4.2 Action 2. Modify the recreational bag limit for gag within the aggregate bag limit

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

1. No Action. Retain the current aggregate grouper bag limit of 3 fish. Within this limit, only one fish can be a gag or black grouper.

2. Increase the gag bag limit to 2 fish within the 3 fish aggregate grouper bag limit. Only one fish within the aggregate can be a black grouper.

3. Increase the gag bag limit to 3 fish within the 3 fish aggregate grouper bag limit. Only one fish within the aggregate can be a black grouper.

4.2.1 Biological Effects

The South Atlantic Council took action to end overfishing of gag through Amendment 16 to the Snapper Grouper FMP (SAFMC 2008). One action in the amendment reduced the aggregate grouper bag limit from 5 to 3 fish per person per day, and reduced the bag limit of 2 gag and black grouper (combined) to 1 gag or black grouper (combined) within the grouper aggregate bag limit. **Alternative 1 (No Action)** would retain the aggregate grouper bag limit of 3 fish per person per day, with only 1 gag or black grouper allowed in the aggregate bag (**Table 4.2.1**). Under **Alternative 1 (No Action),** there would be a continued positive biological effect on gag by limiting harvest from restricting the bag limit to 1 gag or black grouper per person per day within the grouper aggregate.

Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) implemented ACLs and AMs to ensure overfishing of gag does not occur. The recreational ACL for gag is 340,060 lbs gw. In 2015, the recreational ACL would be reduced to 326,340 lbs gw in **Action 1** of this amendment to prevent overfishing from occurring. The updated SEDAR 10 (2014) stock assessment and information included below (**Tables 4.2.4** and **4.2.5**) indicate that the 3-fish aggregate bag limit, the gag limit, and the gag/black grouper limit are only met rarely by recreational anglers; therefore, any negative biological consequences of revising the composition of the aggregate grouper bag limit by increasing the gag bag limit under **Alternative 2** and **Alternative 3** are likely to be negligible. Additionally, the gag recreational ACL has not been met during the past 4 fishing years: 23% of the recreational ACL was met in 2013, 52% in 2012, 49.9% in 2011, and 50.5% in 2010. Thus, **Action 2** considers bag limit alternatives that would allow for recreational harvest of gag to increase, while ensuring that the new ACL proposed in **Action 1** would not be exceeded. If the ACL is met, AMs are in place to ensure overfishing does not occur.

The bag limit analysis proposed in **Alternative 2** was compiled using trip level recreational data. Headboat Survey (HBS) catch-effort data were calculated on a monthly basis, while Marine Recreational Information Program (MRIP) catch-effort data, which were subsetted by mode, were calculated on a per wave basis. Waves were then split proportionally into months for projected landings analyses. The catch-effort data used 2012 and 2013 data, as 2010 and 2011 were statistically greater within the HBS

data. Due to low sample sizes (<30 fish per month) in the MRIP catch-effort data for charter and private modes, samples were aggregated across all months in 2012 and 2013 to calculate aggregated annual bag limit increases. The increased bag limits were calculated as follows: if less than 1 gag per angler was caught, there was no increase in the catch. If greater than or equal to 1 gag per angler was caught, the total number of fish was increased to 2 or 3, respectively, for each bag limit analysis. Note that these bag limits represent the upper bounds or maximum increases that could be expected if anglers that successfully reached their limit historically also reach their limit under the new bag limits. Landings data were based on 2013 landings, and compiled by mode and wave, with waves then proportionally split into months for MRIP data (**Table 4.2.1**), while HBS data were compiled by month (**Table 4.2.2**).

Table 4.2.1. Number of trips and landings (number of gag) under Alternative 1 (No Action) by month for Headboat Survey data.

	2012		2013	
Month	**Trips**	**Landings**	**Trips**	**Landings**
1	122	3	105	10
2	145	0	101	2
3	251	3	93	4
4	301	0	87	1
5	298	435	167	208
6	347	803	193	288
7	202	263	157	254
8	159	189	153	245
9	135	160	94	121
10	108	109	88	115
11	100	44	39	60
12	149	80	72	72

Table 4.2.2. Number of trips and landings (number of gag) under Alternative 1 (No Action) by wave for MRIP data.

