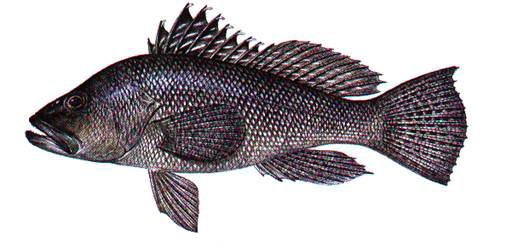
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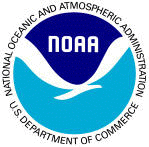
to the Fishery Management Plan for the

Snapper Grouper Fishery of the South Atlantic Region



**Increases to Annual Catch Limits and a**

**Seasonal Closure of the Black Sea Bass Pot Fishery**

**Including an Environmental Assessment**

**April 2013**

A publication of the South Atlantic Fishery Management Council pursuant to

National Oceanic and Atmospheric Administration

Award Number FNA10NMF4410012

**Abbreviations and Acronyms Used in the FMP**

**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

**BMSY** the stock biomass expected to exist under equilibrium conditions when fishing at FMSY

**BOY** the stock biomass expected to exist under equilibrium conditions when fishing at FOY

**BCURR** 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

**F30%SPR** fishing mortality that will produce a static SPR = 30%

**FCURR**  the current instantaneous rate of fishing mortality

**FMSY** the rate of fishing mortality expected to achieve MSY under equilibrium conditions and a corresponding biomass of BMSY

**FOY** the rate of fishing mortality expected to achieve OY under equilibrium conditions and a corresponding biomass of BOY

**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

**SAMFC** 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 19 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region with Environmental Assessment**

**Proposed action:** Modify the annual catch limits, recreational annual catch target, and optimum yield for black sea bass for the June 1 through May 31 fishing year, beginning in 2013, based on the results of a recent stock assessment. Implement a prohibition on use of black sea bass pots annually, from November 1 through April 30.

**Lead agency:** FMP Amendment – South Atlantic Fishery Management Council

Environmental Assessment – National Marine Fisheries Service (NMFS) Southeast Regional Office

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# Summary

A Southeast Data, Assessment, and Review (SEDAR) stock assessment update for black sea bass was completed in 2013, and suggests the annual catch limit (ACL) for this species could be modified based upon the new acceptable biological catch (ABC) levels recommended by the South Atlantic Fishery Management Council’s (South Atlantic Council) Scientific and Statistical Committee (SSC). The stock assessment update indicates black sea bass is no longer undergoing overfishing, is not overfished, and the stock is rebuilt. Based on the outcome of the stock assessment update for black sea bass, the SSC applied the approved ABC control rule to black sea bass, revised P\* to be 40%, and recommended new ABC values for 2013-2015.

At their December 2012 meeting, the South Atlantic Council determined it would be appropriate to modify certain management measures that are currently in place for black sea bass including changes to the commercial and recreational fishing years. The South Atlantic Council is considering modification to black sea bass management measures in Regulatory Amendment 14 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP), which is currently being developed.

The South Atlantic Council stated inSection 1.4 of the Comprehensive ACL Amendment that necessary changes to the ABCs, ACLs, annual catch targets (ACT), and accountability measures for snapper grouper species would be made through the framework procedure modified in Amendment 17B to the Snapper Grouper FMP, which is a more rapid process than a plan amendment. In Regulatory Amendment 19 to the Snapper Grouper FMP (Regulatory Amendment 19), the South Atlantic Council is considering:

* adjustments to the ACLs (including sector ACLs), recreational ACT, and optimum yield for black sea bass based on the ABC recommendation of the SSC, which is supported by the recent stock assessment update; and
* an annual prohibition on the use of black sea bass pots from November 1 through April 30 to minimize the probability of interactions between black sea bass pot gear and ESA-listed whales during large whale migrations and right whale calving season off the southeastern coast.

In accordance with the provisions set forth in the Magnuson-Stevens Fishery Conservation and Management Act, the intent of Regulatory Amendment 19 is to: prevent unnecessary negative socio-economic impacts that may otherwise be realized in the snapper grouper fishery and fishing community; prevent overfishing; and ensure the use of best available science.

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# Chapter 1. Introduction

## What Actions Are Being Proposed?

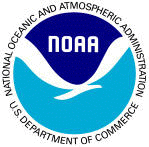
***South Atlantic Fishery Management Council***

* 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 Director 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
* Manages the snapper grouper fishery from 3 to 200 miles off the coasts of North Carolina, South Carolina, Georgia, and east Florida through Key West.

Adjustments to annual catch limits (ACLs) (including sector ACLs), recreational annual catch target (ACT), and optimum yield for black sea bass are being proposed based on the results of a recent stock assessment update. An annual prohibition on the use of commercial black sea bass pot gear from November 1 through April 30 is also being proposed.

## Who is Proposing the Actions?

The South Atlantic Fishery Management Council (South Atlantic Council) is proposing the actions. The South Atlantic Council develops a regulatory amendment and submits it to the National Marine Fisheries Service (NMFS) for review by the Secretary of Commerce and possible implementation of the rulemaking. NMFS is an agency in the National Oceanic and Atmospheric Administration.



## 1.3 Why is the South Atlantic Council Considering Action?/Purpose & Need

A stock assessment update for black sea bass was recently completed. The update indicated the stock is no longer undergoing overfishing, is not overfished, and is rebuilt. The South Atlantic Council’s Scientific and Statistical Committee (SSC) reviewed the stock assessment update, applied the approved acceptable biological catch (ABC) control rule, and recommended an updated ABC for black sea bass. Based on the new ABC recommendation and stock assessment, the South Atlantic Council is updating the ACLs, optimum yield (OY) and recreational annual catch target (ACT) for this species.

***Purpose for Action***

Modify the annual catch limits, recreational annual catch target, and optimum yield for black sea bass for the June 1 through May 31 fishing year, beginning in 2013, based on the results of a recent stock assessment.

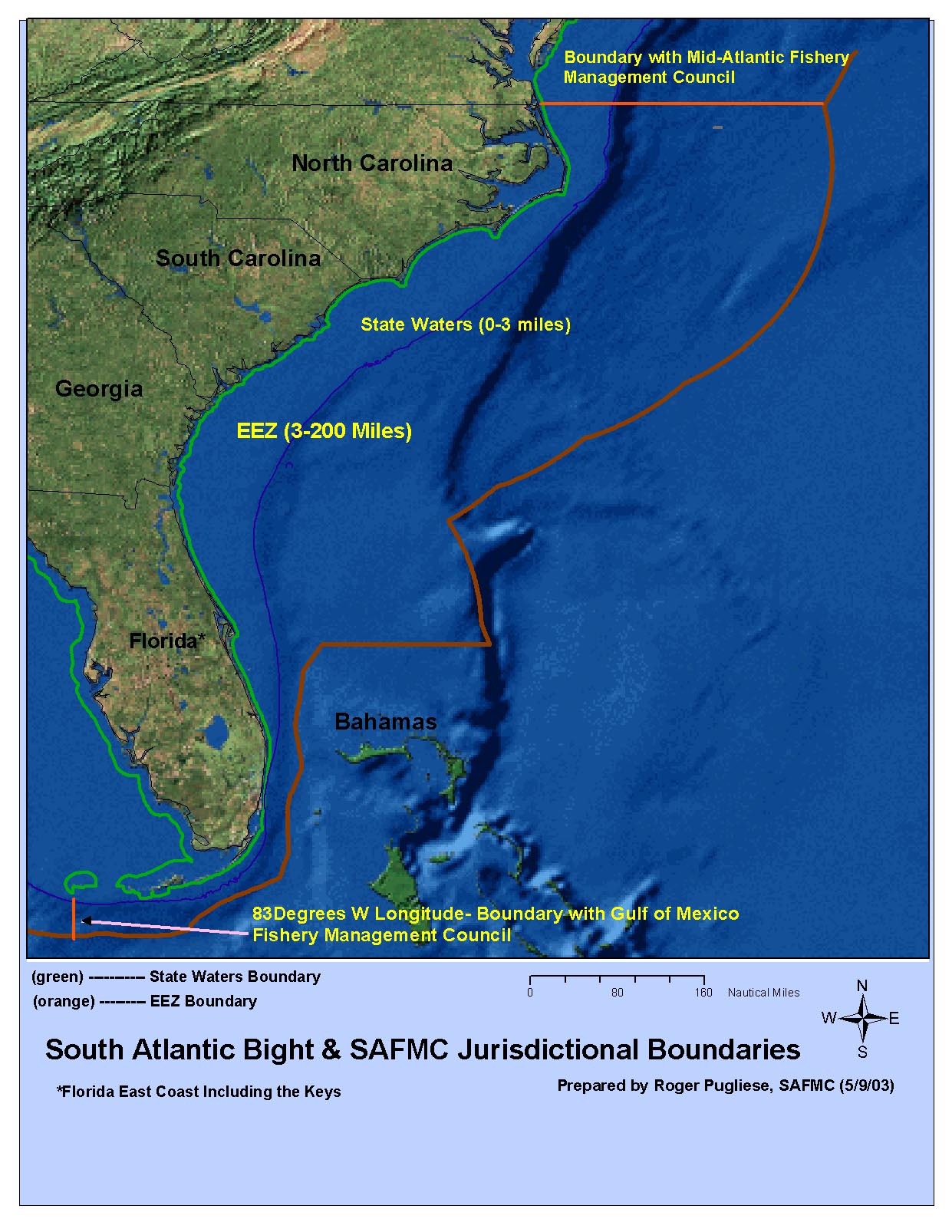
***Need for Action***

The need for action is to (1) ensure black sea bass management benchmarks are based upon the best available science, (2) ensure overfishing of black sea bass does not occur, (3) enhance socioeconomic benefits to fishermen and fishing communities that utilize the black sea bass portion of the snapper grouper fishery, and (4) 4) minimize the probability of interactions between black sea bass pot gear and ESA-listed whales during large whale migrations and right whale calving season off the southeastern coast (approximately November 1 through April 30).

The SSC recommended a larger ABC for black sea bass than is currently in place, which allows for an increase in the commercial and recreational ACLs. Because an increase to the commercial ACL could extend fishing activity with black sea bass pot gear past November 1 --the onset of right whale calving season in the South Atlantic -- the South Atlantic Council is considering a prohibition on the use of black sea bass pot gear from November 1 through April 30 each year.

## Where is the Management Area?

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 is conducted under the Snapper Grouper FMP, SAFMC 1983) (**Figure 1-1**). Black sea bass is one of sixty fish managed by the South Atlantic Council under the Snapper Grouper FMP.

****

**Figure 1-1.** Jurisdictional boundaries of the South Atlantic Fishery Management Council.

## 1.5 What is the Stock Status of Black Seas in the South Atlantic Region?

The black sea bass stock is not undergoing overfishing, is not overfished, and is rebuilt (**Table 1.5.1**). **Section 3.2.2** includes a detailed description of the stock assessment and results.  The stock assessment update was conducted in early 2013 with data through 2012 through the Southeast Data, Assessment, and Review (SEDAR) process. Most of the data sources in this assessment were simply updated with the two additional years of observations available since SEDAR 25 (2011).   The South Atlantic Council’s SSC met to review the stock assessment in April 2013 and determined it was adequate and suitable to inform management decisions. The actions and alternatives in Regulatory Amendment 19 are based on the results of this recent stock assessment update for black sea bass.

Table 1-1. Stock status of black sea bass.

|  |  |
| --- | --- |
| **Status** | **SEDAR 25**  **(2011 most recent data)** |
| **Overfishing**  (FCURR/MFMT value) | No  (0.659) |
| **Overfished**  (SSBCURR/MSST value) | No  (1.66) |
| **Rebuilt**  (SSBCURR/SSBMSY value) | Yes  (1.03) |
| • If FCURR>MFMT, then undergoing overfishing. The higher the number, the greater degree of overfishing.  • If SSBCURR<MSST, then overfished. The lower the number, the greater degree of overfished.  • If SSBCURR>SSBMSY, then the stock is rebuilt. | |

## 1.6 History of Management

Amendment 15A to the Snapper Grouper FMP (SAFMC 2008a) established formulas for defining the maximum sustainable yield (MSY) for black sea bass. MSY equals the yield produced by FMSY when the stock is at equilibrium. MSY and FMSY are defined by the most recent SEDAR assessment.

Amendment 18A to the Snapper Grouper FMP (SAFMC 2012a) changed the definition of OY from the average yield associated with fishing at 75% of FMSY when the stock is at equilibrium to a formula setting ACL = ABC = OY. National Standard 1 establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock complex, or fishery. Under this formula, the ACL/OY would be based on the ABC for black sea bass from the most recent SEDAR assessment, which takes into consideration scientific uncertainty to ensure catches are maintained below the MSY/overfishing limit (OFL).

Amendment 13C to the Snapper Grouper FMP (SAFMC 2006) phased-in quota/total allowable catch reductions over 3 years to end overfishing, changed the fishing year from the calendar year to June 1 through May 31, required use of at least 2 inch (”) mesh for the entire back panel of pots, required that pots be removed from the water when the commercial quota is met, increased the recreational minimum size limit from 10” total length (TL) to 11” TL in year 1 and 12” TL in year 2 onwards, and reduced the recreational bag limit from 20 to 15 per person per day. Amendment 15A to the Snapper Grouper FMP (SAFMC 2008a) updated black sea bass management reference points and modified the rebuilding strategy. Amendment 17B to the Snapper Grouper FMP (SAFMC 2010b) established recreational AMs. Amendment 18A (SAFMC 2012a) modified the rebuilding strategy, ABC, ACLs, and ACTs; limited participation in the black sea bass pot sector; limited pots to 35 per vessel; required that pots be brought back to shore after each trip; modified AMs; established a 1,000 pound gutted weight (lb gw) commercial trip limit; increased the recreational minimum size limit from 12” to 13” TL; and increased the commercial minimum size limit from 10” to 11” TL. Regulatory Amendment 9 to the Snapper Grouper FMP (SAFMC 2011a) reduced the recreational bag limit from 15 to 5 per person per day.

For a detailed history of management of the snapper grouper fishery, please refer to **Appendix B**.

## 1.7 What are the Biological Reference Points (Maximum Sustainable Yield, Overfishing Level, and Acceptable Biological Catch) for Black Sea Bass?

**MSY for Black Sea Bass**

Amendment 15A (SAFMC 2008a) specified a formula for MSY for black sea bass, which is the yield at FMSY and is defined by the most recent SEDAR stock assessment. Because an assessment update was recently completed for black sea bass (SEDAR 25 Update 2013), a new value for MSY is specified in this amendment using the established MSY formula from Amendment 15A (SAFMC 2008a) and does not require any action by the South Atlantic Council. Based the results of the stock assessment update the new values for MSY and FMSY appear in **Table 1-2**.

Table 1-2. Current and proposed values for MSY in pounds whole weight (lbs ww) and FMSY for black sea bass.

|  |  |  |
| --- | --- | --- |
| **Management Reference Point** | **Current Value**  **(SEDAR 25 2011)** | **Proposed New Value (SEDAR 25 Update 2013)** |
| MSY | 1,767,000 lbs ww | 1,780,000 lbs ww |
| FMSY | 0.698 | 0.61 |

Source: SEDAR 25 Update 2013.

Similar to updating the ACLs, updating the MSY value for black sea bass according to the outcome of the 2013 SEDAR 25 Update would result in a more accurate reference point that is based on data that incorporates the most recent harvest information for the stock.

**OFL Values for Black Sea Bass**

For black sea bass, overfishing is determined on an annual basis by either by the Maximum Fishing Mortality Threshold (MFMT) or the Overfishing Level (OFL). The MFMT uses fishing mortality rates while OFL uses catch levels. The estimate of MFMT (and FMSY) for black sea bass from the SEDAR 25 update is 0.61 and the OFL is based upon projections of P\*=0.5. (**Table 1-3**). Amendment 18A (SAFMC 2012a) established that 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.

Table 1-3. Revised Overfishing Level (OFL) for black sea bass, shown in both landings and discards and landings only, based on SEDAR 25 (2013). Values in pounds whole weight.

|  |  |  |
| --- | --- | --- |
| **Fishing Year** | **OFL** | **OFL** |
| **(landings + discards)** | **(landings only)** |
| 2013 | 2,296,000 | 2,433,000 |
| 2014 | 2,074,000 | 2,194,000 |
| 2015 | 1,857,000 | 1,973,000 |

**ABC Values for Black Sea Bass**

The Comprehensive ACL Amendment (SAFMC 2011c) established an ABC control rule for assessed snapper grouper species (See **Table 1-5**). In accordance with National Standard 1 guidelines, the control rule takes into account scientific and data uncertainties that may exist for certain species managed within the snapper grouper fishery management unit.

The South Atlantic Council’s SSC reviewed the 2013 assessment updated for black sea bass in April 2013. The SSC is the responsible entity for recommending an ABC for managed species under the South Atlantic Council’s jurisdiction. After reviewing the stock assessment update, the SSC applied the ABC control rule for assessed species (**Table 1-5**) and revised the P\* recommendation to 40% (increased from P\*=0.275), which resulted in the ABC values included in **Table 1-4**. Because the ABC is recommended by the SSC based on the established ABC control rule and was accepted by the South Atlantic Council at their May 2013 meeting, no alternatives are presented for choosing an ABC. The ABC is an established value (or a series of annually adjusted values in this case) from which other management references points such as the ACL and ACT are based.

Table 1-4. Revised ABC for black sea bass, shown in both landings and discards and landings only, based on SEDAR 25 (2013). Values in pounds whole weight.

|  |  |  |
| --- | --- | --- |
| **Fishing Year** | **ABC** | **ABC** |
| **(landings + discards)** | **(landings only)** |
| 2013 | 2,258,000 | 2,133,000 |
| 2014 | 2,102,000 | 1,992,000 |
| 2015 | 1,921,000 | 1,814,000 |

Table 1-5. The South Atlantic Council’s SSC’s ABC Control Rule.

Note: The ABC control rule provides a hierarchy of dimensions and tiers within dimensions used to characterize uncertainty associated with stock assessments in the South Atlantic.

Parenthetical values indicate (1) the maximum adjustment value for a dimension; and (2) the adjustment values for each tier within a dimension (SAFMC 2011c).

|  |  |
| --- | --- |
| Level 1 – Assessed Stocks | |
| Tier | Tier Classification and Methodology to Compute ABC |
| *1. Assessment Information (10%)* | 1. Quantitative assessment provides estimates of exploitation and biomass; includes MSY-derived benchmarks. (0%) 2. Reliable measures of exploitation or biomass; no MSY benchmarks, proxy reference points. (2.5%) 3. Relative measures of exploitation or biomass, absolute measures of status unavailable. Proxy reference points. (5%) 4. Reliable catch history. (7.5%) 5. Scarce or unreliable catch records. (10%) |
| *2. Uncertainty Characterization (10%)* | 1. Complete. Key Determinant – uncertainty in both assessment inputs and environmental conditions are included. (0%) 2. High. Key Determinant – reflects more than just uncertainty in future recruitment. (2.5%) 3. Medium. Uncertainties are addressed via statistical techniques and sensitivities, but full uncertainty is not carried forward in projections. (5%) 4. Low. Distributions of FMSY and MSY are lacking. (7.5%) 5. None. Only single point estimates; no sensitivities or uncertainty evaluations. (10%) |
| *3. Stock Status (10%)* | 1. Neither overfished nor overfishing. Stock is at high biomass and low exploitation relative to benchmark values. (0%) 2. Neither overfished nor overfishing. Stock may be in close proximity to benchmark values. (2.5%) 3. Stock is either overfished or overfishing. (5%) 4. Stock is both overfished and overfishing. (7.5%) 5. Either status criterion is unknown. (10%) |

**Table 1-5**. Continued.

|  |  |
| --- | --- |
| *4. Productivity and Susceptibility – Risk Analysis (10%)* | 1. Low risk. High productivity, low vulnerability, low susceptibility. (0%) 2. Medium risk. Moderate productivity, moderate vulnerability, moderate susceptibility. (5%) 3. High risk. Low productivity, high vulnerability, high susceptibility. (10%) |
| Level 2 - Unassessed Stocks. Reliable landings and life history information available | |
| OFL derived from "Depletion-Based Stock Reduction Analysis" (DBSRA).  ABC derived from applying the assessed stocks rule to determine adjustment factor if possible, or from expert judgment if not possible. | |
| Level 3 - Unassessed Stocks. Inadequate data to support DBSRA | |
| ABC derived directly, from "Depletion-Corrected Average Catch" (DCAC). Done when only a limited number of years of catch data for a fishery are available. Requires a higher level of “informed expert judgment” than Level 2. | |
| Level 4 - Unassessed Stocks. Inadequate data to support DCAC or DBSRA | |
| OFL and ABC derived on a case-by-case basis. ORCS ad hoc group is currently working on what to do when not enough data exist to perform DCAC. | |

Black sea bass is neither overfished nor undergoing overfishing according to the 2013 stock assessment update. The ABC, ACL, OY, and MSY levels currently in place are based on a time series of data used in SEDAR 25 (2011), which included information through 2010. Since the 2011 assessment was completed, several recently implemented management measures have significantly modified how the black sea bass component of the snapper grouper fishery is prosecuted (SAFMC 2012a). These management measures include:

* a pot endorsement program with 32 participants;
* a limit on pots to 35 per vessel;
* a requirement for pots to be brought back to shore after each trip;
* a 1,000 lb gw commercial trip limit;
* an increase in the commercial size limit from 10” to 11” TL; and
* an increase in the recreational size limit from 12” to 13” TL.

