 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. In addition to analyses conducted for the RIR, the regulatory flexibility analysis provides: 1) A statement of the reasons why action by the agency is being considered; 2) a succinct statement of the objectives of, and legal basis for the proposed rule; 3) a description and, where feasible, an estimate of the number of small entities to which the proposed rule will apply; 4) a description of the projected reporting, record-keeping, and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirements of the report or record; 5) an identification, to the extent practical, of all relevant Federal rules which may duplicate, overlap, or conflict with the proposed rule; and, 6) a description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

Additional information on the description of affected entities may be found in **Chapter 3,** and additional information on the expected economic effects of the proposed action may be found in **Chapter 4**.

Statement of Need for, Objectives of, and Legal Basis for the Rule

The purpose and need of the proposed rule are presented in **Chapter 1**. The purpose of this proposed rule is to adjust the rebuilding strategy, update the acceptable biological catch (ABC), annual catch limit (ACL), maximum sustainable yield (MSY), minimum stock size threshold (MSST), optimum yield (OY), and revise management measures for the snowy grouper component of the snapper grouper fishery. These adjustments address the recent stock assessment results based on data through 2012.

The need for this proposed rule is to prevent overfishing and continue rebuilding the stock while minimizing, to the extent practicable, adverse social and economic effects.

The Magnuson-Stevens Fishery Conservation and Management Act provides the statutory basis for this proposed rule.

Identification of All Relevant Federal Rules Which May Duplicate, Overlap or Conflict with the Proposed Rule

No duplicative, overlapping, or conflicting Federal rules have been identified with this proposed rule.

Description and Estimate of the Number of Small Entities to Which the Proposed Rule will Apply

This proposed rule is expected to directly affect federally permitted commercial fishermen and for-hire vessel operators fishing for snowy grouper in the South Atlantic. The Small Business Administration established size criteria for all major industry sectors in the U.S. including fish harvesters and for-hire operations. A business involved in fish harvesting is classified as a small business if independently owned and operated, is not dominant in its field of operation (including its affiliates), and its combined annual receipts are not in excess of $20.5 million (NAICS code 114111, finfish fishing) for all of its affiliated operations worldwide. For for-hire vessels, all qualifiers apply except that the annual receipts threshold is $7.5 million (NAICS code 487210, recreational industries).

From 2009 through 2013, an annual average of 138 vessels with valid Federal permits to operate in the commercial sector of the snapper grouper fishery landed at least 1 lb of snowy grouper. Each vessel generated annual average dockside revenues of approximately $78,000 (2013 dollars), of which $2,000 were from snowy grouper, $21,000 from other species jointly landed with snowy grouper, and $55,000 from other species on trips without snowy grouper. Vessels that caught and landed snowy grouper may also operate in other fisheries outside the snapper grouper fishery, the revenues of which are not known and are not reflected in these totals. Based on revenue information, all commercial vessels affected by the rule can be considered small entities.

From 2009 through 2013, an annual average of 1,808 vessels had valid or renewable permits to operate in the for-hire sector of the South Atlantic snapper grouper fishery. As of October 10, 2014, 1,437 vessels held South Atlantic for-hire snapper grouper permits. The for-hire fleet consists of charter boats, which charge a fee on a vessel basis, and headboats, which charge a fee on an individual angler (head) basis. Approximately 77 vessels are estimated to operate as headboats in 2014, implying the remaining federally permitted for-hire vessels operate as charter boats. Average annual revenues (2013 dollars) for charter boats are estimated to be $130,524 for Florida vessels, $55,348 for Georgia vessels, $104,417 for South Carolina vessels, and $105,593 for North Carolina vessels. For headboats, the corresponding estimates in 2013 dollars are $216,975 for Florida vessels and $159,332 for vessels in the other states. Headboat revenue figures for states other than Florida are aggregated to avoid disclosure of confidential information. Based on these average revenue figures, all federally permitted for-hire operations affected by the rule can be considered small entities.

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

The proposed rule would not introduce any changes to reporting, record-keeping, and other compliance requirements which are currently required.

Substantial Number of Small Entities Criterion

All directly affected entities have been determined, for the purpose of this analysis, to be small entities. Therefore, it is determined that the proposed action would affect a substantial number of small entities.

Significant Economic Impact Criterion

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

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

All entities that are expected to be affected by this proposed rule are considered small entities, so the issue of disproportional effects on small versus large entities does not presently arise.

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

The proposed rule consists of the following:

- Define a rebuilding strategy for snowy grouper that maintains a constant fishing mortality rate (F= 75%F_{MSY}) throughout the rebuilding timeframe. Year 1 remains 2006 and the yield at 75%F_{MSY} and ABC projections will change with each assessment. ABC would change each year until 2019; the ABC for 2019 would remain in effect until modified.
- Specify that ACL=ABC=OY and apply the Council's existing allocation formula as it applies to snowy grouper (average of landings from 1986-2005) using the SEDAR landings data. The resulting allocation would change from 95% commercial/5% recreational to 83% commercial/17% recreational.
- Modify the commercial snowy grouper trip limit from 100 lbs gw to 200 lbs gw from January 1 until the ACL is met or projected to be met.
- Modify the recreational snowy grouper bag limit from 1/vessel/day year round to 1/vessel/day from May through August and no retention during the rest of the year.

Modifying the rebuilding strategy for snowy grouper would have no direct economic effects on small entities, because it would not alter the current use or access to the snowy grouper resource. It may be noted that the ABC resulting from this modification of the rebuilding strategy would be higher than the status quo ABC for snowy grouper.

Setting the ACL equal to ABC implies that the ACL would increase as a result of the proposed ABC increase. The method for allocating the ACL between the commercial and recreational sectors would remain the same. The change in commercial/recreational percentage allocation is due to the use of updated commercial and recreational landings of snowy grouper. Relative to the 2014 ACL, the commercial ACL will increase by 39% in 2015 and continue to increase annually to a point where the ACL in 2019 will be 86% higher than it was in 2014. Compared to the 2014 ACL, the recreational ACL will increase by 442% in 2015 and continue to increase annually to a point where the ACL in 2019 will be 623% higher than it was in 2014. In principle, the increases in sector ACLs would be expected to result in revenue and profit increases to commercial and for-hire vessels. The actual results would partly depend on the management measures adopted for the commercial and recreational sectors.