	Private				Charter			
Wave	**2012**		**2013**		**2012**		**2013**	
	Trips	Landings	Trips	Landings	Trips	Landings	Trips	Landings
1	9	0	12	0	21	0	20	0
2	13	0	5	0	19	0	2	0
3	23	13	16	12	12	9	6	11
4	21	9	11	6	6	8	3	1
5	28	11	8	2	12	7.2	2	0
6	15	6	5	0	10	1	6	0

The final model assumed zero landings from January through April, due to the Shallow Water Grouper spawning closure. Due to low sample sizes, data were combined across all waves and years for MRIP data to calculate the estimated percentage increase from the new bag limits. The final model projects the landings, percentage of recreational ACL, projected closure date, and days open for each of the proposed recreational ACLs in Action 1 for the status quo (equivalent to a bag limit of 1), 2 gag bag limit, and 3 gag bag limit (**Table 4.2.3**).

Table 4.2.3. Projected landings of gag (lbs gw) under proposed bag limits.

ACL	Bag Limit	Projected			
		Closure date	Days Open*	Landings	% ACL
ACL = ABC: 326,340 lb gw	Status Quo	12/31	245	98,582	30%
	Gag Bag limit = 2			133,587	41%
	Gag Bag limit = 3			168,592	52%
ACL = 95%ABC: 310,023 lb gw	Status Quo	12/31	245	98,582	32%
	Gag Bag limit = 2			133,587	43%
	Gag Bag limit = 3			168,592	54%
ACL = 90%ABC 293,706 lb gw	Status Quo	12/31	245	98,582	34%
	Gag Bag limit = 2			133,587	45%
	Gag Bag limit = 3			168,592	57%
ACL = 80%ABC 261,072 lb gw	Status Quo	12/31	245	98,582	38%
	Gag Bag limit = 2			133,587	51%
	Gag Bag limit = 3			168,592	65%