Regulatory Amendment 9 (SAFMC 2011a) reduced the recreational bag limit from 15 to 5 per person per day. Therefore, the data added to the most recent stock assessment update provided information reflective of the way the black sea bass component of the snapper grouper fishery is currently prosecuted. The South Atlantic Council has determined that it is appropriate at this time to update management reference points and management measures for black sea bass through Regulatory Amendment 19.

For the 2013 stock assessment update, the SSC recommended OFL is based upon projections of P\*=0.5 (**Table 1-3**). The SSC’s recommendation of ABC was based on their application of the ABC control rule, which accounts for dead discards, scientific and management uncertainty, and other characteristics of the stock such as vulnerability to overfishing. The SSC also recommended a 3-year projection at a P\* = 40% for the ABC. P\* is an uncertainty buffer, or difference between OFL and ABC, and is expressed in terms of a reduction in the probability of overfishing. The adjustment score for P\* is provided by the tiers and dimensions in **Table 1-5**.

The new ABC recommendation and subsequent proposed annual ACLs is based on biologically sound principles and an ABC control rule accepted by the SSC and the South Atlantic Council. As the new ABC recommended by the SSC is larger than the ABC from SEDAR 25 (2011), a corresponding increase in the ACLs may be justified.

The Magnuson-Stevens Act National Standard 1 establishes the relationship between conservation and management measures, preventing overfishing, and achieving OY from each stock, stock complex or fishery. The National Standard guidelines discuss the relationship of OFL to MSY and 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 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 (74 FR 3178).*

If an evaluation concludes that the ACL is being chronically exceeded for any one species or species group, and post-season AMs are repeatedly needed to correct for ACL overages, adjustments to management measures would be made. If the ACL is exceeded repeatedly 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) 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 an FMP amendment.

The current recreational AM for black sea bass is: “If the recreational sector ACL is met or projected to be met, independent of stock status, prohibit the harvest and retention of black sea bass. If the recreational sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the recreational sector ACL in the following season by the amount of the overage”. The current commercial AM for black sea bass is: “If the commercial sector ACL is met or projected to be met, independent of stock status, all subsequent purchase and sale of black sea bass is prohibited and harvest and/or possession is limited to the black sea bass bag limit. If the commercial sector black sea bass ACL is exceeded, independent of stock status, the Regional Administrator shall publish a notice to reduce the commercial sector black sea bass ACL in the following season by the amount of the overage”.

# Chapter 2. Proposed Actions and Alternatives

## **2.1 Action 1:** Revise the Annual Catch Limits Recreational Annual Catch Target and Optimum Yield for Black Sea Bass

**Alternative 1 (No Action)**. For black sea bass, retain the current annual catch limits (ACLs), optimum yield (OY), and recreational annual catch target (ACT) formulas and values:

Current ACL = 847,000 lbs whole weight (ww) = 718,000 lbs gutted weight (gw)

Commercial ACL = 309,000 lbs gw (364,620 lbs ww) (June 1 –May 31 fishing year)

Recreational ACL = 409,000 lbs gw (482,620 lbs ww) (June 1-May 31 fishing year)

Recreational ACT = 347,650 lbs gw (410,227 lbs ww) (June 1 –May 31 fishing year)

Acceptable Biological Catch (ABC), Annual Catch Limits, and Optimum Yield

ACL = ABC = OY. Sector ACLs based on the existing allocations of 43% for the commercial sector and 57% for the commercial sector. ACLs will not increase automatically in a subsequent year if the present year’s projected catch has exceeded the total ACL.

Commercial ACT

There is no ACT for the commercial black sea bass sector.

Recreational ACT

The recreational ACT equals recreational ACL\*(1-PSE) or recreational ACL\*0.5, whichever is greater. The average proportional standard error (PSE) from the Marine Recreational Fishery Statistics Survey (MRFSS) for black sea bass during 2005-2009 is 12.58%

**Preferred Alternative 2.** For black sea bass, retain the current ACL and ACT formulas and revise the ACLs and recreational ACT for the 2013/14 fishing season and beyond until modified as shown in the table below. Retention, possession, and fishing for black sea bass is prohibited using black sea bass pot gear, annually, from November 1 through April 30.

Table 2.1.1. Revised ABC, total ACL, sector ACLs, recreational ACT, and OY values based on SEDAR 25 (2013). Values in pounds whole weight (ww).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fishing Year** | **OFL1**  **(landings + discards)** | **OFL1**  **(landings only)** | **ABC1**  **(landings + discards)** | **ABC1**  **(landings only)** | **Total ACL (landings only)** | **Comm ACL (43%)** | **Rec ACL (57%)** | **Rec ACT2** |
| 2013 | 2,433,000 | 2,296,000 | 2,258,000 | 2,133,000 | 2,133,000 | 917,190 | 1,215,810 | 1,062,861 |
| 2014 | 2,194,000 | 2,074,000 | 2,102,000 | 1,992,000 | 1,992,000 | 856,560 | 1,135,440 | 992,602 |
| 2015 | 1,973,000 | 1,857,000 | 1,921,000 | 1,814,000 | 1,814,000 | 780,020 | 1,033,980 | 903,905 |

|  |
| --- |
| 1 Using values provided by the SSC. |
| 2 Using 2005-2009 Average PSE = 12.58 from Amendment 18A. |

**Alternative 3.** For black sea bass, revise the total ACL, sector ACLs, recreational ACT, and OY values based on results from new stock assessment (SEDAR 25 Update 2013). Retain the values until modified. Change the ACL formula to ACL = OY = yield at 75%FMSY when the stock is at equilibrium. The specified OY, ABC, ACLs, and recreational ACT would remain in place until modified. Retention, possession, and fishing for black sea bass is prohibited using black sea bass pot gear, annually, from November 1 through April 30.

ACL = OY = 1,756,450 lbs ww

Commercial ACL = 755,274 lbs ww

Recreational ACL = 1,001,177 lbs ww

Recreational ACT = 875,229 lbs ww

Note: values represent landings only.

**Summary of the Effects of Alternatives**

**Biological**

The values for **Alternative 1 (No Action)** are based upon the results of SEDAR 25 (2011; data through 2010); OY = ACL = ABC; ABC = 847,000 lbs ww is from the Scientific and Statistical Committee’s (SSC) recommendation using the approved ABC control rule (bycatch is incorporated into the SEDAR Assessments); allocation is 43% commercial and 57% recreational; and the recreational sector ACT definition is ACT = ACL\*(1-PSE) or ACL\*0.5, whichever is greater. The average PSE used in the ACT definition is from MRFSS for black sea bass during 2005-2009 is 12.58%. **Alternative 1 (No Action)** would maintain the current ACL, which would cap total harvest at 847,000 lbs ww until modified. Because **Alternative 1 (No Action)** would constrain harvest to a lower level than either **Preferred Alternative 2** or **Alternative 3**, the biological benefits under **Alternative 1 (No Action)** would be expected to be greater than under the other two alternatives. However, the 2013 stock assessment update indicates black sea bass is no longer undergoing overfishing, nor is the stock overfished. Furthermore, black sea bass have been rebuilt.

**Preferred Alternative 2** would adopt the projections at the 40% P\* level for 2013-2015 (**Table 4.1.3**) from the SEDAR 25 Update (2013) and use the OY=ABC=ACL formula adopted in Amendment 18A to the Snapper Grouper FMP. The values for **Preferred Alternative 2** are shown in **Table 2.1.1**. These values are based upon the results of SEDAR 25 Update (2013 with data through 2012; **Appendix C**). The OY, ABC, ACLs and recreational ACT would remain at the levels specified for 2015 until modified. **Preferred Alternative 2** could have long-term, adverse impacts to the black sea bass stock and associated species as it could result in fishing mortality levels higher than sustainable levels for 2015 and beyond, which could result in biomass levels of the black sea bass stock below SSBMSY. **Preferred Alternative 2** would result in the greatest negative impacts to the biological environment among the proposed alternatives. However, the South Atlantic Council’s SSC recommended ABC levels based on the approved ABC Control Rule and the South Atlantic Council would be adopting the SSC’s recommendations by selecting **Preferred Alternative 2**. In addition, the South Atlantic Council intends to maintain the existing regulations that apply to black sea bass pot gear during the November 1 through April 30 closure. Amendment 18A (SAFMC 2012a) implemented a prohibition on possession of black sea bass on a vessel with pot gear and required that all black sea bass pots be removed from the water once the commercial ACL was met or projected to be met. Hence the same restrictions would be applicable during the annual closure proposed in this amendment.

**Alternative 3** would have a greater positive biological effect than **Preferred Alternative 2** because it would create a buffer between the ACL/OY and ABC that would account for management uncertainty. **Alternative 3** would result in the total ACL increasing from 847,000 lbs ww to 1,756,450 lbs ww in 2013/14 onwards. Under **Preferred Alternative 2**, managers would be faced with regularly declining yield but it would not allow catch levels to reach the equilibrium point, and could allow overfishing to occur after 2015. **Alternative 3** avoids this situation for black sea bass by relying on the equilibrium estimate of yield at 75% of FMSY to set ACL and OY. The alternative of using the estimated equilibrium value as a catch limit is a risk averse approach that sacrifices some yield over the short term to gain stability over the long-term and prevent unrealistic expectations of fishery potential by constituents.

**Economic**

**Social**

***Whole Weight vs. Gutted Weight***

Black sea bass are landed whole, and landings are recorded in whole weight (ww). The quota is specified in gutted weight (gw). Because all fish landed and sold were at one time whole and landings are recorded in whole weight, whole weight will be used as the unit of weight measurement for black sea bass throughout this document. Where appropriate, gutted weight (gw) and whole weight (ww) values will be given. The conversion factor to convert black sea bass poundage from ww to gw or vice versa is 1.18 (ww = gw \*1.18 and gw = ww/1.18). Current regulations specify ACLs for black sea bass in ww and gw.

# **Chapter 3. Affected Environment**

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

* **Habitat environment** (Section 3.1)
* **Biological and ecological environment** (Section 3.2)
* **Human environment** (Sections 3.3)
* **Administrative environment** (Section 3.4)

## 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/Home/EcosystemHome/tabid/435/Default.aspx>.

### 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 km2) 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/EcosystemManagement/EcosystemBoundaries/MappingandGISData/tabid/632/Default.aspx> .

Plots of the spatial distribution of offshore species were generated from the 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; and South Atlantic Council-designated Artificial Reef Special Management Zones (SMZs).

Areas that meet the criteria for EFH-HAPCs include habitats required during each life stage (including egg, larval, 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.

## 3.2 Biological and Ecological Environment

### 3.2.1 Fish Populations Affected by this Amendment

**Black Sea Bass**

Black sea bass, *Centropristis striata*, occur in the Western Atlantic, from Maine to northeastern Florida, and in the eastern Gulf of Mexico. The species can be found in extreme south Florida during cold winters (Robins and Ray 1986). Separate populations were reported to exist to the north and south of Cape Hatteras, North Carolina (Wenner et al. 1986). However, genetic similarities suggest that this is one stock (McGovern et al. 2002). This species is common around rock jetties and on rocky bottoms in shallow water (Robins and Ray 1986) at depths from 2-120 m (7-394 ft). Most adults occur at depths from 20-60 m (66-197 ft) (Vaughan et al. 1995).

Maximum reported size is 66.0 cm (26.1 in) TL and 3.6 kg (7.9 lbs) (McGovern et al. 2002). The minimum size and age of maturity for females studied off the southeastern U.S. coast is 10 cm (3.6 in) SL and age 0. All females are mature by 18 cm (7.1 in) SL and age 3 (McGovern et al. 2002). Wenner et al. (1986) reported that spawning occurs from March through May in the South Atlantic Bight. McGovern et al. (2002) indicated that black sea bass females are in spawning condition during March-July, with a peak during March through May (McGovern et al. 2002). Some spawning also occurs during September and November. Spawning takes place in the evening (McGovern et al. 2002). Black sea bass change sex from female to male (protogyny). McGovern et al. (2002) noted that the size at maturity and the size at transition of black sea bass was smaller in the 1990s than during the early 1980s. Black sea bass appear to compensate for the loss of larger males by changing sex at smaller sizes and younger ages.

In the eastern Gulf of Mexico and off North Carolina, females dominate the first 5-year classes. Individuals over the age of 5 are more commonly males. Black sea bass live for at least 10 years. The diet of this species is generally composed of shrimp, crab, and fish (Sedberry 1988). Sedberry (1988) indicated that black sea bass consume primarily amphipods, decapods, and fishes off the Southeastern United States. Smaller black sea bass ate more small crustaceans and larger individuals fed more on decapods and fishes.

Descriptions of other South Atlantic Council-managed species may be found in Volume II of the Fishery Ecosystem Plan (SAFMC 2009b) or at the following web address: <http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx>.

### 3.2.2 Stock Status of Black Sea Bass

An update to the black sea bass assessment was conducted in 2013 with data through 2012. Most of the data sources were simply updated with the 2 additional years of observations available since SEDAR 25 (2011) which contained data through 2010. Additional changes made in some sources, such as recreational catch records, indices, and discards are detailed below. In addition, some datasets were unable to be updated due to management actions, regulations, and data availability issues.

Substantial changes are underway in recreational harvest surveys with implementation of the Marine Recreational Information Program (MRIP) in place of the prior Marine Recreational Statistics Survey (MRFSS). Although the MRIP program promises improved data for the future, assessments must also consider the past and will continue to include the earlier data from the MRFSS program. However, these historical landings were calibrated to MRIP landings based on the years where overlapping data exists. At the time this update was prepared, recreational landings based upon MRIP methods were only available for 2004-2011.

General recreational landings, general recreational discards, headboat landings, and headboat discards from 2012 were not available by the data deadline for the 2013 update. In order to continue with the assessment, these data gaps were filled by taking the geometric mean of the landings and discards data for the previous 3 years (2009-2011). Also, changes in the recreational and commercial fishing regulations, coupled with the early closure of both sectors of the fishery in 2011 and 2012, made the use of the fishery dependent indices of abundance questionable. These regulations include a decrease in the recreational bag limit from 15 fish to 5 fish, and a new commercial trip limit of 1,000 lbs gutted weight. Due to the new regulations and closures, catch per unit effort (CPUE) from either fishery may not coincide with abundance, but instead may be driven by the regulatory changes and closures. For example, a higher percentage of anglers reached the lower bag limit, at which point they were expected to stop keeping black sea bass even though more fish were available to them. Since the regulation forces anglers to stop retaining fish even if fish are available, the CPUE from this segment of the fishery will be lower than it otherwise would. When this happens, CPUE becomes unreliable as a measure of population abundance and could lead to biased estimate of abundance in the assessment results. Therefore, it was decided not to update the headboat index of abundance and the commercial handline index of abundance with the most recent years of data. The headboat at-sea observer program discard index was updated through 2011, however 2012 data were not available for this assessment.

The MARMAP/SEFIS chevron trap index of abundance used in the model is standardized, meaning that the catch per unit effort (CPUE) is adjusted through a statistical model to account for factors, other than changes in the population, which may affect the observed CPUE. Examples of such factors that are commonly addressed include yearly variation, environmental factors, depth, and sampling characteristics. While this approach improves the information obtained from the index, estimates of the parameters included in the standardization model change each time additional years of data are added, therefore changing the CPUE index for the entire time series. This index was also standardized in SEDAR 25.

Uncertainty in the model was characterized using a technique called a “mixed Monte Carlo Bootstrap” (MCB) which enables estimates of model uncertainty to better reflect the true underlying uncertainty in model estimates. For the 2013 update, the MCB runs were modified to account for using the geometric mean in estimating landings and discards in the recreational sector. The recreational landings and discards were varied for 2012 by choosing new values for each data point from a truncated normal distribution with a mean equal to the geometric mean of the previous 3 years and a standard deviation that was obtained by examining each time series to investigate how well the geometric mean of the previous 3 years estimates the current year’s value. This resulted in widening the confidence intervals around the estimate of spawning stock biomass (SSB) in the terminal year.

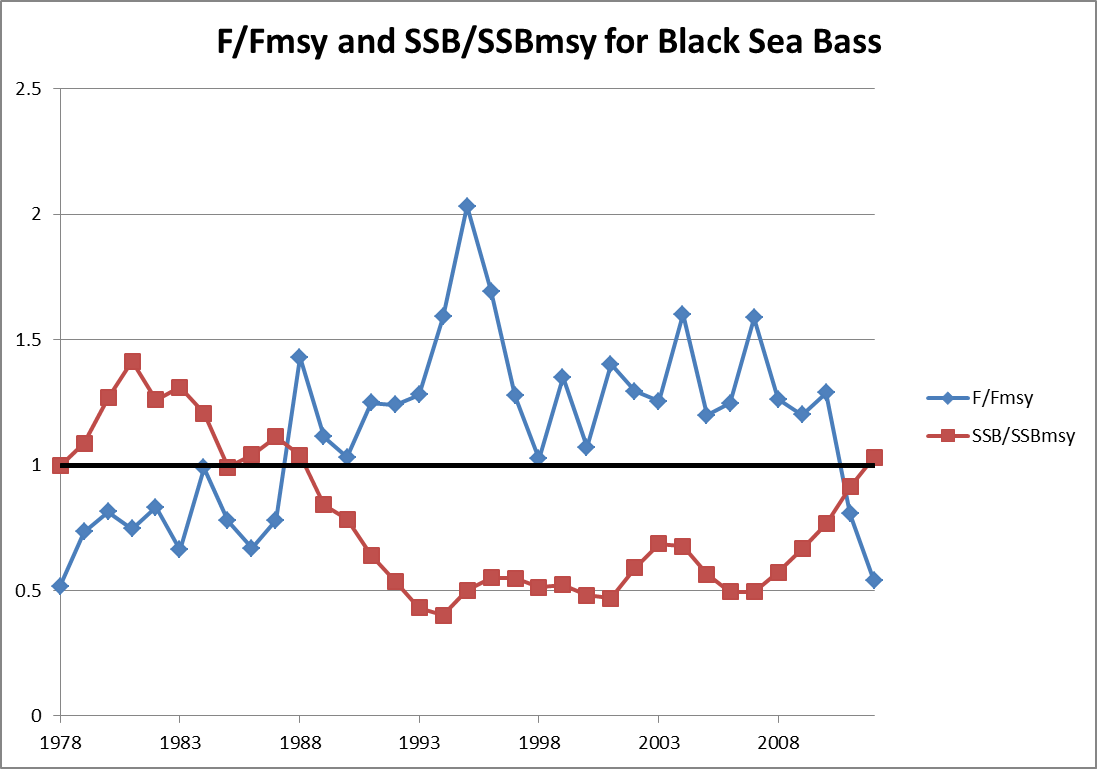
The 2013 update to SEDAR 25 concluded that black sea bass are not overfished and overfishing is not occurring. The stock is very close to BMSY (B2012/BMSY=0.96) and the SSB in 2012 is just above SSBMSY (SSB2012/SSBMSY=1.032, **Table 3.2.1**). SSB in 2012 was estimated to be above SSBMSY, indicating that the stock is rebuilt. Spawning stock biomass decreased significantly from the beginning of the assessment period, dropping below SSBMSY in 1989, until finally stabilizing and remaining at a low level from 1994-2007 (**Figure 3.2.1** in red). The SSB has been increasing consistently since 2008, crossing SSBMSY in the terminal year of the assessment. Current fishing mortality (F) is well below FMSY (FCurrent/FMSY=0.659, **Table 3.2.1**). The trend in F shows a rapid increase from the late-1970s until 1988, when it surpassed FMSY by a significant amount (**Figure 3.2.1** in blue). F remained above FMSY, with large inter-annual variability, until it dropped below FMSY in 2011.

There were several concerns addressed by the assessment scientists, all related to the final estimate of SSB. The MCB runs indicate a high level of uncertainty around the terminal estimate of SSB. Approximately 32% of the MCB runs indicate that the stock is still below SSBMSY. Some of the increased uncertainty in these terminal year estimates concerns the use of a geometric mean of past landings and discards in the recreational sector to estimate the 2012 landings and discards. The other concern involves the estimates of recruitment (R) in the model. The increasing trend in biomass is dependent on the estimate of a strong year class in 2010. The conclusion that the stock is rebuilt is also critically dependent on the estimate of this 2010 year class. However, there is a high level of uncertainty surrounding this estimate of R in 2010. The issue is that the fish do not appear in the age samples until age 2 and the estimates of the composition of age 2 fish from this year class do not agree well with respect to the strength of this year class. Also, R has declined in the last 2 years of the assessment and shows a cyclical pattern throughout the time series (**Figure 3.2.2**). The pattern shows a good year class followed by several smaller year classes. If we did have a strong year class in 2010, there may not be another one for several years or more.