Increasing the commercial snowy grouper trip limit from 100 lbs gw to 200 lbs gw would tend to increase the profit per trip of commercial vessels. This higher trip limit would complement the proposed ACL increase in potentially increasing the annual profits of commercial vessels. Given the proposed ACL increase, the commercial fishing season is expected to extend from January 1 through July 19 under the higher trip limit, or January 1 through December 26 under the status quo trip limit. Hence, the proposed trip limit increase would result in a higher profit per trip but shorter commercial fishing season; whereas the status quo trip limit would be associated with lower profit per trip but longer fishing season. It cannot be ascertained which of these two scenarios would result in higher annual profit for commercial vessels. What is less uncertain, however, is that the proposed ACL increase would result in higher annual revenue and profit. As noted, the commercial fishing season would last until July 19 under the proposed trip limit and ACL increases. Without the ACL increase, the commercial fishing season is expected to last until June 6 under the increased trip limit. Thus, the ACL increase would allow for about 6 weeks of extra fishing under the proposed trip limit increase. Given a longer fishing season and higher profit per trip, revenues and profits of commercial vessels are likely to increase.

The proposed modification to the recreational bag limit for snowy grouper would retain the bag limit of 1 fish per vessel per day but would reduce the fishing season from being year round to a four-month season (May-August). The recreational sector has been substantially exceeding its ACL, and even with the proposed ACL increase the sector is expected to exceed its ACL under the no action alternative. The proposed shorter recreational fishing season would lower the probability of the sector exceeding its ACL. While this would help rebuild the stock and provide long-term economic benefits, it would likely affect the short-term profits of for-hire vessels. If some for-hire vessel trips are cancelled, the shorter fishing season would tend to reduce the revenues and profits of for-hire vessels when trips are cancelled. Available information is not sufficient to estimate the extent of this profit loss. It is noted that the reduction in for-hire vessel profits as a direct result of trip cancellation during the closed period would be partially offset if for-hire vessel trips increase during the open period.

Description of Significant Alternatives

Four alternatives, including the preferred alternative, were considered for defining the rebuilding strategy for snowy grouper. All these alternatives would have no direct economic effects on small entities.

Three alternatives, including the preferred alternative, were considered for adjusting the ACL. The first alternative, the no action alternative, would maintain lower commercial and recreational ACLs. This alternative would maintain the same economic benefits at levels lower than those afforded by the preferred alternative. The second alternative, which has three sub-alternatives, would set ACL as some percent of ABC. The three sub-alternatives are 95%, 90%, and 85% of ABC. All these three sub-alternatives would have lower positive effects on the profits of commercial and for-hire vessels.

Five alternatives, including the preferred alternative, were considered for modifying the management measures for the snowy grouper commercial sector. The first alternative, the no action alternative, would maintain the commercial trip limit of 100 lbs gw. Compared to the preferred alternative, the no action alternative would have lower profit per trip but would also leave the commercial fishing season almost year round. It cannot be ascertained which of these two alternatives would result in higher annual vessel profit for commercial vessels. It is noted that, if the trip limit is maintained at 100 lbs gw, commercial vessels may not take full advantage of the ACL that would annually increase at least until 2019.

The second alternative would split the commercial snowy grouper ACL into two quotas: 50% to the first period (January 1-April 30) and 50% to the second period (May 1-December 31). Any remaining commercial quota from the first period carries over into the second period; any remaining commercial quota from the second period does not carry over into the next fishing year. The following three sub-alternatives on trip limit would apply to each period: 100 lbs gw, 150 lbs gw, or 200 lbs gw. Given the proposed ACL increase, the first period would remain open under any of the alternative trip limits, but the second period would close early with the highest trip limit resulting in the shortest season length. This alternative, with the trip limit of 200 lbs gw, would have the same effects on commercial vessel profit as the preferred alternative, because both alternatives would have the same trip limits and the same fishing season length. At lower trip limits, this alternative would allow a longer fishing season but also lower profit per trip than the preferred alternative. It cannot be determined if this alternative, with lower trip limits, would result in higher annual profits than the preferred alternative. In an effort to address the current latitudinal inequity in access to the resource, the Council considered implementing a split season that would essentially spread out effort over time and allow for more equitable access to snowy grouper throughout the South Atlantic Council's area of jurisdiction. The Council opted to retain the commercial fishing year as the calendar year because snowy grouper are an important species in the early part of the year, when shallow water groupers are closed to commercial harvest. In addition, snowy grouper commands a higher price on the market during the early months of the year.

The third alternative would split the commercial snowy grouper ACL into two quotas: 40% to the first period (January 1-April 30) and 60% to the second period (May 1-December 31). Any remaining commercial quota from the first period carries over into the second period; any remaining commercial quota from the second period does not carry over into the next fishing year. This alternative would maintain the current 100 lbs gw trip limit for the first period and establish one of the following trip limit for the second period: 100 lbs gw, 150 lbs gw, 200 lbs gw, 250 lbs gw, or 300 lbs gw. Under this alternative and given the proposed ACL increase, commercial fishing would remain open throughout the first period but would close early in the second period, with the highest trip limit resulting in the shortest season length. As with the second alternative, this alternative when combined with lower trip limits would provide longer fishing seasons but lower profit per trip than the preferred alternative. It cannot be determined if this alternative, with lower trip limits, would result in higher annual profits than the preferred alternative. Similar to the second alternative, the Council considered a split season to address

the current latitudinal inequity in access to the resource. For similar reasons mentioned above, this third alternative was not selected as the preferred alternative.

The fourth alternative is similar to the preferred alternative but would establish a trip limit of either 300 lbs gw or 150 lbs gw. This alternative would result in longer fishing season but lower profit per trip under a trip limit of 150 lbs gw or shorter fishing season and higher profit per trip under a trip limit of 300 lbs gw than the preferred alternative. The differential impacts on the annual profits of commercial vessels between this alternative and the preferred alternative cannot be determined. The preferred alternative appears to provide a better balance between season length and profit per trip than this alternative with trip limit of either 150 lbs gw or 300 lbs gw.

The fifth alternative would modify the commercial snowy grouper trip limit to 150 lbs gw all year or until the commercial ACL is met or projected to be met except for the period May through August from the Florida Brevard/Indian River County line north when the trip limit will be one of the following: 200 lbs gw, 250 lbs gw, or 300 lbs gw. This alternative would generally provide for a lower trip limit than the preferred alternative, except in May through August when an equal or higher trip limit would be allowed in certain areas. This alternative would likely benefit commercial vessels in areas north of Indian River County, Florida more than vessels in other areas, at least during the period when vessels in the northern areas are allowed higher trip limits. Whether total profits from all vessels would be higher under this alternative than under the preferred alternative cannot be determined. Although this alternative was not chosen as the preferred alternative, the Council acknowledged that fishermen in North Carolina have historically had limited access to snowy grouper at the beginning of the fishing year due to weather conditions. However, recent years have brought milder winters and fishermen have benefitted from having access to snowy grouper.