*120 days correspond to the 4-month spawning season closure

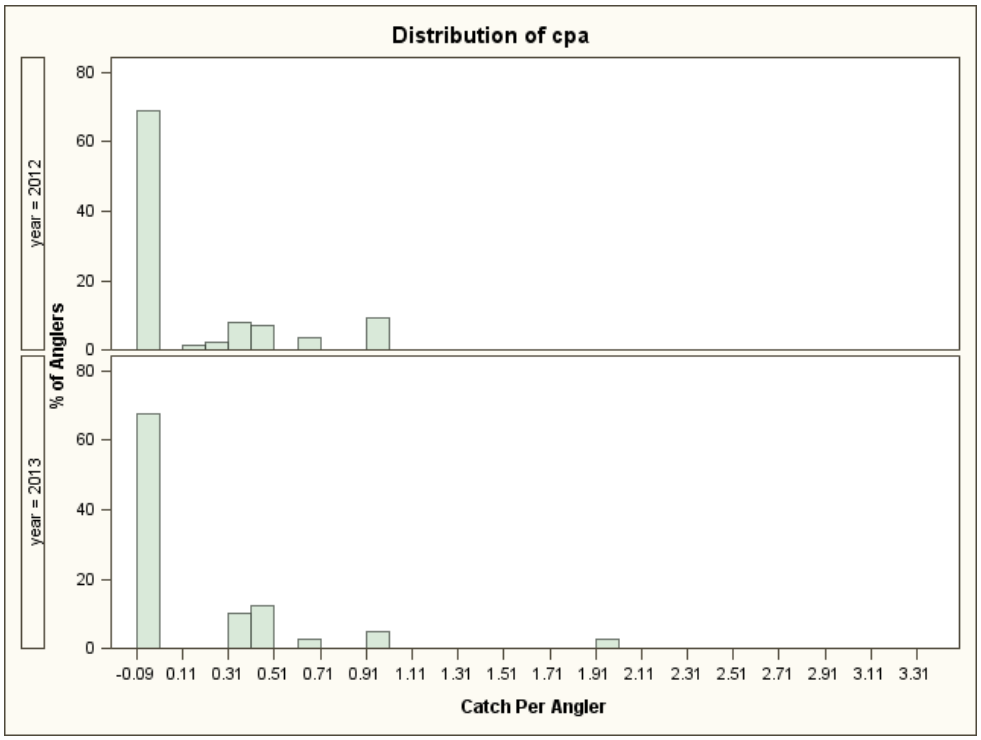

Figure 4.2.1. MRIP catch per angler (CPA) by year for the private mode

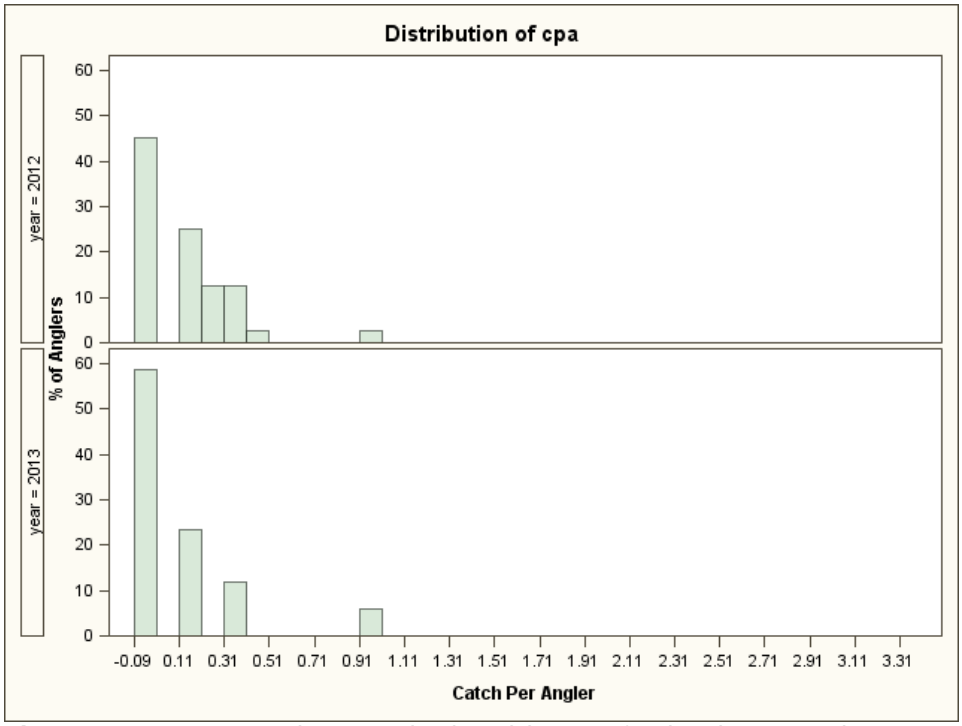

Figure 4.2.2. MRIP catch per angler (CPA) by year for the charter mode

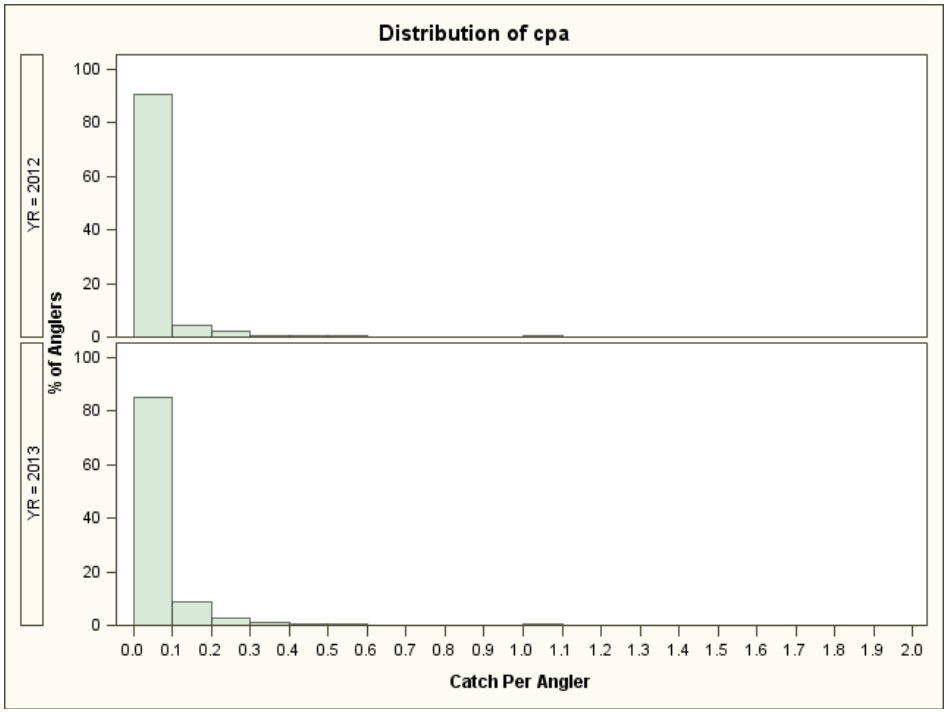

Figure 4.2.3. Catch per angler (CPA) by year for the Headboat Survey.

Between 31%-53% of the trips that caught an aggregate species landed an aggregate species (**Tables 4.2.4 and 4.2.5**). The catch per angler (CPA) for all aggregate trips was less than one for HBS and MRIP data sources. When adjusting for positive trips, CPA increases, but is still ≤ 1. The total number of trips that caught the maximum aggregate

limit per angler (CPA ≥ 3) was 3% for MRIP and <1% for HBS trips. The low CPA indicates that fishermen are either not encountering the fish in the aggregate or are discarding the fish due to regulations other than the bag limit (e.g. spawning season closures, size limits).