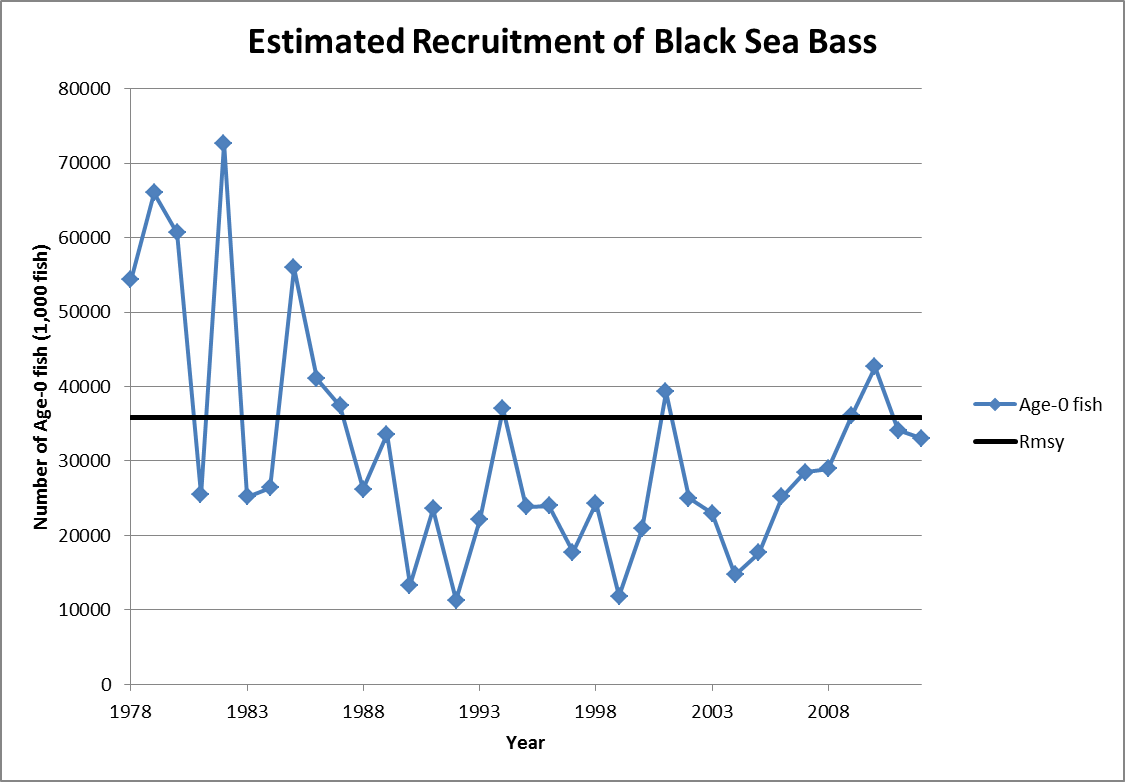
Table 3.2.1. Benchmarks and status parameters estimated in the 2013 update to SEDAR 25 for black sea bass.

M is the average Lorenzen natural mortality, FCurrent is the geometric mean of F2011 and F2012, FMSY is the fishing mortality that produces MSY, SSB2012 is the estimated spawning stock biomass in 2012, SSBMSY is the SSB when the stock is at MSY equilibrium, MSST is the minimum stock size threshold, BMSY is the stock biomass when the stock is at MSY equilibrium, RMSY is the expected number of age-0 fish when the stock is at MSY equilibrium, DMSY is the expected dead discards when the stock is at MSY equilibrium, and MSY is the maximum sustainable yield. Data are from the 2013 assessment update report for black sea bass.

|  |  |  |
| --- | --- | --- |
| **Quantity** | **Units** | **Estimate** |
| M | per year | 0.38 |
| Fcurrent | per year | 0.402 |
| FMSY | per year | 0.61 |
| SSB2012 | 1E10 eggs | 265 |
| SSBMSY | 1E10 eggs | 256 |
| MSST | 1E10 eggs | 159 |
| BMSY | 1,000 lb | 12,383 |
| RMSY | 1,000 age-0 fish | 35,843 |
| DMSY | 1,000 fish | 288 |
| MSY | 1,000 lb | 1,780 |
| SSB2012/SSBMSY | - | 1.032 |
| SSB2012/MSST | - | 1.66 |
| Fcurrent/FMSY | - | 0.659 |



**Figure 3.2.1.** Spawning stock biomass (SSB) and exploitation (F) levels relative to expected conditions of the black sea bass stock at MSY. Relative biomass is depicted by SSB/SSBMSY and exploitation by F/FMSY.  The index line at 1 represents MSY conditions. Data are from the 2013 assessment update report for black sea bass.



**Figure 3.2.2.** Estimated annual recruitment and expected recruitment at MSY conditions for black sea bass in number of age-0 fish. Data are from the 2013 assessment update report for black sea bass.

### 3.3 Protected Species

There are 40 species protected by federal law that may occur in the exclusive economic zone (EEZ) of the South Atlantic Region and are under the purview of NMFS. Thirty-one of these species are marine mammals protected under the Marine Mammal Protection Act. Six of these marine mammal species are also listed as endangered under the Endangered Species Act (ESA) (i.e., sperm, sei, fin, blue, humpback, and North Atlantic right whales). In addition to those six marine mammals, five species of sea turtles (green, hawksbill, Kemp’s ridley, leatherback, and loggerhead); the smalltooth sawfish; five distinct population segments of Atlantic sturgeon; and two *Acropora* coral species (elkhorn [*Acropora palmata*] and staghorn [*A. cervicornis*]) are also protected under the ESA. Portions of designated critical habitat for North Atlantic right whales and *Acropora* corals also occur within the South Atlantic Council’s jurisdiction. **Section 3.5** in the Comprehensive ACL Amendment (SAFMC 2011c), and **Section 3.2.2** in Regulatory Amendment 13 to the Snapper Grouper FMP (SAFMC 2013), describe the life history characteristics in detail for these non-marine mammal species. **Section 3.5** of the Comprehensive ACL Amendment and **Section 3.2.2** of Regulatory Amendment 13 are hereby incorporated by reference and may be found at: <http://www.safmc.net/ecosystem/Home/EcosystemHome/tabid/435/Default.aspx> and <http://sero.nmfs.noaa.gov/sf/pdfs/Reg13_FINAL_Dec2012.pdf>, respectively. Of the six marine mammal species protected by the ESA, the North Atlantic right whale and humpback whale are the most likely to overlap with temporally and spatially with the snapper-grouper fishery, particularly the black sea bass pot fishery. A description of their life history characteristics is included below.

The potential impacts from the continued authorization of the South Atlantic snapper grouper fishery on all ESA-listed species have been considered in previous ESA Section 7 consultations. Summaries of those consultations and their determination are in **Appendix F**. Those consultations indicate that of the species listed above, sea turtles and smalltooth sawfish are the most likely to interact with the snapper grouper fishery.

**Humpback and North Atlantic Right Whales**

Humpback whales have relatively long pectoral fins that can reach up to 33% of their body length (Clapham 2002). The dorsal fin is small but highly variable in shape. Humpbacks are rorqual whales with ventral pleats. Adult females are generally longer than males. Adults average 45-50 ft in length; calves are 13-14 ft on average at birth (Clapham 2002). Humpbacks have between 270-400 baleen plates (Clapham 2002) and feed on a number of species of small schooling fishes, particularly sand lance and Atlantic herring, targeting fish schools and filtering large amounts of water for their associated prey. It is hypothesized humpback whales may also feed on euphausiids (krill) as well as capelin (Waring et al. 2009, Stevick et al. 2006).

Humpback whales from most Atlantic feeding areas calve and mate in the West Indies and migrate to feeding areas in the northwestern Atlantic during the summer months. Sightings are most frequent from mid-March through November between 41oN and 43oN, from the Great South Channel north along the outside of Cape Cod to Stellwagen Bank and Jeffrey’s Ledge (CeTAP 1982), and peak in May and August. Small numbers of individuals may be present in this area year-round, including the waters of Stellwagen Bank.

In winter, whales from waters off New England, Canada, Greenland, Iceland, and Norway migrate to mate and calve, primarily in the West Indies, where spatial and genetic mixing among these groups does occur (Waring et al. 2013). Humpback whales use the Mid-Atlantic as a migratory pathway to and from the calving/mating grounds, but it may also be an important winter feeding area for juveniles. Since 1989, observations of juvenile humpbacks in the Mid-Atlantic have been increasing during the winter months, peaking January through March (Swingle et al. 1993). Biologists theorize that non-reproductive animals may be establishing a winter feeding range in the Mid-Atlantic since they are not participating in reproductive behavior in the Caribbean. Strandings of humpback whales have increased between New Jersey and Florida since 1985, consistent with the increase in Mid-Atlantic whale sightings. Strandings were most frequent during September through April in North Carolina and Virginia waters, and were composed primarily of juvenile humpback whales of no more than 11 meters in length (Wiley et al. 1995).

Entanglements in fishing gear are a threat to humpback whales. Between 2003 and 2007, humpback whales were the most commonly observed entangled whale species (Glass et al. 2009). Photographs taken between 2000 and 2002 indicate that approximately half (48-57%) of photographed individuals (187 animals) appeared to show signs of prior entanglement in fishing gear (Robbins and Mattila 2004). Evidence suggests that entanglements have occurred at a minimum rate of 8-10% per year (Robbins and Mattila 2004).

North Atlantic right whales are likely to occur in the areas under the SAFMC’s jurisdiction from approximately November 1 through April 30. Historically, North Atlantic right whales have occurred in all the world’s oceans from temperate to subarctic latitudes (Perry et al. 1999). North Atlantic right whales generally occur from the southeast United States to Canada (e.g*.*, Bay of Fundy and Scotian Shelf) (Kenney 2002, Waring et al.2013). They follow an annual pattern of migration between low latitude winter calving grounds and high latitude summer foraging grounds (Perry et al*.* 1999, Kenney 2002). However, movements within and between habitats are extensive. In 2000, one whale was photographed in Florida waters on 12 January, then again eleven days later (23 January) in Cape Cod Bay, less than a month later off Georgia (16 February), and back in Cape Cod Bay on 23 March, effectively making the round-trip migration to the Southeast and back at least twice during the winter season (Brown and Marx 2000). Calving occurs in the winter months off the coast of the southeast United States Recent aerial survey data indicate calving and nursing occurs from the coasts of northeastern Florida and southeastern Georgia and as far north as North Carolina (Waring et al. 2013).

Systematic surveys conducted off the coast of North Carolina during the winters of 2001 and 2002 sighted 8 calves, suggesting the calving grounds may extend as far north as Cape Fear (Waring et al. 2013). One of the cows photographed was new to researchers, having effectively eluded identification over the period of its maturation, and another had not been previously sighted in the Bay of Fundy or southern calving grounds (Pabst et al. 2009). Habitat modeling completed by Keller et al. (2012) also predicts that suitable calving habitat likely occurs over much of the continental shelf south of Cape Fear, North Carolina. The number of calves observed annually in the South Atlantic region varies. Since 2007/08, 133 calves have been documented in the region, varying annually from a high of 39 in 2008/09 to a low of 7 in 2011/12 (Waring et al. 2013; NMFS unpublished data).

North Atlantic right whales are robust, with their girth at time exceeding 60% of total body length, and no dorsal fin. Their heads are relatively large, comprising approximately 25-33% of their entire body length. The upper jaw is somewhat arched with 200-270 baleen plates on each side of the upper jaw. Baleen plates are usually narrow and 7-9 ft long. North Atlantic right whales feed primarily on copepods but also feed on zooplankton, krill, and pterodpods. Right whales feed by moving forward with mouths open, straining prey from the water. Feeding can occur anywhere in the water column, including at the surface, and dives are typically 10-20 minutes (Kenney 2002).

North Atlantic right whales are vulnerable to ship strikes and entanglement in fishing gear. Fixed fishing gear, including sink gillnets, drift nets, and trap/pot gear are all known to entangle right whales (Waring et al. 2013). Entanglements in fishing gear are very common in right whales with approximately 73% of North Atlantic right whales some indications of being entangled in fishing gear at least once (Knowlton et al. 2008). Information from an entanglement event often does not include the detail necessary to assign the entanglements to a particular fishery or location (Waring et al. 2013). However, Johnson et al. (2005) found that when gear was identified, 89% consisted of either trap/pot or gill net gear.

## **3.4 Human Environment**

### 3.4.1 Economic Description of the Commercial Sector

Additional information on the commercial snapper grouper sector is contained 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. Presented below is selected information on the commercial sector of the black sea bass portion of the snapper grouper fishery.

The major source of data summarized in this description is the Federal Logbook System

(FLS), supplemented by average prices calculated from the Accumulated Landings System (ALS) and price indices taken from the Bureau of Labor Statistics. Real (inflation adjusted) prices are reported in 2011 constant dollars. Landings are expressed in whole weight to match with the method for collecting ex-vessel price information for black sea bass.

#### **3.4.1.1** Annual Landings, Revenues, and Effort

The commercial black sea bass fishing fleet in the South Atlantic is composed of vessels using primarily black sea bass pots and hook and line gear. The average 2007-2011 landings as shown in the table below were 447,360 lbs whole weight (ww). From 2007 through 2011, an average of 1,670 trips that landed at least one pound of black sea bass were taken by 240 permitted vessels. These trips landed 447,360 lbs ww of black sea bass valued at about $1.011 million in 2011 prices (**Table 3.4.1**). Trips landing black sea bass also landed other species; total revenues generated by these trips averaged $3,989,399 in nominal prices. On average, black sea bass price per pound was $2.17, or $2.26 when adjusted for inflation.

Table 3.4.1. Selected characteristics for trips landing at least one pound (whole weight) of black sea bass, 2007-2011.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item** | **2007** | **2008** | **2009** | **2010** | **2011** | **Average** |
| Number of trips | 1,962 | 1,961 | 2,395 | 1,357 | 676 | 1,670 |
| Number of boats | 260 | 259 | 286 | 214 | 179 | 240 |
| Number of dealers purchasing BSB | 128 | 116 | 112 | 107 | 82 | 109 |
| Lbs whole weight | 410,151 | 438,795 | 635,468 | 449,591 | 302,793 | 447,360 |
| Nominal price per pound | $2.41 | $2.18 | $2.12 | $2.07 | $2.06 | $2.17 |
| Real price per pound (in 2011 $) | $2.60 | $2.27 | $2.23 | $2.13 | $2.06 | $2.26 |
| Total BSB revenue (in nominal $) | $988,610 | $958,468 | $1,346,063 | $928,952 | $622,326 | $968,884 |
| Total BSB revenue (in 2011 $) | $1,067,699 | $996,807 | $1,413,366 | $956,821 | $622,326 | $1,011,404 |
| Total Trip value that landed BSB | $4,522,297 | $4,890,847 | $5,553,441 | $3,435,400 | $1,565,015 | $3,989,399 |

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems (2013).

#### 3.4.1.2 Monthly **Landings, Revenues, and Effort**

Beginning in 2008, the commercial black sea bass season lasted less than a full calendar year. During each of the years in this time series, the black sea bass season began in June. As the stock recovered and the fish became more abundant, a derby developed and the seasons became shorter and shorter. The season that began in June of 2011 lasted less than two months. Because of the generally shorter length of time of each subsequent black sea bass season, the majority of trips occurred in the first two months of the season. In 2010, the black sea bass season was projected to close in October. However, bad weather kept the full ACL from being harvested. A short season of 10 days was opened in December 2010 to allow the fishermen to catch the remaining ACL (**Table 3.4.2**).

Table 3.4.2. Selected monthly average characteristics for trips landing at least one pound (ww) of black sea bass, 2007-2011.

Lbs are in thousands gutted weight and revenues are in thousand dollars.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| Trips | 111 | 106 | 88 | 96 | 99 | 280 | 216 | 184 | 137 | 97 | 123 | 131 |
| Boats | 35 | 36 | 30 | 36 | 38 | 53 | 50 | 45 | 42 | 34 | 40 | 42 |
| Days Away | 2.06 | 2.18 | 2.66 | 2.56 | 2.93 | 2.47 | 2.47 | 2.69 | 2.76 | 2.73 | 2.26 | 2.03 |
| Lbs. | 793 | 729 | 825 | 746 | 1,012 | 854 | 1,046 | 995 | 1,072 | 931 | 814 | 835 |
| Nom.  Rev. | $2,126 | $1,909 | $2,089 | $2,113 | $2,822 | $2,228 | $2,768 | $2,626 | $2,857 | $2,430 | $2,133 | $2,171 |
| Real  Rev. | $2,238 | $2,019 | $2,216 | $2,231 | $2,973 | $2,304 | $2,872 | $2,748 | $2,985 | $2,559 | $2,249 | $2,284 |

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems (2013).

#### 3.4.1.3 **Average Landings, Revenues, and Effort by Gear Type**

Black sea bass pots were the dominant gear in the harvest of black sea bass (Table 3.4.3) for the period 2007-2011. This gear type accounted for about 76% of total average annual black sea bass landings (Table 3.4.3). Hook and line gear (including bandit rigs) accounted for 24% of the total average annual black sea bass landings, with other gears accounting for less than 1%.

Table 3.4.3. Selected average characteristics for trips landing at least one pound (whole weight) of black sea bass, by gear type, 2007-2011.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Hook & Line** | **BSB Pots** | **Other** |
| Trips | 1,076 | 484 | 111 |
| Vessels | 79 | 20 | 35 |
| Days | 3.12 | 1.51 | 1.65 |
| Lbs BSB | 43 | 705 | 32 |
| Total Lbs | 971 | 787 | 1,111 |
| BSB Rev. (Nominal) | $105 | $1,732 | $71 |
| Total Rev. (Nominal) | $2,688 | $1,844 | $2,304 |

Source: NMFS SEFSC Coastal Fisheries Logbook and Accumulated Landings Data Base Systems, (2013).

#### **3.4.1.4** Permits

A commercial permit is required to harvest or possess commercial quantities of snapper grouper from the EEZ. There are two types of commercial snapper grouper permits, an unlimited permit, which is a transferable (subject to restrictions) that allows unlimited harvest of snapper grouper species, subject to trip limits or seasonal restrictions, and a non-transferable trip-limited permit that limits the owner to 225 lbs of snapper grouper harvest per trip. Both permits are limited access permits. The number of commercial snapper grouper permits for 2007-2012 is provided in **Table 3.4.4**. According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 121 225-pound trip-limited snapper grouper permit holders and 551 unlimited snapper grouper permit holders as of January 22, 2013.

Every year from 2007 through 2011, the number of vessels landing at least one pound of snapper grouper was higher than the number of snapper grouper permits (**Table 3.4.1** and **Table 3.4.4**). This is not totally unexpected. While a permit is assigned to a vessel, permits and vessels need not have a one-to-one correspondence as a permit can be used on multiple vessels at different times during a year or across multiple years. On the other hand, the average annual number of vessels landing black sea bass was approximately 31% of snapper grouper permits, indicating the relative importance of black sea bass as a source of revenue for many vessels in the commercial snapper grouper fishery. It is probable that some vessels, particularly those that fished black sea bass pots relied more on black sea bass as their major source of revenue from the snapper grouper fishery.

Table 3.4.4. Number of South Atlantic commercial snapper grouper permits, 2007-2012.

|  |  |  |  |
| --- | --- | --- | --- |
|  | **Unlimited** | **Limited** | **Total** |
| 2007 | 695 | 165 | 860 |
| 2008 | 665 | 151 | 816 |
| 2009 | 640 | 144 | 784 |
| 2010 | 624 | 139 | 763 |
| 2011 | 569 | 126 | 695 |
| 2012 | 558 | 123 | 681 |
| Average | 625 | 141 | 766 |

Source: NMFS SERO Permits Data Base

### 3.4.2 Economic Description of the Recreational Sector

Additional information on the recreational sector of the snapper grouper fishery contained in previous or concurrent amendments 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)].

The recreational fishery is comprised of the private sector and 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.

### 3.4.2.1 Harvest

The annual trend of recreational harvest of black sea bass in the South Atlantic was not uniform across fishing modes during the fishing years 2007/08-2011/12 (**Table 3.4.5**). Harvests decreased in 2008/09 for all fishing modes, but the pattern in subsequent years differed across fishing modes. Charter harvests went up in 2009/10 but declined in the next two years; headboat harvests increased in 2009/10 and 2010/11 but fell in 2011/2012; private/rental mode harvests fell in 2009/2010 but increased in the next two years; shore mode harvests followed a see-saw pattern throughout. The private/rental mode was the dominant sector in the harvest of black sea bass, followed by headboats, charter boats, and shore mode.