Five alternatives, including the preferred alternative, were considered for modifying the snowy grouper recreational bag and possession limit. The first alternative, the no action alternative, would retain the 3-fish aggregate grouper/tilefish bag limit, with no more than one fish per vessel per day may be a snowy grouper. This alternative would allow the recreational sector to continue exceeding its ACL by a substantial amount, and thus would provide the largest short-term profits to for-hire vessels among the five alternatives considered. However, this alternative would not address the need for this proposed rule is to prevent overfishing and continue rebuilding the snowy grouper stock while minimizing, to the extent practicable, adverse social and economic effects. The second alternative is similar to the preferred alternative except that it would restrict the fishing season to May and June. The third alternative is also similar to the preferred alternative but would leave only May as the open month. The fourth alternative is also similar to the preferred alternative but would only allow June as the open month. These alternatives have the same bag limit as the preferred alternative but would provide for a shorter recreational fishing season. It is, therefore, expected that these alternatives would have more adverse effects on for-hire vessel profits than the preferred alternative.

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

South Atlantic Fishery Management Council Habitat Conservation, Ecosystem Coordination and Collaboration

The Council, using the Essential Fish Habitat Plan as the cornerstone, adopted a strategy to facilitate the move to an ecosystem-based approach to fisheries management in the region. This approach required a greater understanding of the South Atlantic ecosystem and the complex relationships among humans, marine life, and the environment including essential fish habitat. To accomplish this, a process was undertaken to facilitate the evolution of the Habitat Plan into a Fishery Ecosystem Plan (FEP), thereby providing a more comprehensive understanding of the biological, social, and economic impacts of management necessary to initiate the transition from single species management to ecosystem-based management in the region.

Moving to Ecosystem-Based Management

The Council adopted broad goals for Ecosystem-Based Management to include maintaining or improving ecosystem structure and function; maintaining or improving economic, social, and cultural benefits from resources; and maintaining or improving biological, economic, and cultural diversity. Development of a regional FEP (SAFMC 2009a) provided an opportunity to expand the scope of the original Council Habitat Plan and compile and review available habitat, biological, social, and economic fishery and resource information for fisheries in the South Atlantic ecosystem. The South Atlantic Council views habitat conservation as the core of the move to EBM in the region. Therefore, development of the FEP was a natural next step in the evolution and expands and significantly updates the SAFMC Habitat Plan (SAFMC 1998a) incorporating comprehensive details of all managed species (SAFMC, South Atlantic States, ASMFC, and NOAA Fisheries Highly Migratory Species and Protected Species) including their biology, food web dynamics, and economic and social characteristics of the fisheries and habitats essential to their survival. The FEP therefore serves as a source document and presents more complete and detailed information describing the South Atlantic ecosystem and the impact of fisheries on the environment. This FEP updated information on designated Essential Fish Habitat (EFH) and EFH-Habitat Areas of Particular Concern; expanded descriptions of biology and status of managed species; presented information that will support ecosystem considerations for managed species; and described the social and economic characteristics of the fisheries in the region. In addition, it expanded the discussion and description of existing research programs and needs to identify biological, social, and economic research needed to fully address ecosystem-based management in the region. It is anticipated that the FEP will provide a greater degree of guidance by fishery, habitat, or major ecosystem consideration of bycatch reduction, prey-predator interactions, maintaining biodiversity, and spatial management needs. This FEP serves as a living source document of biological, economic, and social information for all Fishery Management Plans (FMP). Future Environmental Assessments and Environmental Impact Statements associated with subsequent amendments to Council FMPs will draw from or cite by reference the FEP.

The Fishery Ecosystem Plan for the South Atlantic Region encompasses the following volume structure:
FEP Volume I - Introduction and Overview of FEP for the South Atlantic Region
FEP Volume II - South Atlantic Habitats and Species
FEP Volume III - South Atlantic Human and Institutional Environment
FEP Volume IV - Threats to South Atlantic Ecosystem and Recommendations
FEP Volume V - South Atlantic Research Programs and Data Needs
FEP Volume VI - References and Appendices

Comprehensive Ecosystem-Based Amendment (CE-BA) 1 (SAFMC 2009b) is supported by this FEP and updated EFH and EFH-HAPC information and addressed the Final EFH Rule (e.g., GIS presented for all EFH and EFH-HAPCs). Management actions implemented in CE-BA 1 established deepwater Coral HAPCs to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine, deepwater coral ecosystems in the world.

The Fishery Ecosystem Plan, slated to be revised every 5 years, will again be the vehicle to update and refine information supporting designation and future review of EFH and EFH-HAPCs for managed species. Planning for the update is being conducted in cooperation with the Habitat Advisory Panel during the fall and winter of 2013 with initiation during 2014.

Ecosystem Approach to Deepwater Ecosystem Management

The South Atlantic Council manages coral, coral reefs and live/hard bottom habitat, including deepwater corals, through the Fishery Management Plan for Coral, Coral Reefs and Live/Hard Bottom Habitat of the South Atlantic Region (Coral FMP). Mechanisms exist in the FMP, as amended, to further protect deepwater coral and live/hard bottom habitats. The SAFMC's Habitat and Environmental Protection Advisory Panel and Coral Advisory Panel have supported proactive efforts to identify and protect deepwater coral ecosystems in the South Atlantic region. Management actions in Comprehensive Ecosystem-Based Amendment (CE-BA 1) (SAFMC 2009b) established deepwater coral HAPCs (C- HAPCs) to protect what is thought to be the largest continuous distribution (>23,000 square miles) of pristine deepwater coral ecosystems in the world. In addition, CE-BA 1 established areas within the CHAPC, which provide for traditional fishing in limited areas, which do not impact deepwater coral habitat. CE-BA 1, supported by the FEP, also addressed non-regulatory updates for existing EFH and EFH- HAPC information and addressed the spatial requirements of the Final EFH Rule (i.e., GIS presented for all EFH and EFH-HAPCs). Actions in this amendment included modifications in the management of the following: octocorals; special management zones (SMZs) off the coast of South Carolina; and sea turtle release gear requirements for snapper grouper fishermen. The amendment also designated essential fish habitat (EFH) and EFH-Habitat Areas of Particular Concern (EFH-HAPCs).

CE-BA 2 established annual catch limits (ACL) for octocorals in the South Atlantic as well as modifying the Fishery Management Unit (FMU) for octocorals to remove octocorals off the coast of Florida from the FMU (SAFMC 2011). The amendment also limited the possession of

managed species in the SMZs off South Carolina to the recreational bag limit for snapper grouper and coastal migratory pelagic species; modified sea turtle release gear requirements for the snapper grouper fishery based upon freeboard height of vessels; amends Council fishery management plans (FMPs) to designate or modify EFH and EFH-HAPCs, including the FMP for Pelagic Sargassum Habitat; amended the Coral FMP to designate EFH for deepwater Coral HAPCs designated under CE-BA 1; and amended the Snapper Grouper FMP to designate EFH-HAPCs for golden and blueline tilefish and the deepwater Marine Protected Areas. The final rule was published in the federal register on December 30, 2011, and regulations became effective on January 30, 2012.