The percentage of trips catching aggregate species that landed gag were between 7-19% for MRIP trips and 15-24% for HBS trips (**Tables 4.2.4 and 4.2.5**). Average CPA for gag was less than 0.1, and the CPA for positive gag trips averaged 0.47 for MRIP trips and 0.13 for HBS trips. Trips landing black grouper were less than trips landing gag and had lower CPAs than gag. The percentage of aggregate trips that landed gag and/or black grouper was low (MRIP trips: 11-23%, HBS trips: 18-29%). The percentage of trips where the CPA for gag and black grouper were ≥ 1 were also low (MRIP: < 3%, HBS: <1%). Only 2 MRIP trips reported catching both black grouper and gag, while 13-28 HBS trips (<1%) caught both species. The low CPA for gag and/or black grouper trips indicates that it is unlikely that the increase in the gag bag limit within the 3 fish grouper aggregate would have much effect on black grouper landings or on total aggregate landings.

Overall, from 2009-2013, the top five aggregate species landed for MRIP trips were: blueline tilefish, red grouper, gag, scamp, and snowy grouper. In 2012 and 2013, black grouper replaced snowy grouper as the fifth most commonly caught species. The top five species landed for HBS trips from 2009-2013 were blueline tilefish, scamp, gag, red grouper, and sand tilefish. In 2009 and 2011, rock hind replaced sand tilefish as the fifth most commonly caught species. The species listed above are the species most likely to be affected if the bag limit for gag is increased within the aggregate grouper bag; however, although the low gag CPA suggests that there likely will be little effect, as the current bag limit for gag is frequently not met.

Table 4.2.4. Number of trips that caught a species in aggregate grouper bag limit and the average catch per angler per trip (CPA) by year from the MRIP data.

	2009	2010	2011	2012	2013
Trips that caught an aggregate fish	145	448	278	446	359
Positive aggregate trips (landed an aggregate fish)	72	139	96	167	118
Trips that caught aggregate CPA ≥ 3	3	8	5	16	12
Average aggregate CPA (max = 3)	0.45	0.29	0.29	0.34	0.33
Average aggregate CPA, positive trips (max = 3)	0.90	0.92	0.84	0.90	1.0
Trips that landed gag	27	38	28	52	24
% aggregate trips that landed gag	19%	8%	10%	12%	7%
Trips that caught gag CPA ≥ 1	2	9	6	9	4
Trips that caught gag CPA ≥1 and aggregate CPA ≥ 3	0	2	1	2	2
Average gag CPA (max = 1)	0.07	0.05	0.05	0.05	0.03
Average gag CPA, positive trips (max = 1)	0.40	0.53	0.50	0.43	0.47
Trips landed black grouper	6	11	7	18	16
% all aggregate trips that landed black grouper	4%	2%	3%	4%	4%
Average black grouper CPA (max = 1)	0.03	0.01	0.02	0.02	0.02
Average black grouper CPA, positive trips (max = 1)	0.65	0.33	0.78	0.46	0.43

Trips landed gag and/or black grouper	33	48	35	69	40
% all aggregate trips that landed gag and/or black grouper	23%	11%	13%	15%	11%
Trips where gag and black grouper cpa ≥ 1	3	10	8	13	6
Trips landing both gag and black grouper	0	1	0	1	0
Average black grouper and gag CPA	0.10	0.05	0.07	0.07	0.05
Average black grouper and gag CPA, positive trips	0.44	0.50	0.56	0.45	0.45

Table 4.2.5. Number of trips that caught a species in aggregate grouper bag limit and the average catch per angler per trip (CPA) by year from the HBS data.