Recreational harvest trend for black sea bass also differed across the four South Atlantic states (**Table 3.4.5**). Harvests in Florida decreased in 2008/09, went up the next two years, and fell in 2011/12; harvests in Georgia increased in 2008/09 but declined the next three years; harvests in North Carolina followed a see-saw pattern throughout; and, harvests in South Carolina fell in 2008/09, increased in the next two years, and fell in 2011/12. Florida was the dominant state, followed by South Carolina, North Carolina, and Georgia.

Table 3.4.5. Harvest (pounds whole weight) of black sea bass in the South Atlantic based on June-May fishing year, 2007/08-2011/12.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **2007/08** | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **Average** |
| **By Fishing Mode** | | | | | | |
| Charter | 66,772 | 46,781 | 131,749 | 103,978 | 101,694 | 90,195 |
| Headboat | 117,302 | 108,540 | 209,720 | 253,604 | 170,263 | 171,886 |
| Private/Rental | 430,731 | 328,307 | 306,058 | 328,008 | 352,088 | 349,038 |
| Shore | 5,125 | 1,524 | 5,034 | 1,984 | 2,418 | 3,217 |
| **By State** | | | | | | |
| Florida East | 214,362 | 147,932 | 238,684 | 308,120 | 265,040 | 234,828 |
| Georgia | 74,940 | 91,974 | 44,853 | 35,712 | 35,252 | 56,546 |
| N. Carolina | 141,772 | 76,937 | 162,217 | 135,923 | 163,382 | 136,046 |
| S. Carolina | 188,857 | 168,310 | 206,808 | 207,819 | 162,788 | 186,916 |

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.

There is an apparent seasonality of recreational black sea bass harvests, with May through October being the peak season for all fishing modes and states in the South Atlantic (**Table 3.4.6**). Average (2007/08-2011/12) harvests by all fishing modes peaked in May-June and July-August and troughed in January-February. One feature that appears to stand out is the relatively large harvests by the private mode in November-December. The peaks and troughs are partly conditioned by the closures in the recreational harvests of black sea bass. For example, recreational closures occurred on February 12, 2011 for the 2010/11 season; on October 17, 2011 for the 2011/12 season; and, on September 4, 2012 for the 2012/13 season. This last closure did not affect the described seasonality in harvests because only harvests through May 2012 were included in the analysis.

There is apparently a slight variation in the seasonality of black sea bass harvests by state. Harvests in Florida peaked in July-August and troughed in January-February, whereas harvests in all other states peaked in May-June and troughed in January-February (**Table 3.4.6**).

Table 3.4.6. Average harvest (pounds whole weight) of black sea bass in the South Atlantic, by month/wave, 2007/08-2011/12.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **June** | **Jul-Aug** | **Sep-Oct** | **Nov-Dec** | **Jan-Feb** | **Mar-Apr** | **May** |
| **By Fishing Mode** | | | | | | | |
| Charter | 17,793 | 29,987 | 12,987 | 3,995 | 219 | 6,137 | 19,077 |
| Headboat | 27,463 | 54,546 | 26,298 | 11,821 | 8,594 | 19,533 | 23,631 |
| Private/Rental | 36,726 | 87,535 | 47,930 | 56,359 | 26,859 | 47,744 | 45,885 |
| Shore | 455 | 890 | 289 | 0 | 0 | 1,113 | 470 |
| **By State** | | | | | | | |
| Florida East | 22,575 | 81,106 | 33,572 | 18,200 | 34,683 | 21,313 | 23,379 |
| Georgia | 12,822 | 9,925 | 1,982 | 10,022 | 95 | 9,457 | 12,244 |
| N. Carolina | 22,936 | 41,470 | 23,305 | 14,573 | 531 | 8,821 | 24,411 |
| S. Carolina | 24,104 | 40,458 | 28,646 | 29,380 | 362 | 34,937 | 29,030 |

Source: The Headboat Survey, NOAA Fisheries, SEFSC, Beaufort Lab and MRFSS database, NOAA Fisheries, NMFS, SERO.

### 3.4.2.2 Effort

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

1. 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.
2. 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.
3. All recreational trips - The total estimated number of recreational trips taken, regardless of target intent or catch success.

Estimates of target and catch effort for black sea bass by fishing mode are presented in **Table 3.4.7** and **Table 3.4.8** and those by state are shown in **Table 3.4.9** and **Table 3.4.10**. Clearly apparent in these tables is the substantial difference between target and catch trips, with target trips being generally less than 10 percent of catch trips.

The annual changes (from the previous year) in target and catch trips differed from each other for all fishing modes (**Table 3.4.7)**. Shore mode target trips fell in 2008/09 and 2009/10 but increased slightly over the next two years; on the other hand, shore mode catch trips increased throughout the period. Charter target trips increased only in 2009/10 while charter catch trips see-sawed throughout the period. Private target trips were down in all years, except the last while private catch trips declined in the first two years and increased in the last two years. The private mode dominated in both target and catch trips. The charter mode reported higher target trips but lower catch trips than the shore mode.

Similar to harvests, there is an apparent seasonality of both target and catch trips for black sea bass, with May through October being the peak season for all fishing modes in the South Atlantic (**Table 3.4.8**). Several features, however, may be worth noting. First, average (2007/08-2011/12) target trips for the private mode were quite evenly spread throughout the season. Second, peak catch trips for all fishing mode occurred in July-August and troughs occurred in January-February, which correlates well with the seasonality of harvests. Third, relatively high catch trips were recorded in March-April for the private mode.

Table 3.4.7. Target and catch trips for black sea bass in the South Atlantic based on June-May fishing year, by fishing mode, 2007/08-2011/12.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **2007/08** | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **Average** |
| **Target Trips** | | | | | | |
| Shore | 2,638 | 1,983 | 0 | 404 | 826 | 1,170 |
| Charter | 3,541 | 1,203 | 2,430 | 2,210 | 439 | 1,964 |
| Private | 36,341 | 33,259 | 32,237 | 26,302 | 43,810 | 34,390 |
| **Catch Trips** | | | | | | |
| Shore | 61,418 | 89,972 | 94,606 | 101,370 | 124,734 | 94,420 |
| Charter | 45,634 | 12,328 | 33,190 | 27,725 | 31,315 | 30,038 |
| Private | 515,600 | 480,227 | 341,312 | 430,256 | 539,138 | 461,307 |

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.4.8. Average target and catch trips for black sea bass in the South Atlantic, by month/wave and mode, 2007/08-2011/12.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **June** | **Jul-Aug** | **Sep-Oct** | **Nov-Dec** | **Jan-Feb** | **Mar-Apr** | **May** |
| **Target Trips** | | | | | | | |
| Shore | 0 | 607 | 0 | 0 | 36 | 528 | 0 |
| Charter | 344 | 554 | 600 | 13 | 37 | 186 | 230 |
| Private | 4,616 | 5,648 | 4,559 | 5,288 | 3,357 | 5,629 | 5,292 |
| **Catch Trips** | | | | | | | |
| Shore | 12,006 | 31,146 | 12,867 | 7,935 | 2,041 | 15,046 | 13,378 |
| Charter | 4,745 | 12,836 | 2,985 | 1,123 | 520 | 3,781 | 4,048 |
| Private | 55,382 | 122,216 | 84,387 | 53,372 | 27,430 | 58,358 | 60,162 |

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Annual target trips by state for black sea bass did not follow the same pattern as catch trips. Target trips in Florida and Georgia followed a see-saw pattern that is almost the exact opposite see-saw pattern for catch trips (**Table 3.4.9**). Target trips in North Carolina increased throughout, except in 2011/12 whereas catch trips fell only in 2008/09. Target trips in South Carolina decreased throughout, except in 2011/12; catch trips increased in 2008/09, fell in two subsequent years, and rebounded in the last year. South Carolina dominated in target trips, followed by North Carolina, Florida, and Georgia. North Carolina recorded the highest average catch trips, followed closely by Florida, and then by South Carolina and Georgia.

The seasonality of target and catch trips for all states followed closely, but not exactly, the seasonality of these trips by mode (**Table 3.4.10**), with May through October being the peak season. In Florida, the trough in both target and catch trips occurred in September-October. Also, all states exhibited some relatively high target and catch trips in March-April.

Table 3.4.9. Target and catch trips for black sea bass in the South Atlantic based on June-May fishing year, by state, 2007/08-2011/12.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **2007/08** | **2008/09** | **2009/10** | **2010/11** | **2011/12** | **Average** |
| **Target Trips** | | | | | | |
| Florida East | 8,492 | 6,451 | 10,650 | 4,760 | 12,199 | 8,510 |
| Georgia | 11,462 | 2,704 | 3,034 | 402 | 4,622 | 4,445 |
| N. Carolina | 3,841 | 10,285 | 12,574 | 14,931 | 14,922 | 11,311 |
| S. Carolina | 18,725 | 17,002 | 14,612 | 8,822 | 13,332 | 14,499 |
| **Catch Trips** | | | | | | |
| Florida East | 179,024 | 190,011 | 157,217 | 200,522 | 280,269 | 201,409 |
| Georgia | 64,536 | 75,725 | 34,481 | 54,946 | 41,459 | 54,230 |
| N. Carolina | 238,958 | 159,713 | 178,666 | 213,537 | 259,019 | 209,979 |
| S. Carolina | 140,131 | 157,076 | 98,742 | 90,346 | 114,439 | 120,147 |

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Table 3.4.10. Average target and catch trips for black sea bass in the South Atlantic, by month/wave and state, 2007/08-2011/12.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **June** | **Jul-Aug** | **Sep-Oct** | **Nov-Dec** | **Jan-Feb** | **Mar-Apr** | **May** |
| **Target Trips** | | | | | | | |
| Florida East | 1,080 | 2,251 | 310 | 1,119 | 2,043 | 873 | 834 |
| Georgia | 503 | 897 | 901 | 147 | 0 | 1,773 | 224 |
| N. Carolina | 1,298 | 3,293 | 1,027 | 1,188 | 1,386 | 1,093 | 2,025 |
| S. Carolina | 2,645 | 1,042 | 2,921 | 2,848 | 0 | 2,604 | 2,439 |
| **Catch Trips** | | | | | | | |
| Florida East | 22,871 | 42,871 | 24,083 | 25,297 | 26,782 | 38,021 | 21,484 |
| Georgia | 9,976 | 12,365 | 6,038 | 4,991 | 0 | 11,429 | 9,431 |
| N. Carolina | 24,195 | 76,975 | 46,296 | 14,406 | 3,208 | 14,990 | 29,908 |
| S. Carolina | 15,091 | 33,988 | 23,822 | 17,735 | 0 | 12,744 | 16,766 |

Source: MRIP database, NOAA Fisheries, NMFS, SERO.

Similar analysis of recreational effort is not possible for the headboat sector because the 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 3.4.11** displays the annual angler days by state and **Table 3.4.12** displays their average (2007/08-2011/12) monthly distribution. Confidentiality issues required combining Georgia estimates with those of Northeast Florida.

Headboat angler days varied from year to year but generally declined since 2007 (**Table 3.4.11**). 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, overall angler days peaked in June and troughed in December (**Table 3.4.12**). North Carolina and South Carolina had similar peaks and troughs as the overall average. Angler days in Georgia/Northeast Florida peaked in June and troughed in November while those in Southeast Florida peaked in April and troughed in September.

Table 3.4.11. South Atlantic headboat angler days, by state, 2007-2011.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | **2007** | **2008** | **2009** | **2010** | **2011** | **AVERAGE** |
| NC | 29,002 | 16,982 | 19,468 | 21,071 | 18,457 | 20,996 |
| SC | 60,729 | 47,287 | 40,919 | 44,951 | 44,645 | 47,706 |
| GA/NEFL | 53,762 | 52,521 | 66,447 | 53,676 | 46,256 | 54,532 |
| SEFL | 103,388 | 71,598 | 69,973 | 69,986 | 77,785 | 78,546 |
| TOTAL | 246,881 | 188,388 | 196,807 | 189,684 | 187,143 | 201,781 |

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

Table 3.4.12. Average monthly distribution of headboat angler days in the South Atlantic, by state, 2007-2011.

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Jan** | **Feb** | **Mar** | **Apr** | **May** | **Jun** | **Jul** | **Aug** | **Sep** | **Oct** | **Nov** | **Dec** |
| NC | 50 | 45 | 352 | 1,287 | 2,445 | 4,266 | 4,661 | 3,807 | 1,828 | 1,833 | 398 | 23 |
| SC | 67 | 200 | 1,295 | 3,463 | 4,376 | 10,023 | 12,617 | 8,879 | 3,190 | 2,597 | 836 | 163 |
| GA/NEFL | 2,165 | 2,959 | 4,936 | 5,918 | 5,458 | 8,497 | 8,470 | 5,551 | 2,797 | 2,627 | 2,179 | 2,976 |
| SEFL | 6,105 | 8,453 | 8,779 | 8,330 | 6,715 | 8,090 | 8,910 | 5,618 | 3,728 | 2,655 | 4,167 | 6,235 |
| TOTAL | 8,387 | 11,657 | 15,363 | 18,997 | 18,993 | 30,876 | 34,658 | 23,854 | 11,542 | 9,713 | 7,579 | 9,398 |

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

### 3.4.2.3 Permits

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 2007-2012 is provided in **Table 3.4.13**. 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 permits issued for the South Atlantic snapper grouper fishery decreased from 2,026 permits in 2007 to 1,797 permits in 2012. It was only in 2009 and 2012 that for-hire snapper grouper permits increased during this period. 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 homeported in states outside of SAFMC’s area of jurisdiction, particularly in the Gulf states of Alabama through Texas. Although the number of vessels with South Atlantic for-hire snapper-grouper permits homeported in states outside of SAFMC’s area of jurisdiction increased from 2007 to 2011, they still account for approximately the same proportion (9-11%) of the total number of permits.

Table 3.4.13. Number of South Atlantic for-hire snapper-grouper vessel permits, 2007-2012.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Home Port State** | **2007** | **2008** | **2009** | **2010** | **2011** | **2012** | **Avg.** |
| North Carolina | 353 | 338 | 349 | 331 | 330 | 312 | 340 |
| South Carolina | 152 | 139 | 146 | 145 | 132 | 138 | 143 |
| Georgia | 37 | 26 | 30 | 27 | 26 | 26 | 29 |
| Florida | 1,312 | 1,121 | 1,131 | 1,109 | 1,099 | 1122 | 1,154 |
| Gulf States (AL-TX) | 79 | 76 | 83 | 86 | 91 | 93 | 83 |
| Other States | 93 | 105 | 113 | 114 | 103 | 106 | 106 |
| **Total** | 2,026 | 1,805 | 1,852 | 1,812 | 1,781 | 1,797 | 1,855 |

Source: NMFS SERO Permits Data Base.

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 2013, the estimated number of headboats supplying for-hire services in all South Atlantic fisheries had fallen to 75, indicating a decrease in fleet size of approximately 22% between 1997 and 2010 (K. Brennan, Beaufort Laboratory, SEFSC, personal communication, 2013).

According to the Southeast Regional Office Website, the Constituency Services Branch (Permits) unofficially listed 1,462 current holders of South Atlantic for-hire snapper grouper permits as of January 22, 2013. 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.

### 3.4.2.4 Economic Values and For-Hire Vessel Financials

Participation, effort, and harvest are indicators of the value of saltwater recreational fishing. However, a more specific indicator of value is the satisfaction that anglers experience over and above their costs of fishing. The monetary value of this satisfaction is referred to as consumer surplus. 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 ((David Carter, NMFS SEFSC, personal communication, August 2010) developed estimates of consumer surplus per angler trip. These estimates were culled from various studies – Haab et al. (2009), Dumas et al. (2009), and NOAA SEFSC SSRG (2009). The values/ranges of consumer surplus estimates are (in 2009 dollars) $112 to $128 for red snapper, $123 to $128 for grouper, $11 for other snappers, and $80 for snapper grouper. Haab et al. (2009) also estimated consumer surplus for snapper in general to range from $9 to $25 (2000 dollars) for one additional fish caught and kept. This latter number would be more relevant for purposes of the current amendment.

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 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 (David Carter, 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 (2009 dollars) on representative charter trips (average charter trip regardless of area fished) are $146 for Louisiana through east Florida, $135 for east Florida, $156 for northeast Florida, and $128 for North Carolina. For charter trips into the EEZ only, net operating revenues are $141 in east Florida and $148 in northeast Florida. For full-day and overnight trips only, net operating revenues are estimated to be $155-$160 in North Carolina. Comparable estimates are not available for Georgia, South Carolina, or Texas.

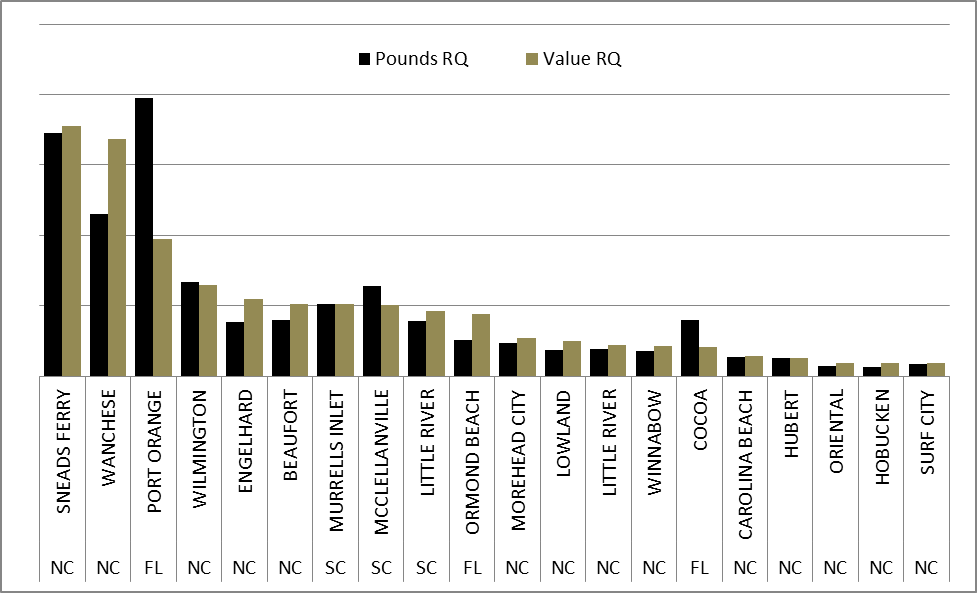
Net operating revenues per angler trip are lower for headboats than for charter boats. Net operating revenue estimates for a representative headboat trip are $48 in the Gulf of Mexico (all states and all of Florida), and $63-$68 in North Carolina. For full-day and overnight headboat trips, net operating revenues are estimated to be $74-$77 in North Carolina. Comparable estimates are not available for Georgia and South Carolina.

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 $168.14 to $251.59 for a full-day trip and from $93.63 to $123.95 for a half-day trip; headboat fees ranged from $72.50 to $81.78 for a full-day trip and from $38.08 to $45 for a half-day trip. Charter boats generated a total of $55.7 million in passenger fees, $3.2 million in other vessel income (e.g., food and beverages), and $4.8 million in tips. The corresponding figures for headboats were $9.8 million in passenger fees, $0.2 million in other vessel income, and $0.9 million in tips. Non-labor expenditures (e.g., boat insurance, dockage fees, bait, ice, fuel) amounted to $43.6 million for charter boats and $5.3 million for headboats. Summing across vessel lengths and regions, charter vessels had an aggregate value (depreciated) of $120.4 million and headboats had an aggregate value (depreciated) of $10.2 million.

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 (2011 dollars) for charter boats are estimated to be $126,032 for Florida vessels, $53,443 for Georgia vessels, $100,823 for South Carolina vessels, and $101,959 for North Carolina vessels. For headboats, the corresponding estimates are $209,507 for Florida vessels and $153,848 for vessels in the other states.

### 3.4.3 Social and Cultural Environment

More detailed descriptions of the social environment for the snapper grouper fishery and specifically black sea bass fishery appear in the Comprehensive ACL Amendment (SAFMC 2011c) and Amendment 18A (SAFMC 2012a). Communities with substantial commercial landings of snapper grouper species are identified in the Comprehensive ACL Amendment with demographic descriptions for those communities. **Figure 3.4.1** below provides a portrayal of black sea bass regional quotient landings and value of commercial landings for South Atlantic communities during 2011. A regional quotient is the amount of local commercial landings and/or value divided by the total landings and value for the region. For this analysis, total landings for Florida Keys communities were included as we are unable to disaggregate landings at the community level to Gulf or Atlantic at this time. Actual percentages for lbs and value regional quotients are not reported to maintain confidentiality, but **Figure 3.4.1** still provides a glimpse of the proportion of black sea bass that is landed by the top twenty commercial fishing communities.