Building from a Habitat to an Ecosystem Network to Support the Evolution

Starting with the Habitat and Environmental Protection Advisory Panel, the Council expanded and fostered a comprehensive Habitat network in our region to develop the Habitat Plan of the South Atlantic Region completed in 1998 to support the EFH rule. Building on the core regional collaborations, the Council facilitated an expansion to a Habitat and Ecosystem network to support development of the FEP and CE-BA as well as coordinate with partners on other regional efforts.

Integrated Ocean Observing System (IOOS) and Southeast Coastal and Ocean Observing Regional Association (SECOORA)

The Integrated Ocean Observing System (IOOS®) is a partnership among federal, regional, academic, and private sector parties that works to provide new tools and forecasts to improve safety, enhance the economy, and protect our environment. IOOS supplies critical information about our Nation's oceans, coasts, and Great Lakes. Scientists working to understand climate change, governments adapting to changes in the Arctic, municipalities monitoring local water quality, and industries affected by coastal and marine spatial planning all have the same need: reliable, timely, and sustained access to data and information that inform decision making. Improving access to key marine data and information supports several purposes. IOOS data sustain national defense, marine commerce, and navigation safety. Scientists use these data to issue weather, climate, and marine forecasts. IOOS data are also used to make decisions for energy siting and production, economic development, and ecosystem-based resource management. Emergency managers and health officials need IOOS information to make decisions about public safety. Teachers and government officials rely on IOOS data for public outreach, training, and education.

SECOORA is one of 11 Regional Associations established nationwide through the US Integrated Ocean Observing System (IOOS) whose primary source of funding is via US IOOS through a 5-year cooperative agreement titled Coordinated Monitoring, Prediction, and Assessment to Support Decision-Makers Needs for Coastal and Ocean Data and Tools, but was recently awarded funding via a NOAA Regional Ocean Partnership grant through the Governors' South Atlantic Alliance. SECOORA is the regional solution to integrating coastal and ocean observing data in the Southeast United States to inform decision makers and the general public. The SECOORA region encompasses 4 states, over 42 million people, and spans the coastal ocean from North Carolina to the west Coast of Florida and is creating customized products to

address these thematic areas: Marine Operations; Coastal Hazards; Ecosystems, Water Quality, Living Marine Resources; and Climate Change. The Council is a voting member and Council staff was recently re-elected to serve on the Board of Directors for the Southeast Coastal Regional Ocean Observing Association (SECOORA) to guide and direct priority needs for observation and modeling to support fisheries oceanography and integration into stock assessments through SEDAR. Cooperation through SECOORA is envisioned to facilitate the following:

- Refining current or water column designations of EFH and EFH-HAPCs (e.g., Gulf Stream and Florida Current).
- Providing oceanographic models linking benthic, pelagic habitats, and food webs.
- Providing oceanographic input parameters for ecosystem models.
- Integration of OOS information into Fish Stock Assessment process in the SA region.
- Facilitating OOS system collection of fish and fishery data and other research necessary to support the Council's use of area-based management tools in the SA Region including but not limited to EFH, EFH-HAPCs, Marine Protected Areas, Deepwater Coral Habitat Areas of Particular Concern, Special Management Zones, and Allowable Gear Areas.
- Integration of OOS program capabilities and research Needs into the South Atlantic Fishery Ecosystem Plan.
- Collaboration with SECOORA to integrate OOS products with information included in the Council's Habitat and Ecosystem Web Services and Atlas to facilitate model and tool development.
- Expanding Map Services and the Regional Habitat and Ecosystem Atlas in cooperation with SECOORAs Web Services that will provide researchers access to data or products including those collected/developed by SA OOS partners.

SECOORA researchers are developing a comprehensive data portal to provide discovery of, access to, and metadata about coastal ocean observations in the southeast US. Below are various ways to access the currently available data.

One project recently funded by SECOORA initiated development of species specific habitat models that integrate remotely sensed and in situ data to enhance stock assessments for species managed by the Council. The project during 2013/2014 was initiated to address red porgy, gray triggerfish, black seabass, and vermilion snapper. Gray triggerfish and red porgy are slated for assessment through SEDAR in 2014/15 and 2015/16 respectively.

National Fish Habitat Plan and Southeast Aquatic Resource Partnership (SARP)

In addition, the Council serves on the National Habitat Board and, as a member of the Southeast Aquatic Resource Partnership (SARP), has highlighted this collaboration by including the Southeast Aquatic Habitat Plan (SAHP) and associated watershed conservation restoration targets into the FEP. Many of the habitat, water quality, and water quantity conservation needs identified in the threats and recommendations Volume of the FEP are directly addressed by on-the-ground projects supported by SARP. This cooperation results in funding fish habitat restoration and conservation intended to increase the viability of fish populations and fishing opportunity, which also meets the needs to conserve and manage

Essential Fish Habitat for Council managed species or habitat important to their prey. To date, SARP has funded 53 projects in the region through this program. This work supports conservation objectives identified in the SAHP to improve, establish, or maintain riparian zones, water quality, watershed connectivity, sediment flows, bottoms and shorelines, and fish passage, and addresses other key factors associated with the loss and degradation of fish habitats. SARP also developed the Southern Instream Flow Network (SIFN) to address the impacts of flow alterations in the Southeastern US aquatic ecosystems, which leverages policy, technical experience, and scientific resources among partners based in 15 states. Maintaining appropriate flow into South Atlantic estuarine systems to support healthy inshore habitats essential to Council managed species is a major regional concern and efforts of SARP through SIFN are envisioned to enhance state and local partners ability to maintain appropriate flow rates.