	2009	**2010**	**2011**	**2012**	**2013**
Trips that caught an aggregate fish	4967	4916	3772	4572	4423
Positive aggregate trips (landed an aggregate fish)	2583	2344	1988	1926	2007
Trips that caught aggregate CPA ≥ 3	23	12	32	47	20
Average aggregate CPA (max = 3)	0.13	0.13	0.16	0.13	0.12
Average aggregate CPA, positive trips (max = 3)	0.24	0.28	0.31	0.30	0.27
Trips that landed gag	1177	1122	922	674	663
% aggregate trips that landed gag	24%	23%	24%	15%	15%
Trips that caught gag CPA ≥ 1	18	19	15	19	6
Trips that caught gag CPA ≥1 and aggregate CPA ≥ 3	2	0	1	0	0
Average gag CPA (max = 1)	0.03	0.03	0.03	0.02	0.02
Average gag CPA, positive trips (max = 1)	0.12	0.14	0.14	0.13	0.10
Trips landed black grouper	138	138	176	163	240
% all aggregate trips that landed black grouper	3%	3%	5%	4%	5%
Average black grouper CPA (max = 1)	0.003	0.003	0.006	0.004	0.007
Average black grouper CPA, positive trips (max = 1)	0.10	0.12	0.13	0.12	0.13
Trips landed gag and/or black grouper	1293	1240	1085	823	865
% all aggregate trips that landed gag and/or black grouper	26%	25%	29%	18%	20%
Trips where gag and black grouper cpa ≥ 1	18	19	15	20	6
Trips landing both gag and black grouper	22	20	13	14	38
Average black grouper and gag CPA	0.03	0.04	0.04	0.02	0.02
Average black grouper and gag CPA, positive trips	0.12	0.14	0.14	0.13	0.11

Alternative 2 and **Alternative 3** would increase the gag bag limit to two and three gag per person per day within the 3 grouper aggregate bag limit; respectively, to help achieve the recreational ACL proposed in **Action 1**. The black grouper bag limit would remain at one per person per day within the aggregate bag limit. Increasing the bag limit to 2 or 3 fish per person per day would have less biological benefits than retention of the measures under **Alternative 1 (No Action).** However, ACLs and AMs are in place to ensure overfishing does not occur. Currently, the recreational ACL is not being met, and **Table 4.2.3** indicates that the recreational ACL for gag would not likely be exceeded under the bag limits proposed under **Alternative 2** or **Alternative 3**. Furthermore, an amendment is being developed by the South Atlantic Council (Amendment 34 to the Snapper Grouper FMP) that could place more stringent measures on the recreational AM for gag to further ensure ACLs are not exceeded and overfishing does not occur. Therefore, in comparison to **Alternative 1 (No Action),** negative biological effects to the gag stock are not expected under **Alternative 2** or **Alternative 3**.

Alternative 2 would change gag bag limit from 1 fish per person per day to 2 fish per person per day and **Alternative 3** would change the aggregate grouper bag limit with gag from 1 fish per person per day to 3 fish per person per day; thereby, possibly reducing harvest of groupers and tilefish by allowing for the increased harvest of gag in the 3 fish aggregate grouper bag limit. However, since the 3 fish grouper aggregate is rarely met and most fishermen do not catch 1 gag within the 3 fish aggregate, any change in in harvest of other groupers and tilefish within the aggregate is expected to be small under **Alternative 2** and **Alternative 3**. Thus, **Alternative 2** and **Alternative 3** are expected to have minimal biological effects grouper and tilefish when compared to **Alternative 1 (No Action)**. **Table 4.2.6** lists the number of fish allowed in the current aggregate grouper bag limit under **Alternative 1 (No Action)**, and **Tables 4.2.7** and **4.2.8** lists the aggregate bag limit under **Alternative 2** and **Alternative 3**, respectively.

Table 4.2.6. Current aggregate bag limit (Alternative 1 No Action).

Aggregate bag limit includes:	Gag*, black grouper*, golden tilefish**, snowy grouper***, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, sand tilefish, coney, graysby, red hind, and rock hind
*	Maximum of 1 gag or black grouper (but not both) per person/day
**	Maximum of 1 golden tilefish per person/day
***	Maximum of 1 snowy grouper per vessel/day

Table 4.2.7. Aggregate bag limit under Alternative 2.

Aggregate bag limit includes:	Gag*, black grouper**, golden tilefish***, snowy grouper****, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, sand tilefish, coney, graysby, red hind, and rock hind
*	Maximum of 2 gag per person/day
**	Maximum of 1 black grouper per person/day
***	Maximum of 1 golden tilefish per person/day
****	Maximum of 1 snowy grouper per vessel/day

Table 4.2.8. Aggregate bag limit under Alternative 3.

Aggregate bag limit includes:	Gag*, black grouper*, golden tilefish**, snowy grouper***, misty grouper, red grouper, scamp, yellowedge grouper, yellowfin grouper, yellowmouth grouper, blueline tilefish, sand tilefish, coney, graysby, red hind, and rock hind
*	Maximum of 3 gag per person/day
**	Maximum of 1 black grouper per person/day
***	Maximum of 1 golden tilefish per person/day
****	Maximum of 1 snowy grouper per vessel/day