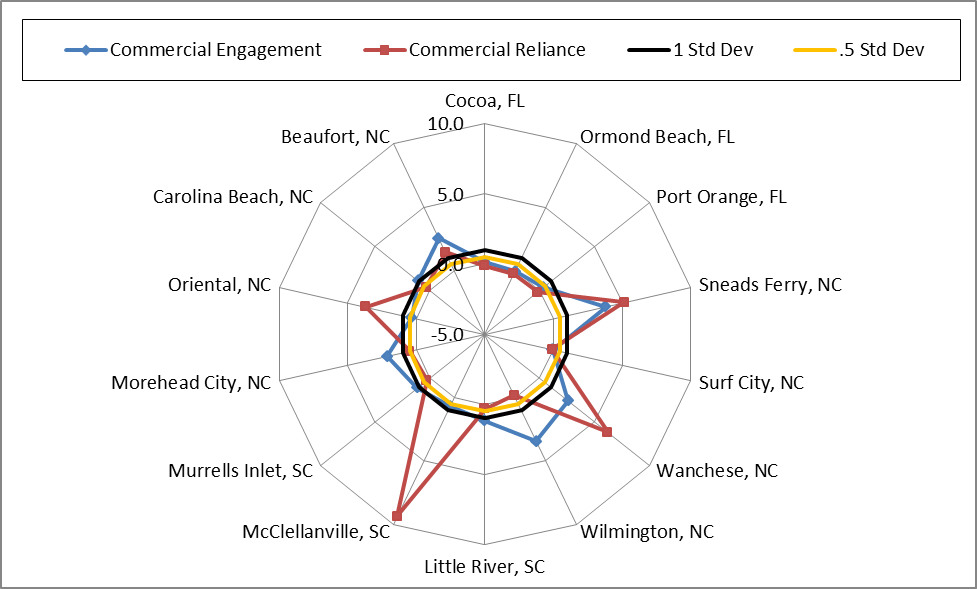
**Figure 3.4.1.** Top twenty black sea bass commercial fishing communities by regional quotient (lbs and value) for 2011.

Source: SERO ALS 2011.

To better understand how South Atlantic black sea bass communities are engaged and reliant on fishing, indices were created using secondary data from permit and landings information for the commercial sector and permit information for the recreational sector (Colburn and Jepson 2012; Jacob et al. 2012). 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 twenty communities in **Figure 3.4.1**, factor scores of both engagement and reliance for both commercial and recreational fishing were plotted onto radar graphs. Each community’s factor score is located on the axis radiating out from the center of the graph to its name. Factor scores are connected by colored lines and are standardized, therefore the mean is zero. Two thresholds of one and ½ standard deviations 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.

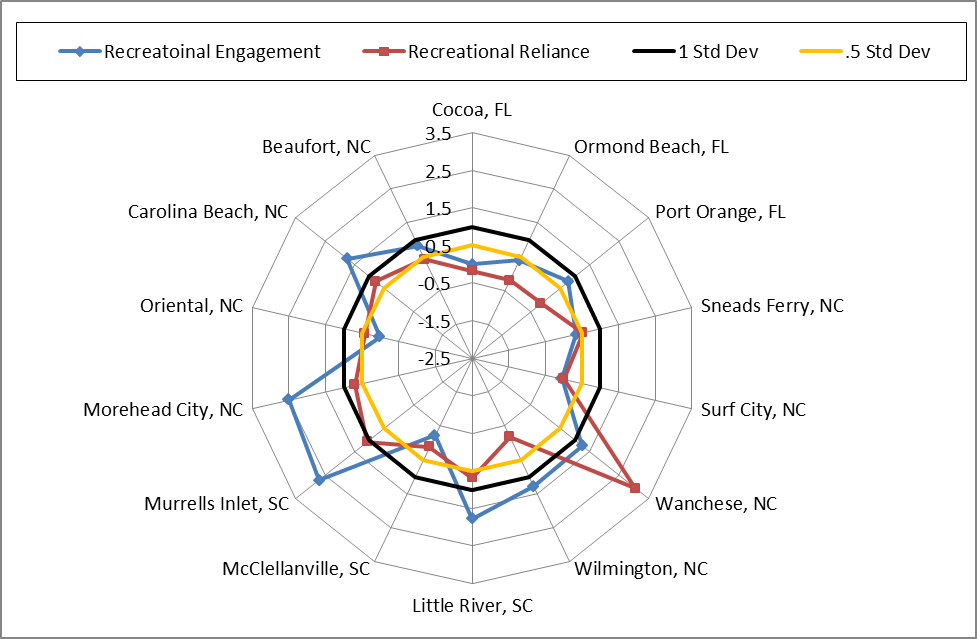
In **Figure 3.4.2**, several communities have factor scores that exceed ½ standard deviation above the mean for commercial engagement and reliance. The communities of McClellanville, SC; Murrells Inlet, SC; Little River, SC; Wilmington, NC; Wanchese, NC; Sneads Ferry, NC; Beaufort, NC; Oriental, NC; and Morehead City, NC all exceed the threshold of ½ standard deviation above the mean for commercial fishing engagement or reliance. McClellanville SC, Wanchese NC, and Sneads Ferry NC, are the most prominent black sea bass communities in terms of reliance and engagement in commercial fishing.



**Figure 3.4.2**. Commercial engagement and reliance for fourteen black sea bass fishing communities.

Source: SERO Social Indicators Database 2013.

Although the fifteen communities selected above in **Figure 3.4.2** are those with the most commercial landings, because we have few data that allows us to demonstrate where most black sea bass recreational landings occur, we are assuming that they would likely be the same communities where the most commercial landings are. By plotting the recreational engagement and reliance factor scores in **Figure 3.4.3** it becomes evident that four communities show tendencies toward being engaged in recreational fisheries with one being reliant. The communities of Little River, SC; Murrells Inlet, SC; Morehead City, NC; and Carolina Beach, NC, are all engaged in recreational fishing for black sea bass. The community of Wanchese, NC, is also reliant.



**Figure 3.4.3**. Recreational engagement and reliance for fourteen black sea bass fishing communities.

Source: SERO Social Indicators Database 2013

In summary, the communities of Sneads Ferry, NC; McClellanville, SC; Murrells Inlet, SC; Oriental NC; and Wanchese NC, are all reliant and engaged in either commercial or recreational fishing and therefore would be communities that might be affected by significant changes in regulatory policy, whether positive or negative. Referring back to **Figure 4.3.1**, Port Orange FL also shows a high level of commercial landings but while some individuals in the community may be affected by changes in regulations for black sea bass, the community overall would not be expected to experience impacts from proposed actions.

While we infer much of our discussion about social demographic change and other factors affecting the selected communities from previous amendments, recent demographic data has been analyzed and is included in the Environmental Justice discussion below.

### 3.4.4 Environmental Justice

Executive Order 12898 requires federal agencies conduct their programs, policies, and activities in a manner to ensure individuals or populations are not excluded from participation in, or denied the benefits of, or subjected to discrimination because of their race, color, or national origin. In addition, and specifically with respect to subsistence consumption of fish and wildlife, federal agencies are required to collect, maintain, and analyze information on the consumption patterns of populations who principally rely on fish and/or wildlife for subsistence. This executive order is generally referred to as environmental justice (EJ).

Information on the communities selected above was examined to identify the potential for EJ concern. Specifically, the rates of minority populations and the percentage of the population below the poverty line. The threshold for comparison is 1.2 times the state average such that, if the value for a community was greater than or equal to 1.2 times the state average, then the community was considered an area of potential EJ concern.

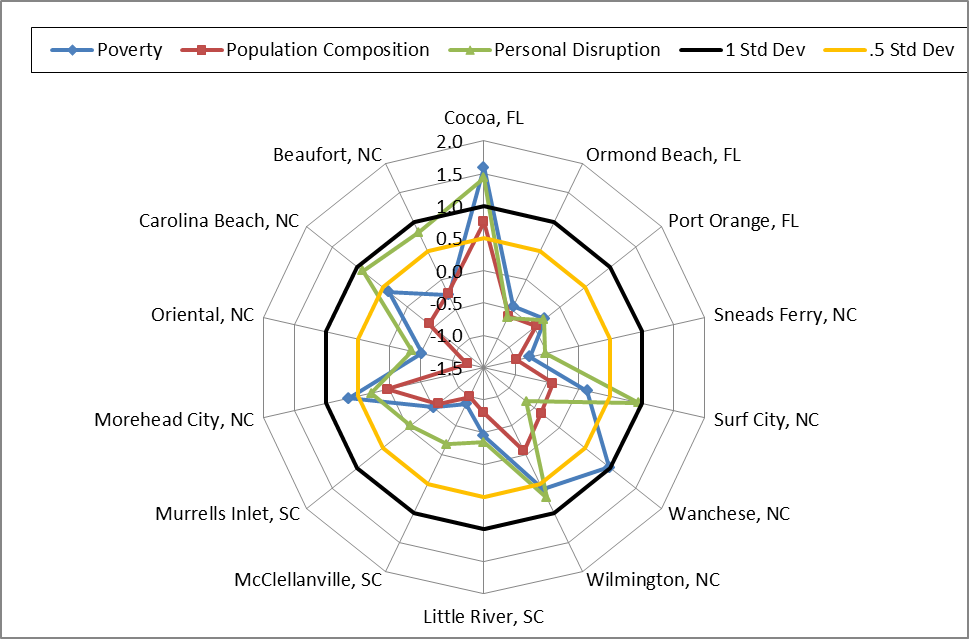
In order to identify the potential for EJ concern, the rates of minority populations (non-white, including Hispanic) and the percentage of the population that was below the poverty line were examined. The threshold for comparison that was used was 1.2 times the state average for minority population rate and percentage of the population below the poverty line. If the value for the community or county was greater than or equal to 1.2 times the state average, then the community or county was considered an area of potential EJ concern. Census data for the year 2000 were used. Estimates of the state minority and poverty rates, associated thresholds, and community rates are provided in **Table 3.4.14.**

Among the communities examined, based on available demographic information, there are no EJ concerns. As noted above, however, there may be additional communities beyond those profiled that could be affected by the actions in this proposed amendment. Because these communities have not been profiled, the absence of additional potential EJ concerns cannot be assumed and the total number of communities that exceed the thresholds is unknown.

Table 3.4.14. 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** | **Minority** | **Poverty** | **Poverty** |
| --- | --- | --- | --- | --- | --- |
|  |  | **Rate** | **Threshold\*** | **Rate** | **Threshold\*** |
| **Florida** |  | **47.4** | **56.88** | **13.18** | **15.81** |
|  | Broward | 52.0 | -4.6 | 11.7 | 4.11 |
| Miami-Dade | 81.9 | -34.5 | 16.9 | -1.09 |
| Orange County | 50.3 | -2.9 | 12.7 | 3.11 |
| Osceola | 54.1 | -6.7 | 13.3 | 2.51 |
| **Georgia** |  | **50.0** | **60.0** | **15.0** | **18.0** |
|  | Liberty | 53.2 | -3.2 | 17.5 | 0.5 |
| **South Carolina** |  | **41.9** | **50.28** | **15.82** | **18.98** |
|  | Colleton | 44.4 | -2.5 | 21.4 | -2.42 |
|  | Georgetown | 37.6 | 4.3 | 19.3 | -0.32 |
|  | Hampton | 59.0 | -17.1 | 20.2 | -1.22 |
|  | Jasper | 61.8 | -19.9 | 9.9 | -0.92 |
| **North Carolina** |  | **39.1** | **46.92** | **15.07** | **18.08** |
|  | Bertie | 64.6 | -25.50 | 22.5 | -4.42 |
| Chowan | 39.2 | -0.1 | 18.6 | -0.52 |
| Gates | 38.8 | 0.3 | 18.3 | -0.22 |
| Hertford | 65.3 | -26.2 | 23.5 | -5.42 |
| Hyde | 44.5 | -5.4 | 16.2 | 1.88 |
| Martin | 48.4 | -9.3 | 23.9 | -5.82 |
| Pasquotank | 43.4 | -4.3 | 16.3 | 1.78 |
| Perquimans | 27.7 | 11.4 | 18.6 | -0.52 |
| Tyrrell | 43.3 | -4.2 | 19.9 | -1.82 |
| Washington | 54.7 | -15.6 | 25.8 | -7.72 |
| \*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. | | | | | |

Another type of analysis uses a suite of indices created to examine the social vulnerability of coastal communities and is depicted in **Figure 3.4.4**. 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 only community that exceeds the threshold for all three indices is Cocoa, FL. Morehead City, NC and Cape Canaveral, FL have one index over the threshold, while Jacksonville, FL and Charleston, SC have all three indices very close to the first threshold of ½ standard deviation. The community of Townsend, GA is not included in the graph because there are no census data for the community under the present American Community Survey.



**Figure 3.4.4**. Social vulnerability indices for fourteen black sea bass fishing communities.

Source: SERO Social Indicators Database 2013

Although we have information concerning the community’s overall status with regard to minorities and poverty, we do not have such information for fishermen themselves. Therefore, we can only place our fishing activity within the community as a proxy for understanding the role that minorities and poverty have in the vulnerability of those being affected by regulatory change. While subsistence fishing is also an activity that can be affected by regulatory change, we have very little, if any, data on this activity at this time. We assume that the effects to other sectors will be similar to those that affect subsistence fishermen who may rely on black sea bass. Because black sea bass is a reef species, and likely would require a vessel to fish, there may be few if any subsistence fishermen who rely on this species, however, crew and some recreational fishermen may use this species as a source of food and subsistence.

However, while some 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.

Black sea bass is an important commercial and recreational fishery throughout the South Atlantic region. The actions in this proposed amendment are expected to incur social and economic benefits to users and communities by implementing management measures that would contribute to rebuilding the black sea bass stock and to maintaining the commercial and recreational sectors of the fishery. The overall long-term benefits of rebuilding the black sea bass stock is expected to contribute to the social and economic health of South Atlantic communities.

Finally, the general participatory process used in the development of fishery management measures (e.g., scoping meetings, public hearings, and open South Atlantic Council meetings) 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. Specifically for the black sea bass fishery, public input has been considered.

## **3.5 Administrative Environment**

### **3.5.1 The Fishery Management Process and Applicable Laws**

### **3.5.1.1 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 nm from the seaward boundary of each of the coastal states, and authority over U.S. anadromous species and continental shelf resources that occur beyond the U.S. EEZ.

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

The 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 miles 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 matters, are open to the public. The South Atlantic Council uses its SSC to review the data and science being used in assessments and fishery management plans/amendments. In addition, the regulatory process is in accordance with the Administrative Procedure Act, in the form of “notice and comment” rulemaking.

### **3.5.1.2 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 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 at the South Atlantic Council level, but does not have voting authority at the South Atlantic Council level.

NMFS’s State-Federal Fisheries Division is responsible for building cooperative partnerships to strengthen marine fisheries management and conservation at the state, inter-regional, and national levels. This division implements and oversees the distribution of grants for two national (Inter-jurisdictional Fisheries Act and Anadromous Fish Conservation Act) and two regional (Atlantic Coastal Fisheries Cooperative Management Act and Atlantic Striped Bass Conservation Act) programs. Additionally, it works with the ASMFC to develop and implement cooperative State-Federal fisheries regulations.

### **3.5.1.3 Enforcement**

Both the NMFS 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.

Administrative monetary penalties and permit sanctions are issued pursuant to the guidance found in the Policy for the Assessment of Civil Administrative Penalties and Permit Sanctions for the NOAA Office of the General Counsel – Enforcement Section.  This Policy is published at the Enforcement Section’s website:  [http://www.gc.noaa.gov/enforce-office3.html](http://mail.safmc.net/exchweb/bin/redir.asp?URL=http://www.gc.noaa.gov/enforce-office3.html" \t "_blank).

# **Chapter 4. Environmental Consequences and Comparison of Alternatives**

***Alternatives1***

*(preferred alternatives in red)*

1. **No Action. Retain formulas and values.**

*ACL = ABC = OY*

*ACL/OY* = 847,000 lbs whole weight (ww) 718,000 lbs gutted weight (gw)

*Commercial ACL*=309,000 lbs gw

364,620 lbs ww

*Recreational ACL*=409,000 lbs gw

482,620 lbs ww

*Recreational ACT*=347,650 lbs gw

410,227 lbs ww

1. **Update values with current formulas, stock assessment results, and ABC recommendation. 2,3,4 The use of black sea bass pots is prohibited from November 1 through April 30.**

*ACL = ABC = OY*

*Total ACL*= *Commercial ACL*=

2,133,000 (2013) 917,190 (2013)

1,992,000 (2014) 856,560 (2014)

1,814,000 (2015) 780,020 (2015)

*Recreational ACL*= *Recreational ACT*=

1,215,810 (2013) 1,062,861 (2013)

1,135,440 (2014) 992,602 (2014)

1,033,980 (2015) 903,905 (2015)

1. **Update values with different ACL/OY formula and stock assessment results.2,4,5 The use of black sea bass pots is prohibited from November 1 through April 30.**

*ACL = OY = yield at 75%FMSY*

*ACL = OY =* 1,756,450

*Commercial ACL =* 755,274

*Recreational ACL =* 1,001,177

*Recreational ACT =* 875,229

1See Chapter 2 for a more detailed description of the alternatives.

2Values are pounds whole weight.

3Values in 2015 remain until modified.

4Values are landings only.

5Values in 2013 remain until modified.

## **4.1 Action 1:** Revise the Annual Catch Limits, Recreational Annual Catch Target, and Optimum Yield for Black Sea Bass

### 4.1.1 Biological Effects

**Alternative 1 (No Action)** would maintain the current harvest limit (the total annual catch limit (ACL)), which would cap total harvest at 847,000 pounds (lbs) whole weight (ww) until modified. Because **Alternative 1 (No Action)** would constrain harvest to a lower level than either **Preferred Alternative 2** or **Alternative 3**, the biological benefits under **Alternative 1 (No Action)** would be expected to be greater than under the other two alternatives. However, the 2013 stock assessment update indicates black sea bass is no longer undergoing overfishing, nor is the stock overfished. Further, the spawning stock biomass is above the spawning stock biomass at the maximum sustainable yield (MSY), therefore the stock is rebuilt. The South Atlantic Fishery Management Council’s (South Atlantic Council) Scientific and Statistical Committee (SSC) has recommended an increase in the acceptable biological catch (ABC), therefore, there is no biological need to constrain harvest a level lower than that determined to be appropriate by the SSC.

**Preferred Alternative 2** would adopt the projections at the 40% P\* level for 2013-2015 (**Table 4.1.1**) from the SEDAR 25 Update (2013) and use the OY=ABC=ACL formula adopted in Amendment 18A to the Snapper Grouper FMP. **Preferred Alternative 2** would set the ACL/OY equal to the ABC. The National Standard 1 guidelines indicate ACL may not exceed the ABC. This scenario is used for many other snapper grouper species but does not include a buffer to provide for management uncertainty; however scientific uncertainty has been considered when specifying ABC through the South Atlantic Council’s ABC control rule. Creating a buffer between the ACL/OY and ABC would provide greater assurance that overfishing is prevented and the long-term average biomass is near or above BMSY. The National Standard 1 guidelines state that setting a buffer between the ACL and ABC would be appropriate in situations where there is uncertainty about whether management measures are constraining fishing mortality to target levels. However, the South Atlantic Council’s SSC recommended ABC levels based on the approved ABC Control Rule and the South Atlantic Council would be adopting the SSC’s recommendations by selecting **Preferred Alternative 2**. In addition, the South Atlantic Council intends to maintain the existing regulations that apply to black sea bass pot gear during the November 1 through April 30 closure. Amendment 18A (SAFMC 2012a) implemented a prohibition on possession of black sea bass on a vessel with pot gear and required that all black sea bass pots be removed from the water once the commercial ACL was met or projected to be met. Hence the same restrictions would be applicable during the annual closure proposed in this amendment.

**Preferred Alternative 2** could have long-term, adverse impacts to the black sea bass stock and associated species as it could result in fishing mortality levels higher than sustainable levels for 2015 and beyond, which could result in biomass levels of the black sea bass stock below SSBMSY. **Preferred Alternative 2** would result in the greatest negative impacts to the biological environment among the proposed alternatives. The assessment update indicated the presence of one or two good year classes that resulted in projected yields for 2013-2014 that are above MSY. The ABCs decline over time because fishing activity would be removing the “excess” biomass and “fishing the stock down” to the level that can produce MSY. The 2015 ABC, based on landings only, is 1.814 million lbs ww and would be held constant beyond 2015 until modified. The 2015 ABC carries a risk of allowing overfishing and driving the stock back down below the SSBMSY.

Although the assessment update indicates the black sea bass stock is rebuilt, the assessment discusses sources of uncertainty that should be taken into account when using the assessment results to set catch limits: “These status indicators may be in qualitative agreement with management goals, but should be interpreted with two notes of caution. First, the MCB analysis indicated much uncertainty in the estimate of stock status. Second, the increasing trend for biomass is dependent on high recent recruitment estimates which take a downturn in the last two years of the assessment, and is not well supported by the age composition data.”