Governor's South Atlantic Alliance (GSAA)

Initially discussed as a South Atlantic Eco-regional Compact, the Council has also cooperated with South Atlantic States in the formation of a Governor's South Atlantic Alliance (GSAA). This will also provide regional guidance and resources that will address State and Council broader habitat and ecosystem conservation goals. The GSAA was initiated in 2006. An Executive Planning Team (EPT), by the end of 2007, had created a framework for the Governors South Atlantic Alliance. The formal agreement between the four states (NC, SC, GA, and FL) was executed in May 2009. The Agreement specifies that the Alliance will prepare a "Governors South Atlantic Alliance Action Plan" which will be reviewed annually for progress and updated every five years for relevance of content. The Alliance's mission and purpose is to promote collaboration among the four states, and with the support and interaction of federal agencies, academe, regional organizations, non-governmental organizations, and the private sector, to sustain and enhance the region's coastal and marine resources. The Alliance proposes to regionally implement science-based actions and policies that balance coastal and marine ecosystems capacities to support both human and natural systems. The GSAA Action Plan was released in December 2010 and describes the four Priority Issue Areas that were identified by the Governors to be of mutual importance to the sustainability of the region's resources: Healthy Ecosystems; Working Waterfronts; Clean Coastal and Ocean Waters; and Disaster-Resilient Communities. The goals, objectives, actions, and implementation steps for each of these priorities were further described in the GSAA Implementation Plan released in July 2011. The final Action Plan was released on December 1, 2010 and marked the beginning of intensive work by the Alliance Issue Area Technical Teams (IATTs) to develop implementation steps for the actions and objectives. The GSAA Implementation Plan was published July 6, 2011, and the Alliance has been working to implement the Plan through the IATTs and two NOAA-funded Projects. The Alliance also partners with other federal agencies, academia, non-profits, private industry, regional organizations, and others. The Alliance supports both national and state-level ocean and coastal policy by coordinating federal, state, and local entities to ensure the sustainability of the region's economic, cultural, and natural resources. The Alliance has organized itself around the founding principles outlined in the GSAA Terms of Reference and detailed in the GSAA Business Plan. A team of natural resource managers, scientists, and information management system experts have partnered to develop a Regional Information Management System (RIMS) and recommend decision support tools that will support regional

collaboration and decision-making. In addition to regional-level stakeholders, state and local coastal managers and decision makers will also be served by this project, which will enable ready access to new and existing data and information. The collection and synthesis of spatial data into a suite of visualization tools is a critical step for long-term collaborative planning in the South Atlantic region for a wide range of coastal uses. The Council's Atlas presents the spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it can be linked to or drawn on as a critical part of the collaboration with the RIMS.

South Atlantic Landscape Conservation Cooperative

One of the more recent collaborations is the Council's participation as Steering Committee member for the newly establish South Atlantic Landscape Conservation Cooperative (SALCC). Landscape Conservation Cooperatives (LCCs) are applied conservation science partnerships focused on a defined geographic area that informs on-the-ground strategic conservation efforts at landscape scales. LCC partners include DOI agencies, other federal agencies, states, tribes, non-governmental organizations, universities, and others. The newly formed Department of Interior Southeast Climate Services Center (CSC) has the LCCs in the region as their primary clients. One of the initial charges of the CSCs is to downscale climate models for use at finer scales.

The SALCC developed a Strategic Plan through an iterative process that began in December 2011. The plan provides a simple strategy for moving forward over the next few years. An operations plan was developed under direction from the SALCC Steering Committee to redouble efforts to develop version 1.0 of a shared conservation blueprint by spring-summer of 2014. The SALCC is developing the regional blueprint to address the rapid changes in the South Atlantic including but not limited to climate change, urban growth, and increasing human demands on resources which are reshaping the landscape. While these forces cut across political and jurisdictional boundaries, the conservation community does not have a consistent cross-boundary, cross-organization plan for how to respond. The South Atlantic Conservation Blueprint will be that plan. The blueprint is envisioned to be a spatially-explicit map depicting the places and actions need to sustain South Atlantic LCC objectives in the face of future change. The steps to creating the blueprint include development of: indicators and targets (shared metrics of success); the State of the South Atlantic (past, present, and future condition of indicators); and a Conservation Blueprint. Potential ways the blueprint could be used include: finding the best places for people and organizations to work together; raising new money to implement conservation actions; guiding infrastructure development (highways, wind, urban growth, etc.); creating incentives as an alternative to regulation; bringing a landscape perspective to local adaptation efforts; and locating places and actions to build resilience after major disasters (hurricanes, oil spills, etc.). Integration of connectivity, function, and threats to river, estuarine and marine systems supporting Council managed species is supported by the SALCC and enhanced by the Council being a voting member of its Steering Committee.
In addition, the Council's Regional Atlas presents spatial representations of Essential Fish Habitat, managed areas, regional fish and fish habitat distribution, and fishery operation information and it be linked to or drawn on as a critical part of the collaboration with the recently developed SALCC Conservation Planning Atlas.

Building Tools to support EBM in the South Atlantic Region

The Council has developed a Habitat and Ecosystem Section of the website http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx and, in cooperation with the Florida Wildlife Research Institute (FWRI), developed a Habitat and Ecosystem Internet Map Server (IMS). The IMS was developed to support Council and regional partners' efforts in the transition to EBM. Other regional partners include NMFS Habitat Conservation, South Atlantic States, local management authorities, other Federal partners, universities, conservation organizations, and recreational and commercial fishermen. As technology and spatial information needs evolved, the distribution and use of GIS demands greater capabilities. The Council has continued its collaboration with FWRI in the now evolution to Web Services provided through the regional SAFMC Habitat and Ecosystem Atlas (http://ocean.floridamarine.org/safmc_atlas/) and the SAFMC Digital Dashboard (http://ocean.floridamarine.org/safmc_dashboard/). The Atlas integrates services for the following:

Species distribution and spatial presentation of regional fishery independent data from the SEAMAP-SA, MARMAP, and NOAA SEFIS systems; SAFMC Fisheries: (http://ocean.floridamarine.org/SA_Fisheries/)

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern; SAFMC EFH: (http://ocean.floridamarine.org/sa_efh/)

Spatial presentation of managed areas in the region; SAFMC Managed Areas: (http://ocean.floridamarine.org/safmc_managedareas/)

An online life history and habitat information system supporting Council managed, State managed, and other regional species was developed in cooperation with FWRI. The Ecospecies system is considered dynamic and presents, as developed, detailed individual species life history reports and provides an interactive online query capability for all species included in the system: http://atoll.floridamarine.org/EcoSpecies

Web Services System Updates:
Essential Fish Habitat (EFH) – displays EFH and EFH-HAPCS for SAFMC managed species and NOAA Fisheries Highly Migratory Species.
Fisheries - displays Marine Resources Monitoring, Assessment, and Prediction (MARMAP) and Southeast Area Monitoring and Assessment Program South Atlantic (SEAMAP-SA) data.
Managed Areas - displays a variety of regulatory boundaries (SAFMC and Federal) or management boundaries within the SAFMC's jurisdiction.
Habitat – displays habitat data collected by SEADESC, Harbor Branch Oceanographic Institute (HBOI), and Ocean Exploration dives, as well as the SEAMAP shallow and ESDIM deepwater bottom mapping projects, multibeam imagery, and scientific cruise data.

Multibeam Bathymetry - displays a variety of multibeam data sources and scanned bathymetry charts.
Nautical Charts – displays coastal, general, and overview nautical charts for the SAFMC's jurisdictional area.