***Whole Weight vs. Gutted Weight***

Black sea bass are landed whole, and landings are recorded in whole weight (ww). The quota is specified in gutted weight (gw). Because all fish landed and sold were at one time whole and landings are recorded in whole weight, whole weight will be used as the unit of weight measurement for black sea bass throughout this document. Where appropriate, gutted weight (gw) and whole weight (ww) values will be given. The conversion factor to convert black sea bass poundage from ww to gw or vice versa is 1.18 (ww = gw \*1.18 and gw = ww/1.18).

**Alternative 3** would have a greater positive biological effect than **Preferred Alternative 2** because it would create a buffer between the ACL/OY and ABC that would account for management uncertainty. **Alternative 3** would result in the total ACL increasing to 1,756,450 lbs ww in 2013/14 onwards. The ACLs proposed under **Preferred Alternative 2** for 2013-2016 are all higher --from about 50,000 up to 375,000 pounds higher -- than the level proposed under **Alternative 3.**  Under **Preferred Alternative 2**, managers would be faced with declining yield for three years but the catch would not be allowed to reaches the equilibrium point, and overfishing could occur after 2015.

**Alternative 3** uses the equilibrium estimate of yield at 75% of FMSY to set ACL and OY. Stocks with this status are expected to vary around the target biomass levels, meaning that in some years, static yield would be more than equilibrium levels and in others, it would be less. Fishery managers could attempt to set ACLs based on the changing target biomass levels , but delays in data, analyses, and management action make such a strategy impractical. Using estimated equilibrium values as a catch limit, as in **Alternative 3**, is a risk averse approach that sacrifices some yield over the short-term to gain stability over the long-term.

In terms of bycatch, raising the current ACLs under **Preferred Alternative 2** and **Alternative 3** has the potential to reduce bycatch of black sea bass as the commercial and recreational seasons are expected to be extended. Bycatch of co-occurring species could increase if directed fishing effort for black sea bass increases, the black sea bass seasons are longer compared to recent years, and fishing seasons for co-occurring species are closed. However, there is not much bycatch associated with black sea bass pots (SAFMC 2011b), which dominates the commercial harvest of the species. In the recreational sector, fishermen are more opportunistic and often do not target any particular species. Therefore, an increase in the length of the fishing seasons for commercial and recreational black sea bass may not have much effect on increasing bycatch of co-occurring species. Furthermore, the South Atlantic Council has approved Regulatory Amendment 18 to the Snapper Grouper FMP, which would increase commercial and recreational ACLs for vermilion snapper. The increase in the ACLs for vermilion snapper, which is one of the top co-occurring species with black sea bass, is expected to extend the fishing seasons of vermilion snapper. In addition, Regulatory Amendment 18 would remove a 5-month recreational closure for vermilion snapper, which would further reduce bycatch of the species.

Table 4.1.1. Revised ABC, total ACL, sector ACLs, recreational ACT, and OY values based on SEDAR 25 Update (2013). Values are based on landed catch.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Fishing Year** | **ABC1** | **ABC1** | **Total ACL (landings only)** | **Comm ACL (43%)** | **Rec ACL (57%)** | **Rec ACT2** |
| **(landings + discards)** | **(landings only)** |
| 2013 | 2,258,000 | 2,133,000 | 2,133,000 | 917,190 | 1,215,810 | 1,062,861 |
| 2014 | 2,102,000 | 1,992,000 | 1,992,000 | 856,560 | 1,135,440 | 992,602 |
| 2015 | 1,921,000 | 1,814,000 | 1,814,000 | 780,020 | 1,033,980 | 903,905 |

|  |
| --- |
| 1 Using ABC provided by SSC. |
| 2 Using 2005-2009 Average PSE = 12.58 from Amendment 18A. |

The new ACL proposed under **Alternative 3** for 2013/14 onwards would continue as part of the accountability measures (AMs) specified in Amendment 18A (SAFMC 2012a) and the most recent year’s landings would be compared to the new ACL to determine if the recreational or commercial ACL has been exceeded.  The South Atlantic Council is considering a re-evaluation of all AMs in an upcoming amendment.

NOTE: The highlighted section below does not seem to fit in the bio effects discussion. Please provide feedback on whether to retain it or move it someplace else.

Commercial black sea bass landings exceeded the commercial ACL by 32% in 2010/11, 19% in 2011/12. In 2012/13, commercial landings were 4% below the commercial ACL (<http://sero.nmfs.noaa.gov/>). 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 NMFS Southeast Regional Office (SERO). Until the dealer amendment is implemented sometime later this year, the following procedure is in place:

* Permitted dealers are currently required to submit their landings electronically twice each month.
* Permitted dealers currently are required to report landing made from the 1st through the 15th of each month by close of business on the 20th of each month. They are required to report landings made on the 16th through the end of the month by close of business on the 5th of the following month. Some dealers submit landings throughout the reporting period and some submit after the end of the reporting period.
* Most dealers in the South Atlantic submit their landings electronically through Bluefin Data Inc and a small number of dealers submit their landings electronically through Atlantic Coastal Statistical Program’s (ACCSP) web site. Bluefin Data Inc submits dealer reports to Southeast Fisheries Science Center (SEFSC) on Mondays and Wednesdays. Because of Bluefin Data’s schedule for data delivery, if the 5th or the 20th falls on a Sunday or a Tuesday then there would be a 1 day lag in SEFSC receiving all of the landings reports submitted on time. If the 5th or 20th fall on a Thursday then there would be a 4 day delay in the SEFSC receiving all of the landings reports submitted on time. Landings submitted through the ACCSP’s web site are loaded nightly to the ACCSP data base. SEFSC loads data nightly from Bluefin Data and ACCSP. SEFSC generally transmits landings summaries to SERO two business days after the end of the reporting period, usually on the 7th and 22nd. If the end of the reporting period falls on a Thursday or Friday SEFSC may send SERO preliminary summaries using the landings reports submitted in the middle of the reporting period and follow that with a more complete report two business days later.
* With the new dealer reporting regulations, dealers will be required to report on a Tuesday and SEFSC would generally submit landings summaries to SERO on Thursdays.
* Quota monitoring landings are posted to the SERO website the same day they are received from the SEFSC.

Additionally, the SEFSC is working with SERO, the Gulf of Mexico Fishery Management Council and South Atlantic Council to develop a Joint Dealer Reporting Amendment, which was recently approved by both Councils. The Joint Dealer Reporting Amendment would increase required reporting frequency for dealers to once per week, and require a single dealer permit for all finfish dealers the Southeast Region. The CLM and the new dealer reporting requirements constitute major improvements to how commercial 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 Reporting amendment are expected to provide more timely and accurate data reporting and would thus reduce the incidence of quota overages.

Since the recreational ACL was implemented in 2010/11, recreational black sea bass landings have been above the recreational ACL (**Table 4.1.4**) by 3% in 2010/11, 44% in 2011/12, and 5% in 2012/13 although the last year is not complete; however, the magnitude of any additional landings should be small since the recreational sector was closed on September 4, 2012. Harvest monitoring efforts in the recreational sector are also in the process of being improved. In early 2013, a new headboat electronic reporting system came online and headboats may report their landings electronically rather than through paper logbooks. Additionally, the Gulf of Mexico Fishery Management Council (Gulf of Mexico Council) and South Atlantic Council are developing generic amendments that would require all headboats to report their landings using the new electronic reporting system, and increase the reporting frequency. The SEFSC is also developing an electronic reporting system for charter boats operating the Southeast Region. Once the charterboat reporting system is close to being finalized, the Gulf of Mexico and South Atlantic Councils would develop a joint amendment that would require electronic reporting for charterboats with a set reporting frequency. These recreational harvest-monitoring efforts could substantially increase the accuracy and timeliness of in-season reporting and reduce the risk of recreational ACL overages, which would be biologically beneficial for the black sea bass stock. Therefore, there is a low risk of exceeding the increased ACL and **Alternative 3** can be used as part of a successful harvest management system for black sea bass with little risk of overfishing.

Table 4.1.4. Recreational landings (lbs gw) of black sea bass relative to quotas and ACLs for 2007/08 through 2012/13 fishing years.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Year** | **Jun** | **Jul-Aug** | **Sept-Oct** | **Nov-Dec** | **Jan-Feb** | **Mar-Apr** | **May** | **Total Reported** | **2012-2013 ACL/Quota** | **ACL %** | **Closure Date** |
| 2012/13 | 241,096 | 166,076 | 13,722 | 8,014 |  |  |  | 428,908 | 409,000 | 105% | 9/4/2012 |
| 2011/12 | 161,375 | 230,045 | 72,429 | 1,213 | 12,580 | 12,990 | 91 | 490,723 | 341,747 | 144% | 10/17/2011 |
| 2010/11 | 99,360 | 123,839 | 144,972 | 54,799 |  |  |  | 422,970 | 409,000 | 103% | 2/12/11 |

Source: NMFS SERO website, 3/29/13.

IPT – IS THIS TABLE ACCURATE WITH THE ACL DATABASE FOR EARLIER YEARS OR DO WE NEED TO ADD ANOTHER TALBE LIKE FOR COMMERCIAL?

The timing of closures of the vermilion snapper commercial fishing season could also affect when the black sea bass commercial ACL is met. The first vermilion snapper commercial season will be closed when commercial fishing for black sea bass with pots re-opens on June 1, 2013, and the second vermilion snapper season does not open until July 1, 2013. Regulatory Amendment 18 (SAFMC 2013) proposes to increase the commercial ACL for vermilion snapper but it is possible the second season of 2013 will close before Regulatory Amendment 18 is implemented, resulting in more effort directed towards black sea bass. Vessels that targeted vermilion snapper last year may be more likely to target black sea bass during June 2013, until fishing for vermilion snapper opens on July 1, 2013. If the vermilion snapper commercial ACL is met in early fall 2013, it is likely that some fishermen would return to targeting black sea bass. It is expected that the vessels with black sea bass pot endorsements that did not fish last year will fish this year. Also, additional hook-and-line effort is expected prior to the vermilion snapper season opening.

**Alternative 1 (No Action)** is likely to be the most beneficial to ESA-listed species. Under the status quo ACL, the black sea bass pot season is anticipated to be open for shortest period and would not be open during large whale migrations and right whale calving season (November 1-April 30). **Alternative 1 (No Action)** is also likely to have great biological benefit to sea turtles, smalltooth sawfish, and Atlantic sturgeon. While entanglements of these species in black sea bass pot gear is not expected, the short season anticipated under this alternative would reduce the amount of time trap/pot gear is the water, minimizing the potential for interactions with these species.

**Preferred Alternative 2** and **Alternative 3** are also unlikely to have any effect on large whales because both include a provision to close the black sea bass trap/pot fishery during the time of year when those species are anticipated in the South Atlantic. Relative to **Alternative 1 (No Action)**, **Preferred Alternative 2** and **Alternative 3** are likely to be slightly less biologically beneficial to sea turtles, smalltooth sawfish, and Atlantic sturgeon. Based on the projected closure dates using the approaches in **Table 4.1.2** and **Table 4.1.3**, the two alternatives would allow black sea bass trap/pot gear to remain in the water slightly longer than **Alternative 1 (No Action)**. However, since interactions between black sea bass pot/gear and sea turtles, smalltooth sawfish, and Atlantic sturgeon are not anticipated, these alternatives would likely have very similar biological benefits for these species and may have only marginally less biological benefit than **Alternative 1 (No Action)**.

Further, the South Atlantic Council,through Amendment 18A (SAFMC 2012a), implemented new regulations for the 2012/13 fishing year:

* Pot endorsement limited participation to 32 vessels
* Pot limit of 35 pots per vessel
* Pots must be brought back to shore after each trip
* Commercial trip limit of 1,000 lbs gw
* Increased commercial size limit from 10 inches (”) total length (TL) to 11” TL
* Increased recreational size limit from 12” to 13” TL

For the 2012/13 commercial black sea bass fishing season, the start date of the fishing year was changed from June 1 to July 1 to allow the black sea bass pot endorsement program to be effective. As a result, it is difficult to estimate when the increased commercial ACLs would be met based on commercial data from the 2012/2013 fishing year. Using the commercial catches from **Table 4.1.2** for the 2012/13 fishing year, the catch per day was 3,504 lbs ww. If the catch rate in 2013/14 and future years were the same, the commercial fishing season would extend to January 2014 and if the catch rate increased by 25%, the commercial fishing season would extend to December 2013 (**Table 4.1.2)**. Both of these scenarios could affect large whales if pots were fished during that period of time. However, **Preferred Alternative 2** and **Alternative 3** would not allow pots to be in the water from November 1 through April 30. The stock assessment shows an increased abundance of black sea bass, which could reflect a higher catch per unit effort (CPUE) in the commercial sector. If there was a 50% increase in catch rate due to higher CPUE, the commercial season would close sometime in late October, and prior to the large whale migration and right whale calving season.

Table 4.1.2. Projected closure of the commercial sector, including black sea bass pots, under the commercial ACL proposed under Alternative 3 using catch per day rates from the 2012/2013 fishing season.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Catch Rates** | **Comm ACL** | **Catch/day** | **#Days** | **Close** |
| Last season | 755,274 | 3,504 | 216 | 01/02/14 |
| Last + 25% | 755,274 | 4,380 | 172 | 12/19/13 |
| Last + 50% | 755,274 | 5,256 | 144 | 10/22/13 |
| Last + 75% | 755,274 | 6,132 | 123 | 10/01/13 |
| Last + 75% | 755,274 | 7,008 | 108 | 09/16/13 |

Projected dates for the closure of the commercial sector were also estimated using four additional methodologies (**Table 4.1.3**). The first used only 2012 data. The second used 2011 data excluding non-qualified participants, reducing the trap number to 35, and computing the catch using the trap catch-rate for each trip. The third was used a Seasonal Autoregressive Integrated Moving Average Model (SARIMA). The SARIMA model uses historical monthly landings and projected changes in exploitable abundance to predict future monthly landings). The fourth was based on regressing in-season catch rates for the past few years. Twenty-four potential seasonal closure dates were estimated across the four methodologies; 18 indicated the commercial fishing season would extend into the large whale migration and right whale calving season (November 1-April 30), 6 indicated it would close prior to that period.

Table 4.1.3 The predicted closure dates of the commercial black sea bass fishery with an increase in ACL and without a November 1 through April 30 closure of the black sea bass pot fishery.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Projected Closure Dates** | | | | | | | | |
|  |  |  | **Using 2012 Catch** | **Using 2011 Catch** | **Using In-Season Projection** | **SARIMA Projection** | | |
|  |  | **ACL**  **(lbs ww)** | **L95%** | **Mean** | **U95%** |
| Preferred Alternative 2 | 2013 | 917,190 | 03/22/14 | 01/22/14 | 11/30/13 | 12/22/13 | 11/23/13 | 10/30/13 |
| 2014 | 856,560 | 03/02/14 | 01/06/14 | 11/18/13 | 12/12/13 | 11/13/13 | 10/21/13 |
| 2015 and beyond | 780,020 | 02/04/14 | 12/16/13 | 11/02/13 | 11/30/13 | 11/01/13 | 10/10/13 |
| Alternative 3 | 2013 and beyond | 755,274 | 01/26/14 | 12/09/13 | 10/28/13 | 11/25/13 | 10/28/13 | 10/06/13 |

Source: NMFS SERO

### 4.1.2 Economic Effects

Commercial

Under **Alternative 1 (No Action)**, the commercial sector is allocated 309,000 pounds gw (364,620 pounds ww). In 2011, ex-vessel revenues totaled $973,333 based on trip ticket data. However, the fishery experienced an overage in that year. Under **Alternative 1 (No Action)**, the commercial sector is not expected to experience any change in economic benefits.

**Preferred Alternative 2** indicates commercial sector allocations of decreasing amounts for 2013-2015. In 2013, 777,280 pounds gw (917,190 pounds ww) would be allocated to the commercial sector. In 2014, 725,898 pounds gw (856,560 pounds ww) would be allocated and 661,034 pounds gw (780,020 pounds ww) would be allocated in 2015 (see **Table 4.1.1**). The result is an increase in the commercial sector ACL of 468,280 pounds gw in 2013, 416,898 pounds gw in 2014, and 352,034 pounds gw in 2015 compared to **Alternative 1 (No Action)**. This results in an ex-vessel revenue increase of over $1 million in 2013, over $950,000 in 2014, and over $800,000 in 2015 using average 2007-2011 ex-vessel prices in real 2011 dollars (see **Table 4.1.4**). These ex-vessel revenue increases are large compared to the average ex-vessel revenue of $1,000,000 that is recorded each year (2007-2011) based on all species taken on trips landing at least one pound of black sea bass.

Under **Preferred Alternative 2**, black sea bass pot gear users would be subject to a closure from November 1 through April 30 each year. Black sea bass pots typically take about 90% of the commercial landings in the black sea bass fishery while fixed gear users take the remaining 10%. Projections indicate that for all years 2013-2015, if the closure had not been imposed, the season would last until just past the first of November for 2013 and 2014. With the pot closure, the black sea bass season (using vertical lines) is expected to last until the beginning of April in 2013. Likewise, in 2014, the season is expected to continue until the end of January 2015. And, in 2015, the season would continue until the beginning of November 2015 (**Table 4.1.4**). **Preferred** **Alternative 2** benefits vertical line gear users.

Table 4.1.4. Economic effects of commercial sector allocation 2013-2015 under Preferred Alternative 2 and Alternative 3.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Year** | **Commercial sector allocation (gw)** | **Increase over current allocation (gw)** | **Ex-vessel revenue increase over current allocation (2011 dollars)** | **Season end projection if closure were not imposed** | **Season end for vertical line with closure for pots** |
| **Preferred Alternative 2** | | | | | |
| 2013 | 777,280 | 468,280 | $1,081,726 | 11/23/13 | 4/6/14 |
| 2014 | 725,898 | 416,898 | $963,034 | 11/13/14 | 1/31/15 |
| 2015 | 661,034 | 352,034 | $813,199 | 11/1/15 | 11/7/15 |
| **Alternative 3** | | | | | |
| All | 640,062 | 331,062 | $764,753 | 10/28/13 | 10/28/13 |

While the potential economic benefits under **Preferred Alternative 2** are relatively large compared to the benefits under the current commercial sector allocation, it is somewhat unknown at this time if the poundage increase over the current allocation will all be landed. Implementation of Amendment 18A (SAFMC 2012a) decreased the number of participants and pots allowed in the black sea bass pot fishery. These decreases in effort could result in decreased landings compared to the current commercial sector ACL. Without the November 1 closure, the fishery is expected to close various times in November of each year anyway. With the November 1 closure, the vertical line season is expected to extend for some months in 2013 and 2014 and for an additional week in 2015 (**Table 4.1.4**). These predictions account for the potential for decreased effort due to Amendment 18A.

As stated above under the biological section, an increase in catch per unit effort (CPUE) is possible and may make up for any decreased effort that might occur as the result of Amendment 18A. An increase in vertical line gear participation by fishermen from other fisheries throughout the black sea bass season and by black sea bass pot endorsement holders after November 1 is also possible and may boost landings as well. These two occurrences will likely result in increased landings and revenues for the fishery over **Alternative 1 (No Action)**, however, the magnitude of the increase is somewhat unknown. Columns 3 and 4 in Table X show the potential increase in revenues that are possible. In general, **Preferred Alternative 2** offers greater economic benefits than **Alternative 1** **(No Action)** with the fixed gear sector benefitting most from the November 1 to April 30 closure, especially in 2013 and 2014.

**Alternative 3** indicates a commercial sector allocation of 640,062 pounds gw (755,274 pounds ww). The result is an increase in the commercial sector ACL of 331,062 pounds gw (see **Table 4.1.1**). Under **Alternative 3**, the black sea bass pot fishery would also be subject to a closure from November 1 through April 30 each year. Projections indicate that whether the closure for pots is imposed or not, the season would close at the end of October. Compared to the scenario under **Alternative 1 (No Action)**, an additional 331,062 pounds gw will be allocated, potentially amounting to an approximate increase in ex-vessel revenue of a little over $750,000 (using average ex-vessel prices 2007-2011 in real 2011 dollars). This does not account for additional species landed during those same trips.

Under **Alternative 3**, the commercial fishery has the potential to land the entire commercial ACL, even without the November 1 to April 30 closure. However, as stated above, the decrease in participation as a result of Amendment 18A (SAFMC 2012a) may prohibit the fishery from landing the entire commercial ACL. However, this factor has been calculated into the closure projections. An increase in the CPUE and vertical line participation could make up for some of the possible decrease in effort in the black sea bass pot fishery.

Both **Preferred Alternative 2 and Alternative 3** provide potential economic benefits over **Alternative 1 (No Action)** with **Preferred Alternative 2** providing the greatest economic benefits. The vertical sector will benefit more that the black sea bass pot fishery under **Preferred Alternative 2** due to an extended season. The magnitude of the economic benefits for each sector under **Preferred Alternative 2** will depend on how much of the commercial ACLs indicated can be landed given the expected decrease in black sea bass pot gear effort.

**Recreational**

The procedure for calculating the economic effects of the alternatives for the ACL changes on the recreational sector involves estimating the expected changes in consumer surplus (CS) to anglers and net operating revenues (NOR) to for-hire vessels. CS is the amount of money that an angler would be willing-to-pay for a fishing trip over and above the cost of the trip. In the present case, CS changes could come from changes in expected recreational catches. NOR is total revenue less operating costs, such as fuel, ice, bait, and other supplies. In the present analysis, NOR changes arise only when changes in angler trips occur. This general methodology is the same approach used in evaluating the economic effects of regulatory actions on the recreational sector as in previous amendments (see for example Amendment 17A, Regulatory Amendment 9, and Regulatory Amendment 18).

The key parameters used in estimating CS changes are the number of fish under each ACL alternative, including the No Action alternative, and CS per fish. The pounds of fish under each ACL alternative converted to number of fish using average weight per fish. The 2007-2012 average weight of black sea bass is 1.36 pounds per fish, based on SEDAR 25 Update (2013). Although there have been variations in weight of black sea bass caught by headboats and other recreational fishing modes, the average weight for 2007-2012 turned out to be identical for all fishing modes. The CS per fish used, after adjusting for inflation, is $32 (2011 dollars) based on a study by Haab et al. (2009).

The alternatives considered for the recreational ACL changes would increase the number of fish that could be caught by recreational anglers. Since the recreational ACL was implemented in 2010/11, the recreational sector has experienced fishing closures that resulted in shorter seasons every year. It is expected that any of the alternatives to increase the recreational ACL would still result in fishing closures. Therefore, for purposes of estimating CS changes, all recreationally available fish under each alternative ACL are assumed to be caught, with CS assigned to each fish. A closely related assumption made for the current analysis is that no recreational overages would occur given that monitoring of recreational harvest has improved over the years.

This procedure in estimating the CS changes relies on several assumptions, in addition to the ones already pointed out above. The CS used, based on Haab et al. (2009), pertains to the net benefit (willingness to pay) an angler derives from an addition snapper caught and kept on a fishing trip. The study did not have an estimate of willingness to pay specific to black sea bass, but the estimate for snapper in general is deemed to be the nearest approximation for black sea bass. There is a good possibility that, on average, black sea bass may be valued higher than some snapper grouper species and lower than others. Also, this CS value is assumed to be uniform across all fishing sectors, areas, and harvest levels. However, this may not necessarily be the case. Headboat anglers may value a species differently, on average, than private and charter boat anglers. The direction and magnitude of such differences are unknown, though the higher cost of fishing to charter boat anglers suggests the CS to headboat anglers would be less than that to charter boat anglers. It is also possible that CS values vary across geographic areas. No adjustments for these possibilities are introduced in the current analysis. It should also be noted that using an average recreational value per fish would not take into account diminishing returns exhibited in most recreational activities when the volume of the activity increases. This could lead to overestimation of CS effects. The ACL under each alternative is distributed among the various fishing modes based on the average proportion of black sea bass harvest by each fishing mode for fishing years 2007/08 through 2011/2012. Given that the CS per fish is assumed constant across fishing modes, this distribution of harvest would mainly provide some insights into the potential distribution of the economic effects of each ACL alternative. For each alternative, the change in CS is calculated using the ACL under the No Action alternative as the baseline.

Changes in CS under each recreational ACL alternatives for black sea bass are calculated relative to the ACL of the No Action alternative. **Preferred** **Alternative 2** would set ACLs for 2013, 2014, and 2015, with the 2015 ACL maintained for years thereafter. **Alternative 3** would set the same ACL for 2013 and years thereafter. The ACLs set in these two alternatives are higher than the ACL under the No Action alternative. For purposes of this analysis, only the first three years are considered.

As expected, harvests and CS under **Preferred Alternative 2** and **Alternative 3** would be higher than those in **Alternative 1 (No Action)**. The net present value of CS changes over three years would range from about $40 million to $43 million depending on the discount rate (**Table 4.1.5**). Under **Preferred Alternative 2** or **Alternative 3**, private/rental anglers would be expected to gain more CS than the combined CS of the other fishing mode anglers. Headboat anglers would receive the second highest CS increase, followed by the charter and shore anglers. This distribution of CS increases is solely driven by the relative landings of each fishing mode. CS increases under **Preferred Alternative 2** would be substantially higher than those under **Alternative 3**, mainly because **Preferred Alternative 2** would provide for higher ACLs than **Alternative 3** over the three-year period.

Anglers in Florida would receive the largest CS increases under **Preferred Alternative 2** or **Alternative 3** (**Table 4.1.5**). This is followed by anglers in South Carolina, North Carolina, and Georgia. As with the CS effects by fishing mode, the distribution of CS increases by state is solely a result of the relative harvest of black sea bass in each state.

Table 4.1.5. Harvest and net present value of changes in CS under Preferred Alternative 2 and Alternative 3 relative to Alternative 1 (No Action) over 2013, 2014, and 2015, by fishing mode.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fishing**  **Mode** | **Three-year Sum of Harvest**  **(1,000)** | | **Net Present Value of CS Over Three Years**  **($1,000 in 2011 dollars)** | | |
| **Pounds WW** | **Fish** | **7%** | **5%** | **3%** |
| **Preferred Alternative 2** | | | | | |
| Charter | 497 | 365 | $5,892 | $6,103 | $6,328 |
| Headboat | 947 | 696 | $11,228 | $11,631 | $12,059 |
| Private/rental | 1,923 | 1,414 | $22,800 | $23,618 | $24,488 |
| Shore | 18 | 13 | $210 | $218 | $226 |
| TOTAL | 3,385 | 2,489 | $40,129 | $41,569 | $43,100 |
| **Alternative 3** | | | | | |
| Charter | 441 | 324 | $4,701 | $4,878 | $5,067 |
| Headboat | 840 | 618 | $8,959 | $9,297 | $9,656 |
| Private/rental | 1,706 | 1,255 | $18,192 | $18,878 | $19,609 |
| Shore | 16 | 12 | $168 | $174 | $181 |
| TOTAL | 3,004 | 2,208 | $32,020 | $33,227 | $34,513 |

Table 4.1.6. Harvest and net present value of changes in CS under Preferred Alternative 2 and Alternative 3 relative to Alternative 1 (No Action) over 2013, 2014, and 2015, by state.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Fishing**  **Mode** | **Three-year Sum of Harvest**  **(1,000)** | | **Net Present Value of CS Over Three Years**  **($1,000 in 2011 dollars)** | | |
| **Pounds WW** | **Fish** | **7%** | **5%** | **3%** |
| **Preferred Alternative 2** | | | | | |
| Florida East | 1,294 | 951 | $15,339 | $15,890 | $16,475 |
| Georgia | 312 | 229 | $3,694 | $3,826 | $3,967 |
| N. Carolina | 750 | 551 | $8,887 | $9,206 | $9,545 |
| S. Carolina | 1,030 | 757 | $12,210 | $12,648 | $13,114 |
| TOTAL | 3,385 | 2,489 | $40,129 | $41,569 | $43,100 |
| **Alternative 3** | | | | | |
| Florida East | 1,148 | 844 | $12,701 | $12,701 | $13,192 |
| Georgia | 276 | 203 | $3,058 | $3,058 | $3,177 |
| N. Carolina | 665 | 489 | $7,358 | $7,358 | $7,643 |
| S. Carolina | 914 | 672 | $10,110 | $10,110 | $10,501 |
| TOTAL | 3,004 | 2,208 | $33,227 | $33,227 | $34,513 |

The key parameters used in estimating NOR changes are the number of for-hire vessel angler trips taken under each ACL alternative, including the No Action alternative, and NOR per trip. Although it is expected that even with ACL increases the recreational sector would still experience fishing closures, the fishing season would be longer. This would allow extra trips to be taken by for-hire vessel anglers. A model developed at SERO (Farmer, pers. comm. 2013) provides closure dates under each ACL alternative. The closure date for the 2012/2013 fishing season is taken as the baseline closure date so that for-hire angler trips estimated to be taken after that date would be considered additional trips due to each ACL alternative. The baseline charter angler trips are assumed to be the 2007-2011 average target trips for black sea bass by charter anglers. When referring to for-hire angler trips affected by fishing regulations, the customary choice has been target trips as they are more closely related to angler demand for trips than the other types of angler trips, such as catch trips or directed trips. Generally, there are more catch or directed trips than target trips. There are no corresponding target trips in the headboat sector, so target trips for this sector are assumed to be a percentage of the 2007-2011 average headboat angler days. This percentage is calculated as the proportion of total black sea bass landings to total snapper grouper landings in the headboat sector. Before averaging the charter target trips and headboat angler days, trips or angler days during the closed months in 2009-10, 2010-11, and 2011-12 were dropped, thus giving more weight to the open months of the previous years.

The NOR values used in the present analysis, after adjusting for inflation, are $157.27 (2011 dollars) per angler trip for charter boats and $70.25 (2011 dollars) per angler trip for headboats (David Carter, NMFS SEFSC, personal communication, 2009). The NOR values used in the current analysis are based on a study of the North Carolina recreational fishery (Dumas et al. 2009). Although North Carolina is a major participant in the recreational harvest of black sea bass, Florida and South Carolina landed more black sea bass in 2007/08-2011/12. NOR values could very well vary among states, but no adjustments are made here in the absence of relevant information. Another possibility for which no adjustment could be introduced is that NOR values could vary among vessels of different sizes or passenger capacity or level of dependence on black sea bass.

By substantially increasing the ACL, both **Preferred Alternative 2** and **Alternative 3** may be expected to extend the season, thus allowing for-hire vessels to take extra trips and generate additional NOR. For the current analysis, four “closure” scenarios are considered. **Table 4.1.7** presents the various closure scenarios, with one scenario assuming a full season. The other three scenarios are based on model projections although only the closing months, or close approximations thereof, are considered. The closure dates vary widely, with the Early Closure and No Closure probably having the lowest probability of occurrence. The closing dates for **Preferred Alternative 2** vary over the years because of varying ACLs whereas those for **Alternative 3** remain the same for the three years considered. An apparent assumption here is that fishing activities would remain about the same for the three-year period so that the variation in closing dates, or lack thereof, is mainly conditioned by the ACLs.

Trips and NOR changes due to **Preferred Alternative 2** and **Alternative 3** relative to **Alternative 1 (No Action)** are shown in **Table 4.1.8**. Trips and NOR are totals over 2013, 2014, and 2015. Focusing only on the Mean Closure scenario and the 7% discount rate, the ACLs under **Preferred Alternative 2** would result in NOR increases (present value) of $1.14 million over three years. NOR increases under **Alternative 3** would be about $930,000 over three years.

Table 4.1.7. Four scenarios for fishing closures to recreational fishing for black sea bass.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Early Closure** | | **Mean Closure** | | **Late Closure** | | **No Closure** | |
| **Alt. 2** | **Alt. 3** | **Alt. 2** | **Alt. 3** | **Alt. 2** | **Alt. 3** | **Alt. 2** | **Alt. 3** |
| 2013 | OCT | SEP | FEB | DEC | APRIL | MARCH | OPEN | OPEN |
| 2014 | SEP | SEP | JAN | DEC | APRIL | MARCH | OPEN | OPEN |
| 2015 | SEP | SEP | DEC | DEC | MARCH | MARCH | OPEN | OPEN |

Table 4.1.8. Changes in for-hire angler trips and net present values under Preferred Alternative 2 and Alternative 3 relative to Alternative 1 (No Action) over 2013, 2014, and 2015.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PREFERRED ALTERNATIVE 2** | | | | **ALTERNATIVE 3** | | | |
| **Extra**  **Trips** | **Net Present Value ($1,000)** | | | **Extra**  **Trips** | **Net Present Value ($1,000)** | | |
| **7%** | **5%** | **3%** | **7%** | **5%** | **3%** |
| Early Closure | | | | | | | | |
| Charter | 369 | $54 | $55 | $56 | $0 | $0 | $0 | $0 |
| Headboat | 1,393 | $91 | $93 | $95 | $0 | $0 | $0 | $0 |
| TOTAL | 1,762 | $146 | $148 | $151 | $0 | $0 | $0 | $0 |
| Mean Closure | | | | | | | | |
| Charter | 2,376 | $327 | $340 | $353 | 2,295 | $316 | $328 | $340 |
| Headboat | 13,130 | $815 | $843 | $874 | 9,995 | $614 | $637 | $662 |
| TOTAL | 15,506 | $1,142 | $1,183 | $1,226 | 12,290 | $930 | $965 | $1,002 |
| Late Closure | | | | | | | | |
| Charter | 2,855 | $394 | $408 | $424 | 2,619 | $360 | $374 | $388 |
| Headboat | 20,480 | $1,265 | $1,311 | $1,360 | 17,411 | $1,070 | $1,110 | $1,153 |
| TOTAL | 23,336 | $1,659 | $1,719 | $1,783 | 20,029 | $1,430 | $1,484 | $1,542 |
| No Closure | | | | | | | | |
| Charter | 2,901 | $399 | $414 | $430 | 2,901 | $399 | $414 | $430 |
| Headboat | 33,725 | $2,072 | $2,151 | $2,234 | 33,725 | $2,072 | $2,151 | $2,234 |
| TOTAL | 36,626 | $2,472 | $2,565 | $2,664 | 36,626 | $2,472 | $2,565 | $2,664 |

### 4.1.3 Social Effects

The social effects of modifications to the black sea bass are associated with three main factors: updated catch limits based on the most recent information from the stock assessment update, increased access to the resource, and potential right whale interaction due to a potentially longer season. **Figures 3.4.1** and **3.4.2** in **Section 3.4.3** shows the communities that would likely benefit from an increase in the black sea bass commercial ACL under **Preferred Alternative 2** and **Alternative** **3**. The primary communities with commercial black sea bass landings include Sneads Ferry and Wanchese in North Carolina, and Port Orange, FL. However, the communities of McClellanville (SC), Wanchese, and Sneads Ferry have the highest level of engagement and reliance on the commercial black sea bass fishery. Changes in catch limits are more likely to affect these areas at the community level than Port Orange, because black sea bass is one of several economically important species landed in Port Orange. **Figure 3.4.3** in **Section 3.4.3** provides information on communities with high levels of engagement and reliance on recreational black sea bass fishing. An increase in the recreational black sea bass ACL under **Preferred Alternative 2** and **Alternative 3** would be expected to benefit the communities of Little River, SC; Murrells Inlet, SC; Morehead City, NC; Carolina Beach, NC, and Wanchese, NC.

Because the ACL would not be adjusted to reflect new information and outcomes form the recent stock assessment update, **Alternative 1 (No Action)** would not result in any social benefits expected from incorporating more accurate and up-to-date information into setting catch limits. **Preferred Alternative 2** and **Alternative 3** and would be expected to be more beneficial to the fleet, private anglers, and other resource users because the new information better reflects current conditions with the black sea bass stock.

Changes in the ACL for any stock will 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. In general, the higher the ACL, the greater the 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 communities because catch limits would be based on the current conditions.

In recent years the black sea bass commercial sector exists under derby conditions, in which the quota is met and sometimes exceeded in just a few weeks. In addition to concerns about safety at sea that arise from the race to fish, the derby periods result in a large amount of black sea bass on the market in a very short period. This may cause reduced market value and lower product quality, and the bust-and-boom nature of the commercial black sea bass component of the snapper grouper fishery may hinder business stability and steady job opportunities for captain and crew. A similar situation exists in the black sea bass recreational sector in which recreational harvest is allowed for a few months during the summer before the recreational ACL is met or exceeded and harvest is prohibited. Under **Alternative 1 (No Action)**, it would be expected that the conditions for both the commercial and recreational sectors will continue and possibly intensify as the biomass of black sea bass continues to increase and the ACLs are met in fewer weeks. An increase in the black sea bass ACL under **Preferred Alternative 2** and **Alternative 3** may help extend the fishing seasons for both sectors.

However, if the increased commercial ACL under **Preferred** **Alternative 2** and **Alternative 3** is not met before November 1 (start date of the provision for a closure of the black sea bass pot fishery to protect ESA-listed whales), the black sea bass pot fishermen and associated businesses and communities will not realize the maximum benefits of the higher catch limit. This potential reduction in participation for the black sea bass pot fishermen will be in addition to new regulations and the endorsement program established in Amendment 18A (SAFMC 2012a), under which participation in the black sea bass pot fishery is currently capped at a maximum of 32 endorsement holders who may only use 35 traps.

In general, a higher ACLunder **Preferred Alternative 2** and **Alternative 3** will be more beneficial to commercial and recreational fishermen as long as it is set to prevent overfishing. The increase in the black sea bass ACL under **Preferred Alternative 2** and **Alternative 3** would be expected to improve harvest opportunities and extend the season for the commercial fleet, and have positive social effects on recreational anglers and for-hire businesses that catch black sea bass. In addition, **Alternative 3** would be beneficial in that it would prevent unrealistic expectations of fishery potential among constituents.

### 4.1.4 Administrative Effects

Administrative impacts of this action are likely to be minimal. **Alternative 1 (No Action)** may result in slightly higher indirect administrative impacts because the lower ACLs are more likely to cause AMs to be triggered in-season, which would require development of outreach materials and internal agency documents to close the commercial sector and assess whether or not the recreational ACL has been exceeded. **Preferred Alternative 2** or **Alternative 3** would not result in significant administrative cost or time burdens other than notifying fishery participants of the increase 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 implemented when the commercial ACLs are projected to be met are currently enforced.

# **Chapter 5. Council’s Choice for the Preferred Alternative**

## **5.1** Revise the Annual Catch Limits (ACLs), Recreational Annual Catch Target (ACT), and Optimum Yield (OY) for Black Sea Bass

## **5.1.1 Snapper Grouper Advisory Panel Comments and Recommendations**

The Snapper Grouper Advisory Panel (AP) met April 23-25, 2013, in North Charleston, South Carolina. South Atlantic Fishery Management Council (South Atlantic Council) staff briefed the AP on discussions relevant to the black sea bass assessment held during the April 8-11, 2013, meeting of the Scientific and Statistical Committee (SSC). The SSC provided input on the recently completed black sea bass assessment update and recommended an allowable biological catch (ABC) level.

Black sea bass were found to be neither overfished nor experiencing overfishing, and are rebuilt.

To be completed after SG AP meeting

## **5.1.2 Law Enforcement Advisory Panel Comments and Recommendations**

The analyses were provided to the Law Enforcement Advisory Panel (AP) and their comments were requested by May 10, 2013.

## **5.1.3 Scientific and Statistical Committee Comments and Recommendations**

The SSC reviewed the 2013 update of the black sea bass assessment at its meeting of April 2013. The SSC recommended that the update assessment be considered best available science, and agreed that the assessment findings are useful for providing fishing level recommendations. Based on both the deterministic results of the base run and probabilistic runs incorporating assessment uncertainty, the stock has rebuilt (SSB>SSBmsy) and is no longer experiencing overfishing (F<Fmsy). Applying the ABC control rule resulted in an adjustment of 10% for assessment uncertainty, providing a P\* of 40%. Projection runs incorporating assessment uncertainty and covering the period 2014-2016 were used to provide ABC and OFL recommendations. Recommended OFL is based on the projection runs at 50% chance of overfishing occurring (P\* = 50%), and ABC is based on the projection having a 40% chance of overfishing occurring (P\* = 40%). The SSC provided OFL and ABC values for 3 years and requested that an assessment update be available in time to provide ABC and OFL recommendations for 2016 and beyond.

The SSC noted that estimates of ABC over the next few years exceed the equilibrium estimates of MSY from the base run. This is addressed in the assessment report, and is largely due to recent recruitment being higher than expected average recruitment and a stock biomass that is slightly greater than the biomass expected at MSY conditions. The sustainability of ABCs above equilibrium MSY will depend upon future recruitment conditions.

## **5.1.4 Public Comments and Recommendations**

The South Atlantic Fishery Management Council (South Atlantic Council) provided an opportunity for public comments during their meeting and prior to the South Atlantic Council meeting (comment period began on 4/26/13 and ended at 5 pm on 5/10/13). Draft analyses were provided to the public and the South Atlantic Council on April 26, 2013. In addition, South Atlantic Council staff prepared a video overview of the action and analyses, and this was posted on the South Atlantic Council’s website and distributed on May 1, 2013. The South Atlantic Council considered all public comments during their meeting on May 13, 2013.