Ecosystem Based Action, Future Challenges and Needs

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

One of the greatest challenges to the long-term move to EBM in the region is funding high priority research, including but not limited to, comprehensive benthic mapping and ecosystem model and management tool development. In addition, collecting detailed information on fishing fleet dynamics including defining fishing operation areas by species, species complex, and season, as well as catch relative to habitat is critical for assessment of fishery, community, and habitat impacts and for Council use in place based management measures. Additional resources need to be dedicated to expand regional coordination of modeling, mapping, characterization of species use of habitats, and full funding of regional fishery independent surveys (e.g., MARMAP, SEAMAP, and SEFIS) which are linking directly to addressing high priority management needs. Development of ecosystem information systems to support Council management should build on existing tools (e.g., Regional Habitat and Ecosystem GIS and Arc Services) and provide resources to regional cooperating partners for expansion to address long-term Council needs.

The FEP and CE-BA 1 complement, but do not replace, existing FMPs. In addition, the FEP serves as a source document to the CE-BAs. NOAA should support and build on the regional coordination efforts of the Council as it transitions to a broader management approach. Resources need to be provided to collect information necessary to update and refine our FEP and support future fishery actions including but not limited to completing one of the highest priority needs to support EBM, the completion of mapping of near-shore, mid-shelf, shelf edge, and deepwater habitats in the South Atlantic region. In developing future FEPs, the Council will draw on SAFEs (Stock Assessment and Fishery Evaluation reports) which NMFS is required to provide the Council for all FMPs implemented under the Magnuson-Stevens Act. The FEP,

which has served as the source document for CE-BAs, could also meet some of the NMFS SAFE requirements if information is provided to the Council to update necessary sections.

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

The Council actively comments on non-fishing projects or policies that may impact fish habitat. Appendix A of the Comprehensive Amendment Addressing Essential Fish Habitat in Fishery Management Plans of the South Atlantic Region (SAFMC 1998b) outlines the Council's comment and policy development process and the establishment of a four-state Habitat Advisory Panel. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. AP members bring projects to the Council's attention, draft comment letters, and attend public meetings. With guidance from the Advisory Panel, the Council has developed and approved policies on:

1. Energy exploration, development, transportation, and hydropower re-licensing;
2. Beach dredging and filling and large-scale coastal engineering;
3. Protection and enhancement of submerged aquatic vegetation;
4. Alterations to riverine, estuarine, and nearshore flows;
5. Marine aquaculture;
6. Marine Ecosystems and Non-Native and Invasive Species: and
7. Estuarine Ecosystems and Non-Native and Invasive Species.

NOAA Fisheries, State and other Federal agencies apply EFH and EFH-HAPC designations and protection policies in the day-to-day permit review process. The revision and updating of existing habitat policies and the development of new policies is being coordinated with core agency representatives on the Habitat and Coral Advisory Panels. Existing policies are included at the end of this Appendix.

The Habitat and Environmental Protection Advisory Panel, as part of their role in providing continued policy guidance to the Council, is during 2013/14, reviewing and proposing revisions and updates to the existing policy statements and developing new ones for Council consideration. The effort is intended to enhance the value of the statements and support cooperation and collaboration with NOAA Fisheries Habitat Conservation Division and State and Federal partners in better addressing the Congressional mandates to the Council associated with designation and conservation of EFH in the region.

South Atlantic Bight Ecopath Model

The Council worked cooperatively with the University of British Columbia and the Sea Around Us project to develop a straw-man and preliminary food web models (Ecopath with Ecosim) to characterize the ecological relationships of South Atlantic species, including those managed by the Council. This effort was envisioned to help the Council and cooperators in identifying available information and data gaps while providing insight into ecosystem function. More importantly, the model development process provides a vehicle to identify research

necessary to better define populations, fisheries, and their interrelationships. While individual efforts are still underway in the South Atlantic, only with significant investment of new resources through other programs will a comprehensive regional model be further developed.

The latest collaboration builds on the previous Ecopath model developed through the Sea Around Us project for the South Atlantic Bight with a focus on beginning a dialogue on the implications of potential changes in forage fish populations in the region that could be associated with environmental or climate change or changes in direct exploitation of those populations.

Essential Fish Habitat and Essential Fish Habitat Areas of Particular Concern

Following is a summary of the current South Atlantic Council's EFH and EFH-HAPCs. Information supporting their designation was updated (pursuant to the EFH Final Rule) in the Council's Fishery Ecosystem Plan and Comprehensive Ecosystem Amendment:

Snapper Grouper FMP

Essential fish habitat for snapper grouper species 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 feet (but to at least 2,000 feet for wreckfish) where the annual water temperature range is sufficiently warm to maintain adult populations of members of this largely tropical complex. EFH includes the spawning area in the water column above the adult habitat and the additional pelagic environment, including *Sargassum*, required for larval survival and growth up to and including settlement. In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse snapper grouper larvae.

For specific life stages of estuarine dependent and nearshore snapper grouper species, essential fish habitat 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.

Areas which meet the criteria for EFH-HAPCs for species in the snapper grouper management unit include medium to high profile offshore hard bottoms where spawning normally occurs; localities of known or likely periodic spawning aggregations; nearshore hard bottom areas; The Point, The Ten Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump (South Carolina); mangrove habitat; seagrass habitat; oyster/shell habitat; all coastal inlets; all state-designated nursery habitats of particular importance to snapper grouper (e.g., Primary and Secondary Nursery Areas designated in North Carolina); pelagic and benthic *Sargassum*; Hoyt Hills for wreckfish; the *Oculina* Bank Habitat Area of Particular Concern; all hermatypic coral habitats and reefs; manganese outcroppings on the Blake Plateau; and Council-designated Artificial Reef Special Management Zones (SMZs). In addition, the Council through CEBA 2

(SAFMC 2011) designated the deepwater snapper grouper MPAs and golden tilefish and blueline tilefish habitat as EFH-HAPCs under the Snapper Grouper FMP as follows:

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

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

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

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 are designated as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Shrimp FMP

For penaeid shrimp, Essential Fish Habitat includes inshore estuarine nursery areas, offshore marine habitats used for spawning and growth to maturity, and all interconnecting water bodies as described in the Habitat Plan. Inshore nursery areas include tidal freshwater (palustrine), estuarine, and marine emergent wetlands (e.g., intertidal marshes); tidal palustrine forested areas; mangroves; tidal freshwater, estuarine, and marine submerged aquatic vegetation (e.g., seagrass); and subtidal and intertidal non- vegetated flats. This applies from North Carolina through the Florida Keys.

For rock shrimp, essential fish habitat consists of offshore terrigenous and biogenic sand bottom habitats from 18 to 182 meters in depth with highest concentrations occurring between 34 and 55 meters. This applies for all areas from North Carolina through the Florida Keys. Essential fish habitat includes the shelf current systems near Cape Canaveral, Florida, which provide major transport mechanisms affecting planktonic larval rock shrimp. These currents keep larvae on the Florida Shelf and may transport them inshore in spring. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse rock shrimp larvae.

Essential fish habitat for royal red shrimp include the upper regions of the continental slope from 180 meters (590 feet) to about 730 meters (2,395 feet), with concentrations found at depths

of between 250 meters (820 feet) and 475 meters (1,558 feet) over blue/black mud, sand, muddy sand, or white calcareous mud. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse royal red shrimp larvae.

Areas which meet the criteria for EFH-HAPCs for penaeid shrimp include all coastal inlets, all state-designated nursery habitats of particular importance to shrimp (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas), and state-identified overwintering areas.

Coastal Migratory Pelagics FMP

Essential fish habitat for coastal migratory pelagic species includes sandy shoals of capes and offshore bars, high profile rocky bottom, and barrier island ocean-side waters, from the surf to the shelf break zone, but from the Gulf Stream shoreward, including *Sargassum*. In addition, all coastal inlets and all state-designated nursery habitats of particular importance to coastal migratory pelagics (for example, in North Carolina this would include all Primary Nursery Areas and all Secondary Nursery Areas).

For Cobia essential fish habitat also includes high salinity bays, estuaries, and seagrass habitat. In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse coastal migratory pelagic larvae.

For king and Spanish mackerel and cobia essential fish habitat occurs in the South Atlantic and
Mid-Atlantic Bights.

Areas which meet the criteria for EFH-HAPCs include sandy shoals of Capes Lookout, Cape Fear, and Cape Hatteras from shore to the ends of the respective shoals, but shoreward of the Gulf stream; The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and Hurl Rocks (South Carolina); The Point off Jupiter Inlet (Florida); *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; nearshore hard bottom south of Cape Canaveral; The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; Pelagic *Sargassum*; and Atlantic coast estuaries with high numbers of Spanish mackerel and cobia based on abundance data from the ELMR Program. Estuaries meeting this criteria for Spanish mackerel include Bogue Sound and New River, North Carolina; Bogue Sound, North Carolina (Adults May-September salinity >30 ppt); and New River, North Carolina (Adults May-October salinity >30 ppt). For Cobia they include Broad River, South Carolina; and Broad River, South Carolina (Adults & juveniles May-July salinity >25ppt).

Golden Crab FMP

Essential fish habitat for golden crab includes the U.S. Continental Shelf from Chesapeake Bay south through the Florida Straits (and into the Gulf of Mexico). In addition, the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse golden crab larvae. The detailed description of seven essential fish habitat types (a flat foraminferan ooze habitat; distinct

mounds, primarily of dead coral; ripple habitat; dunes; black pebble habitat; low outcrop; and soft-bioturbated habitat) for golden crab is provided in Wenner et al. (1987). There is insufficient knowledge of the biology of golden crabs to identify spawning and nursery areas and to identify HAPCs at this time. As information becomes available, the Council will evaluate such data and identify HAPCs as appropriate through the framework.

Spiny Lobster FMP

Essential fish habitat for spiny lobster includes nearshore shelf/oceanic waters; shallow subtidal bottom; seagrass habitat; unconsolidated bottom (soft sediments); coral and live/hard bottom habitat; sponges; algal communities (*Laurencia*); and mangrove habitat (prop roots). In addition the Gulf Stream is an essential fish habitat because it provides a mechanism to disperse spiny lobster larvae.

Areas which meet the criteria for EFH-HAPCs for spiny lobster include Florida Bay, Biscayne Bay, Card Sound, and coral/hard bottom habitat from Jupiter Inlet, Florida through the Dry Tortugas, Florida.

Coral, Coral Reefs, and Live/Hard Bottom Habitats FMP

Essential fish habitat for corals (stony corals, octocorals, and black corals) incorporate habitat for over 200 species. EFH for corals include the following:

A. Essential fish habitat for hermatypic stony corals includes rough, hard, exposed, stable substrate from Palm Beach County south through the Florida reef tract in subtidal waters to 30 m depth; subtropical (15°-35° C), oligotrophic waters with high (30-35$^{o}/_{oo}$) salinity and turbidity levels sufficiently low enough to provide algal symbionts adequate sunlight penetration for photosynthesis. Ahermatypic stony corals are not light restricted and their essential fish habitat includes defined hard substrate in subtidal to outer shelf depths throughout the management area.

B. Essential fish habitat for *Antipatharia* (black corals) includes rough, hard, exposed, stable substrate, offshore in high (30-35$^{o}/_{oo}$) salinity waters in depths exceeding 18 meters (54 feet), not restricted by light penetration on the outer shelf throughout the management area.

C. Essential fish habitat for octocorals excepting the order Pennatulacea (sea pens and sea pansies) includes rough, hard, exposed, stable substrate in subtidal to outer shelf depths within a wide range of salinity and light penetration throughout the management area.

D. Essential fish habitat for Pennatulacea (sea pens and sea pansies) includes muddy, silty bottoms in subtidal to outer shelf depths within a wide range of salinity and light penetration.

Areas which meet the criteria for EFH-HAPCs for coral, coral reefs, and live/hard bottom include: The 10-Fathom Ledge, Big Rock, and The Point (North Carolina); Hurl Rocks and The Charleston Bump (South Carolina); Gray's Reef National Marine Sanctuary (Georgia); The *Phragmatopoma* (worm reefs) reefs off the central east coast of Florida; Oculina Banks off the east coast of Florida from Ft. Pierce to Cape Canaveral; nearshore (0-4 meters; 0-12 feet) hard

bottom off the east coast of Florida from Cape Canaveral to Broward County); offshore (5-30 meter; 15-90 feet) hard bottom off the east coast of Florida from Palm Beach County to Fowey Rocks; Biscayne Bay, Florida; Biscayne National Park, Florida; and the Florida Keys National Marine Sanctuary. In addition, the Council through CEBA 2 (SAFMC 2011) designated the Deepwater Coral HAPCs as EFH-HAPCs under the Coral FMP as follows:

Deepwater Coral HAPCs designated in Comprehensive Ecosystem-Based Amendment 1 as Snapper Grouper EFH-HAPCs: Cape Lookout Coral HAPC, Cape Fear Coral HAPC, Blake Ridge Diapir Coral HAPC, Stetson-Miami Terrace Coral HAPC, and Pourtalés Terrace Coral HAPC.

Dolphin and Wahoo FMP

EFH for dolphin and wahoo is the Gulf Stream, Charleston Gyre, Florida Current, and pelagic *Sargassum*. This EFH definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (SAFMC 1998b) (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Areas which meet the criteria for EFH-HAPCs for dolphin and wahoo in the Atlantic include The Point, The Ten-Fathom Ledge, and Big Rock (North Carolina); The Charleston Bump and The Georgetown Hole (South Carolina); The Point off Jupiter Inlet (Florida); The Hump off Islamorada, Florida; The Marathon Hump off Marathon, Florida; The "Wall" off of the Florida Keys; and Pelagic *Sargassum*. This EFH-HAPC definition for dolphin was approved by the Secretary of Commerce on June 3, 1999 as a part of the South Atlantic Council's Comprehensive Habitat Amendment (dolphin was included within the Coastal Migratory Pelagics FMP at that time).

Pelagic *Sargassum* Habitat FMP

The Council through CEBA 2 (SAFMC 2011) designated the top 10 meters of the water column in the South Atlantic EEZ bounded by the Gulfstream, as EFH for pelagic Sargassum.

Actions Implemented That Protect EFH and EFH-HAPCs

Snapper Grouper FMP

- Prohibited the use of the following gears to protect habitat: bottom longlines in the EEZ inside of 50 fathoms or anywhere south of St. Lucie Inlet, Florida; bottom longlines in the wreckfish fishery; fish traps; bottom tending (roller- rig) trawls on live bottom habitat; and entanglement gear.
- Established the *Oculina* Experimental Closed Area where the harvest or possession of all species in the snapper grouper complex is prohibited.

Established deepwater Marine Protected Areas (MPAs) as designated in Snapper Grouper Amendment 14: Snowy Grouper Wreck MPA, Northern South Carolina MPA, Edisto MPA, Charleston Deep Artificial Reef MPA, Georgia MPA, North Florida MPA, St. Lucie Hump MPA, and East Hump MPA.

Shrimp FMP

- Prohibition of rock shrimp trawling in a designated area around the *Oculina* Bank,
- Mandatory use of bycatch reduction devices in the penaeid shrimp fishery,
- Mandatory Vessel Monitoring System (VMS) in the Rock Shrimp Fishery.
- A mechanism that provides for the concurrent closure of the EEZ to penaeid shrimping if environmental conditions in state waters are such that the overwintering spawning stock is severely depleted.

Pelagic *Sargassum* Habitat FMP

- Prohibited all harvest and possession of *Sargassum* from the South Atlantic EEZ south of the latitude line representing the North Carolina/South Carolina border (34° North Latitude).
- Prohibited all harvest of *Sargassum* from the South Atlantic EEZ within 100 miles of shore between the 34° North Latitude line and the Latitude line representing the North Carolina/Virginia border.
- Harvest of *Sargassum* from the South Atlantic EEZ is limited to the months of November through June.
- Established an annual Total Allowable Catch (TAC) of 5,000 pounds landed wet weight.
- Required that an official observer be present on each *Sargassum* harvesting trip. Require that nets used to harvest *Sargassum* be constructed of four inch stretch mesh or larger fitted to a frame no larger than 4 feet by 6 feet.

Coastal Migratory Pelagics FMP

- Prohibited of the use of drift gillnets in the coastal migratory pelagic fishery.

Golden Crab FMP

- In the northern zone, golden crab traps can only be deployed in waters deeper than 900 feet; in the middle and southern zones traps can only be deployed in waters deeper than 700 feet.

Northern zone - north of the 28°N. latitude to the North Carolina/Virginia border;
Middle zone - 28°N. latitude to 25° N. latitude; and
Southern zone - south of 25°N. latitude to the border between the South Atlantic and Gulf of Mexico Fishery Management Councils.

Coral, Coral Reefs and Live/Hard Bottom FMP

- Established an optimum yield of zero and prohibiting all harvest or possession of these resources which serve as essential fish habitat to many managed species.
- Designated the *Oculina* Bank Habitat Area of Particular Concern.
- Expanded the *Oculina* Bank Habitat Area of Particular Concern (HAPC) to an area bounded to the west by 80°W. longitude, to the north by 28°30' N. latitude, to the south by 27°30' N. latitude, and to the east by the 100 fathom (600 feet) depth contour.
- Established the following two Satellite *Oculina* HAPCs: (1) Satellite *Oculina* HAPC #1 is bounded on the north by 28°30'N. latitude, on the south by 28°29'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude; and (2) Satellite *Oculina* HAPC #2 is

bounded on the north by 28°17'N. latitude, on the south by 28°16'N. latitude, on the east by 80°W. longitude, and on the west by 80°3'W. longitude.

- Prohibited the use of all bottom tending fishing gear and fishing vessels from anchoring or using grapples in the *Oculina* Bank HAPC.
- Established a framework procedure to modify or establish Coral HAPCs.
- Established the following five deepwater CHAPCs:

Cape Lookout Lophelia Banks CHAPC;
Cape Fear Lophelia Banks CHAPC;
Stetson Reefs, Savannah and East Florida Lithoherms, and Miami Terrace (Stetson- Miami Terrace) CHAPC;
Pourtales Terrace CHAPC; and
Blake Ridge Diapir Methane Seep CHAPC.

- Within the deepwater CHAPCs, the possession of coral species and the use of all bottom damaging gear are prohibited including bottom longline, trawl (bottom and mid-water), dredge, pot or trap, or the use of an anchor, anchor and chain, or grapple and chain by all fishing vessels.

South Atlantic Council Policies for Protection and Restoration of Essential Fish Habitat

SAFMC Habitat and Environmental Protection Policy

In recognizing that species are dependent on the quantity and quality of their essential habitats, it is the policy of the SAFMC to protect, restore, and develop habitats upon which fisheries species depend; to increase the extent of their distribution and abundance; and to improve their productive capacity for the benefit of present and future generations. For purposes of this policy, "habitat" is defined as the physical, chemical, and biological parameters that are necessary for continued productivity of the species that is being managed. The objectives of the SAFMC policy will be accomplished through the recommendation of no net loss or significant environmental degradation of existing habitat. A long-term objective is to support and promote a net-gain of fisheries habitat through the restoration and rehabilitation of the productive capacity of habitats that have been degraded, and the creation and development of productive habitats where increased fishery production is probable. The SAFMC will pursue these goals at state, Federal, and local levels. The Council shall assume an aggressive role in the protection and enhancement of habitats important to fishery species, and shall actively enter Federal, decision making processes where proposed actions may otherwise compromise the productivity of fishery resources of concern to the Council.

SAFMC EFH Policy Statements

In addition to implementing regulations to protect habitat from fishing related degradation, the Council in cooperation with NOAA Fisheries, actively comments on non-fishing projects or policies that may impact fish habitat. The Council adopted a habitat policy and procedure document that established a four-state Habitat Advisory Panel and adopted a comment and policy development process. Members of the Habitat Advisory Panel serve as the Council's habitat contacts and professionals in the field. With guidance from the Advisory Panel, the Council has

developed and approved a number of habitat policy statements which are available on the Habitat and Ecosystem section of the Council website (http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx).

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