## **5.1.5 South Atlantic Council Choice for Preferred Alternative**

The South Atlantic Council selected Alternative 2 as Preferred for Action 1. **Preferred Alternative 2** would specify the following for black sea bass in the South Atlantic until modified:

**Preferred Alternative 2.** For black sea bass, retain the current ACL and ACT formulas and revise the ACLs and recreational ACT for the 2013/14 fishing season and beyond until modified as shown in the table below. Retention, possession, and fishing for black sea bass is prohibited using black sea bass pot gear, annually, from November 1 through April 30.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Fishing Year** | **OFL1**  **(landings + discards)** | **OFL1**  **(landings only)** | **ABC1**  **(landings + discards)** | **ABC1**  **(landings only)** | **Total ACL (landings only)** | **Comm ACL (43%)** | **Rec ACL (57%)** | **Rec ACT2** |
| 2013 | 2,433,000 | 2,296,000 | 2,258,000 | 2,133,000 | 2,133,000 | 917,190 | 1,215,810 | 1,062,861 |
| 2014 | 2,194,000 | 2,074,000 | 2,102,000 | 1,992,000 | 1,992,000 | 856,560 | 1,135,440 | 992,602 |
| 2015 | 1,973,000 | 1,857,000 | 1,921,000 | 1,814,000 | 1,814,000 | 780,020 | 1,033,980 | 903,905 |

|  |
| --- |
| 1 Using values provided by the SSC. |
| 2 Using 2005-2009 Average PSE = 12.58 from Amendment 18A. |

The Comprehensive ACL Amendment (SAFMC 2011c) established an acceptable biological catch (ABC) control rule for assessed snapper grouper species. In accordance with National Standard 1 guidelines, the control rule takes into account scientific and data uncertainties that may exist when specifying ABC for species managed within the snapper grouper fishery management unit. The ACL selected in **Preferred** **Alternative 2** is consistent with the ABC control rule and how the South Atlantic Council has specified ACL for other snapper grouper species. The stock assessment update conducted in early 2013 indicated that the black sea bass stock in the South Atlantic is rebuilt, overfishing is not occurring, and the stock is no longer overfished. Based on the stock assessment results, and backed by the recommendation of the SSC, the South Atlantic Council selected the alternative that would provide the highest yields without compromising the resource. As such, **Preferred Alternative 2** results in the greatest socio-economic benefits to fishermen and fishing communities who depend on the black sea bass portion of the snapper grouper fishery. In addition, the South Atlantic Council intends to maintain the existing regulations that apply to black sea bass pot gear during the November 1 through April 30 closure. Amendment 18A (SAFMC 2012a) implemented a prohibition on possession of black sea bass on a vessel with pot gear and required that all black sea bass pots be removed from the water once the commercial ACL was met or projected to be met. Hence the same restrictions would be applicable during the annual closure proposed in this amendment.

The South Atlantic Council acknowledges that **Preferred Alternative 2** may result in the commercial ACL not being harvested prior to the proposed November 1 closure. The South Atlantic Council also acknowledges that the November 1 to April 30 closure may not be needed in the future. Regulatory Amendment 14, currently under development, contains actions to modify both the commercial and recreational fishing years for black sea bass. If the fishing year changes so that the commercial ACL is harvested well before November 1, then the annual closure may not be needed and the South Atlantic Council would take action to remove it. Further, consideration of changes to the black sea bass commercial fishing year will likely trigger initiation of a Biological Opinion for the snapper grouper fishery in order to evaluate the effects of black sea bass pot gear on protected resources. It is possible that the evidence gathered during development of the Biological Opinion will support the removal of the annual closure, if the latter is implemented. If the commercial black sea bass ACL is not harvested prior to November 1, the South Atlantic Council requests that NMFS re-open the fishery on May 1 in order for the remainder of the ACL to be harvested so that socioeconomic benefits will not be forfeited.

The South Atlantic Council concluded **Preferred Alternative 2** best meets the purpose of revising the black sea bass OY, ABC, ACLs and recreational ACT in the South Atlantic Council’s area of authority and addresses the need to ensure the black sea bass ACLs are based upon the best available science and overfishing does not occur. Further, **Preferred Alternative 2** enhances socio-economic benefits to fishermen and fishing communities that utilize the black sea bass resource while ensuring overfishing does not occur. **Preferred Alternative 2** also best meets the objectives of the Snapper Grouper FMP, as amended.

# **Chapter 6. Cumulative Effects**

This Cumulative Effects Analysis (CEA) for the biophysical environment will follow a modified version of the 11 steps. Cumulative effects for the socio-economic environment will be analyzed separately.

## 6.1 Biological

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

CEQ 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 CEA**.

**2. Establish the geographic scope of the analysis.**

The immediate impact area would be the federal 200-mile limit of the Atlantic off the coasts of North Carolina, South Carolina, Georgia, and east Florida to Key West, which is also the South Atlantic Fishery Management Council’s (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. Therefore, the proper geographical boundary to consider effects on the biophysical environment is larger than the entire South Atlantic exclusive economic zone (EEZ). The ranges of affected species are described in **Section 3.2**. The most measurable and substantial effects would be limited to the South Atlantic region.

**3. Establish the timeframe for the analysis.**

Establishing a timeframe for the CEA is important when the past, present, and reasonably foreseeable future actions are discussed. It would be advantageous to go back to a time when there was a natural, or some modified (but ecologically sustainable) condition. However, data collection for many fisheries began when species were already fully exploited. Therefore, the timeframe for analyses should be initiated when data collection began for the various fisheries. In determining how far into the future to analyze cumulative effects, the length of the effects will depend on the species and the alternatives chosen. Long-term evaluation is needed to determine if management measures have the intended effect of improving stock status.

**4. Identify the other actions affecting the resources, ecosystems, and human communities of concern (the cumulative effects to the human communities are discussed in Chapter 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 snapper grouper species addressed in this amendment**

**A. Past**

The reader is referred to **Appendix B** for past regulatory activity all species in the Snapper Grouper FMP. Past regulatory activity for the relevant snapper grouper species in this amendment is listed below.

Amendment 9 to the Snapper Grouper FMP (Amendment 9; SAFMC 1998) established minimum size limits for yellowtail snapper, red and black grouper, gag, yellowfin and yellowmouth grouper, and scamp; and created a 20-fish aggregate recreational bag limit for snapper grouper species without a bag limit (with the exception of tomtate and blue runner), including yellowtail snapper. The amendment also prohibited the sale and purchase of gag, red porgy and black grouper during March and April; and included gag and black grouper within the 5-fish aggregate grouper bag limit, of which no more than 2 fish could be gag or black grouper (individually or in combination). The South Atlantic Council approved Amendment 9 at their December 1998 meeting. The final rule published in the *Federal Register* on January 25, 1999, and became effective on February 24, 1999.

Amendment 14 to the Snapper Grouper FMP (Amendment 14; SAFMC 2007) was implemented on February 12, 2009. Amendment 14 established eight Type II marine protected areas (MPAs) where fishing for and retention of snapper-grouper species is prohibited (as is the use of shark bottom longlines), but trolling for pelagic species such as tuna, dolphin, and billfish is allowed. The intent was to achieve a more natural sex ratio, age, and size structure of all species within the MPAs, while minimizing adverse social and economic effects. The South Atlantic Council approved Amendment 14 at their June 2007 meeting. The final rule published in the *Federal Register* on January 13, 2009, and became effective on February 12, 2009.

Amendment 15B to the Snapper Grouper FMP (Amendment 15B; SAFMC 2008b) became effective on December 16, 2009. Management measures in Amendment 15B included a prohibition of the sale of bag limit caught snapper grouper species for fishermen not holding a federal commercial permit for South Atlantic snapper grouper; an action to adopt, when implemented, the Atlantic Coastal Cooperative Statistics Program release, discard and protected species module to assess and monitor bycatch, allocations for snowy grouper, and management reference points for golden tilefish. Biological benefits from Amendment 15B are not expected to result in a significant cumulative biological effect when added to anticipated biological impacts under this amendment. The South Atlantic Council approved Amendment 15B at their June 2008 meeting. The final rule published in the *Federal Register* on November 16, 2009, and became effective on December 16, 2009.

Amendment 17B to the Snapper Grouper FMP (Amendment 17B; SAFMC 2010b), which was implemented on January 31, 2011, established annual catch limits (ACL), annual catch targets, and accountability measures (AMs) for 8 species experiencing overfishing; modified management measures to limit total mortality to the ACL; and updated the framework procedure for specification of total allowable catch. Amendment 17B also prohibited the harvest and possession of deepwater snapper grouper species (snowy grouper, blueline tilefish, yellowedge grouper, misty grouper, queen snapper, and silk snapper) at depths greater than 240 feet. The intent of this measure was to reduce bycatch of speckled hind and warsaw grouper. The South Atlantic Council approved Amendment 17B at their September 2010 meeting. The final rule published in the *Federal Register* on December 30, 2010.

The Comprehensive ACL Amendment (SAFMC 2011c) includes ACLs and AMs for federally managed species not undergoing overfishing in four FMPs (Snapper Grouper, Dolphin Wahoo, Golden Crab, and *Sargassum*). Actions contained within the Comprehensive ACL Amendment include: (1) Removal of species from the snapper grouper fishery management unit; (2) designation of ecosystem component species; (3) allocations; (4) management measures to limit recreational and commercial sectors to their ACLs; (5) AMs; and (6) any necessary modifications to the range of regulations. The South Atlantic Council approved the Comprehensive ACL Amendment in September 2011. The final rule published in the *Federal Register* on March 16, 2012, and became effective on April 16, 2012.

Amendment 18A to the Snapper Grouper FMP (Amendment 18A; SAFMC 2012a) contains measures to limit participation and effort for black sea bass. Amendment 18A established an endorsement program than enables snapper grouper fishermen with a certain catch history to harvest black sea bass with pots. In addition, Amendment 18A included measures to reduce bycatch in the black sea bass pot sector, modified the rebuilding strategy, and other necessary changes to management of black sea bass as a result of a 2011 stock assessment. The South Atlantic Council approved Amendment 18A in December 2011. The amendment was partially approved and the final rule published in the *Federal Register* on June 1, 2012, and became effective on July 1, 2012.

**B. Present**

In addition to snapper grouper fishery management issues being addressed in this amendment, other snapper grouper amendments have been developed concurrently and are in the process of approval and implementation.

At their March 2012 meeting, the South Atlantic Council requested development of Regulatory Amendment 13 to the Snapper Grouper FMP to allow for adjustment of allocations and ACLs based on the new landings information from the Marine Recreational Information Program. Regulatory Amendment 13 was approved by the South Atlantic Council at their December 2012 meeting.

At their September 2012 meeting, the South Atlantic Council requested development of Regulatory Amendment 15 to the Snapper Grouper FMP to: Adjust the yellowtail snapper ABC and ACL based on results from a recent assessment and remove the provision commercial harvest of all shallow water grouper species is prohibited when the gag quota is met. The South Atlantic Council approved Regulatory Amendment 15 at their December 2012.

Amendment 28 to the Snapper Grouper FMP includes a process for specifying the ACL for red snapper each fishing year. Amendment 28 was approved for review by the Secretary of Commerce at the South Atlantic Council’s December 2012 meeting.

The Joint Dealer Reporting Amendment has been approved for Secretarial Review by the Gulf of Mexico Fishery Management Council and the South Atlantic Council. This amendment is intended to improve the timeliness and accuracy of fisheries data reported by permitted dealers. The amendment would also create one dealer permit for all federally-permitted dealers in the southeast region. Requiring dealers to report landings data weekly will help to improve in-season quota monitoring efforts, which will increase the likelihood that AMs could be implemented prior to ACLs being exceeded.

The Generic For-Hire Reporting Amendment would increase the frequency with which headboats must report landings information, and would also require that all headboats report landings data electronically. This amendment would improve the timeliness and accuracy of landings data that is used to monitor recreational harvest sector in-season for the purpose of maintain catches below the recreational ACLs.

**C. Reasonably Foreseeable Future**

Regulatory Amendment 14 contains many actions to modify current management measures for various snapper grouper species such as black sea bass, hogfish, and gray triggerfish. Regulatory Amendment 14 also contains actions to modify the system of AMs currently in place for vermillion snapper, which would help control harvest of the species and promote sustainable harvest levels.

The Joint Commercial Logbook Reporting Amendment would be similar to the Generic For-Hire Reporting Amendments for the Gulf of Mexico and South Atlantic regions. This amendment would require electronic reporting of landings information by federally-permitted commercial vessels, which would increase the timeliness and accuracy of landings data.

The Joint Charter Boat Reporting Amendment would be similar to the Generic For-Hire Reporting Amendment by requiring charter vessels to regularly report their landings information electronically. Including charter boats in the recreational harvest reporting system would further improve the agency’s ability to monitor recreational catch rates in-season.

Amendment 30 to the Snapper Grouper FMP currently contains an action to require all vessels with a South Atlantic Unlimited or 225 lbs Snapper Grouper Permit to have a vessel monitoring system onboard.

Amendment 20B to the Snapper Grouper FMP is currently under development. The amendment will include a formal review of the current wreckfish individual transferable quota (ITQ) program, and will update/modify that program according to recommendations gleaned from the review.

Amendment 18B to the Snapper Grouper FMP was approved by the South Atlantic Council at their June 2012 meeting and considers alternatives addressing golden tilefish. Regulations are expected to be implemented in 2013. Specifically, actions would establish initial eligibility requirements for a golden tilefish longline endorsement program, allocate golden tilefish quota between gear groups, and specify commercial trip limits for those who did not qualify for the longline endorsement.

At their June 2012 meeting, the South Atlantic Council further discussed Amendment 22 to the Snapper Grouper FMP to consider measures such as a tag program to allow harvest of red snapper as the stock rebuilds. Scoping of Amendment 22 was conducted during January and February 2011. At their September 2012 meeting, the South Atlantic Council stated their intent to further develop Amendment 22 in 2013 focusing on a recreational tag program for red snapper, golden tilefish, snowy grouper and wreckfish.

At their December 2012 meeting, the South Atlantic Council approved Regulatory Amendment 13 to allow for adjustment of allocations, ACLs, ACTs for select non-assessed snapper grouper species based on the new landings information from the Marine Recreational Information Program.

At their June 2012 meeting the South Atlantic Council requested development of Regulatory Amendment 14 to adjust management measures for greater amberjack, vermilion snapper, black sea bass, gray triggerfish, vermilion snapper, and hogfish. This amendment will be further developed in 2013.

Regulatory Amendment 15, approved by the South Atlantic Council at their December 2012 meeting, would implement a revised ACL for yellowtail snapper based on the latest stock assessment and modify a gag commercial AM and ACL.

At their September 2012 meeting, the South Atlantic Council requested development of Regulatory Amendment 16 to the Snapper Grouper FMP to adjust management measures for the longline sector of the commercial golden tilefish fishery. A scoping document was reviewed by the South Atlantic Council in March 2013.

At their September 2012 meeting, the South Atlantic Council requested development of Regulatory Amendment 17 to the Snapper Grouper FMP to consider marine protected areas to provide additional protection for speckled hind and warsaw grouper. This action was previously considered in Comprehensive Ecosystem-Based Amendment (CE-BA) 3. The South Atlantic Council will discuss the regulatory amendment in September 2013.

Regulatory Amendment 18 to the Snapper Grouper is being developed by the South Atlantic Council to adjust ACLs for vermilion snapper and red porgy based on the results of recent stock assessment updates. Regulatory Amendment 18 was approved by the South Atlantic Council at their March 2013 meeting.

At their September 2012 meeting, the South Atlantic Council directed staff to develop Amendment 27 to the Snapper Grouper FMP to address issues related to blue runner, and extension of management into the Gulf of Mexico for Nassau grouper. Amendment 27 was approved by the South Atlantic Council at their March 2013 meeting.

**II. Non-Council and other non-fishery related actions, including natural events affecting snapper grouper species 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 that 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.

The snapper grouper ecosystem includes many species, which occupy the same habitat at the same time. For example, red snapper co-occur with vermilion snapper, tomtate, scup, red porgy, white grunt, black sea bass, red grouper, scamp, gag, and others. Therefore, black seas bass are likely to be caught and suffer some mortality even though no retention is allowed since they will be incidentally caught when fishermen target other co-occurring species. Other natural events such as spawning seasons and aggregations of fish in spawning condition can make some species especially vulnerable to targeted fishing pressure. Such natural behaviors are discussed in further detail in **Chapter 3** of this document, which is hereby incorporated by reference.

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 CO2 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 has not been detected in the South Atlantic region, and did not likely to pose a threat to the South Atlantic snapper grouper species.

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

In terms of the biophysical environment, the resources/ecosystems identified in earlier steps of the CEA are the fish populations directly or indirectly affected by the regulations. This step should identify the trends, existing conditions, and the ability to withstand stresses of the environmental components. Information on species most affected by this amendment are provided in **Section 3.2** of this document.

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

This step is important in outlining the current and probable stress factors on the affected species, ecosystems, and human communities identified in the previous steps. The goal is to determine whether these species are approaching conditions where additional stresses could have an important cumulative effect beyond any current plan, regulatory, or sustainability threshold (CEQ 1997). Sustainability thresholds can be identified for some resources, which are levels of impact beyond which the resources cannot be sustained in a stable state. Other thresholds are established through numerical standards, qualitative standards, or management goals. The CEA should address whether thresholds could be exceeded because of the contribution of the proposed action to other cumulative activities affecting resources.

**Fish populations**

This document updates thresholds already specified for black sea bass to ensure future overfishing does not occur, and to ensure these stocks can be maintained at sustainable levels. With current AMs in place for both species it is unlikely that these thresholds would be exceeded. The harvest limits are exceeded, management measures are in place to either restrict further fishing or correct for the overage in the following fishing season.

**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 significantly impact snapper grouper species in the future, but the level of impacts cannot be quantified at this time, nor is the time frame known in which these impacts will occur. In the near term, it is unlikely that the management measures contained in Regulatory Amendment 18 would compound or exacerbate the ongoing effects of climate change on snapper grouper species.

**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 BMSY 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.

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

The cause and effect relationship of fishing and regulatory actions is shown in **Table 6.1.1.**

Table 6.1.1. The cause and effect relationship of fishing and regulatory actions within the time period of the Cumulative Effects Analysis (CEA).

| **Time period/dates** | **Cause** | **Observed and/or Expected Effects** |
| --- | --- | --- |
| Pre-January 12, 1989 | Habitat destruction, growth overfishing of vermilion snapper. | Damage to snapper grouper habitat, decreased yield per recruit of vermilion snapper. |
| January 1989 | Trawl prohibition to harvest fish (SAFMC 1988). | Increase yield per recruit of vermilion snapper; eliminate trawl damage to live bottom habitat. |
| Pre-January 1, 1992 | Overfishing of many snapper grouper species. | Spawning stock ratio of these species is estimated to be less than 30% indicating that they are overfished. |
| January 1992 | Prohibited gear: fish traps south of Cape Canaveral, FL; entanglement nets; longline gear inside of 50 fathoms; powerheads and bangsticks in designated SMZs off SC.  Size/Bag limits: 10” TL vermilion snapper (recreational only); 12” TL vermilion snapper (commercial only); 10 vermilion snapper/person/day; aggregate grouper bag limit of 5/person/day; and 20” TL gag, red, black, scamp, yellowfin, and yellowmouth grouper size limit (SAFMC 1991). | Reduce mortality of snapper grouper species. |
| Pre-June 27, 1994 | Damage to *Oculina* habitat. | Noticeable decrease in numbers and species diversity in areas of *Oculina* off FL |
| July 1994 | Prohibition of fishing for and retention of snapper grouper species (HAPC renamed OECA; SAFMC 1993) | Initiated the recovery of snapper grouper species in OECA. |
| 1992-1999 | Declining trends in biomass and overfishing continue for a number of snapper grouper species including golden tilefish. | Spawning potential ratio for golden tilefish is less than 30% indicating that they are overfished. |
| February 24, 1999 | All S-G without a bag limit: aggregate recreational bag limit 20 fish/person/day, excluding tomtate and blue runners. Vessels with longline gear aboard may only possess snowy, Warsaw, yellowedge, and misty grouper, and golden, blueline and sand tilefish. |  |
| Effective October 23, 2006 | Snapper grouper FMP Amendment 13C (SAFMC 2006) | Commercial vermilion snapper quota set at 1.1 million lbs gw; recreational vermilion snapper size limit increased to 12” TL to prevent vermilion snapper overfishing. |
| Effective February 12, 2009 | Snapper grouper FMP Amendment 14 (SAFMC 2007) | Use marine protected areas (MPAs) as a management tool to promote the optimum size, age, and genetic structure of slow growing, long-lived deepwater snapper grouper species (e.g., speckled hind, snowy grouper, warsaw grouper, yellowedge grouper, misty grouper, golden tilefish, blueline tilefish, and sand tilefish). Gag and vermilion snapper occur in some of these areas. |
| Effective March 20, 2008 | Snapper grouper FMP Amendment 15A (SAFMC 2008a) | Establish rebuilding plans and SFA parameters for snowy grouper, black sea bass, and red porgy. |
| Effective Dates Dec 16, 2009, to Feb 16, 2010. | Snapper grouper FMP Amendment 15B (SAFMC 2008b) | End double counting in the commercial and recreational reporting systems by prohibiting the sale of bag-limit caught snapper grouper, and minimize impacts on sea turtles and smalltooth sawfish. |
| Effective Date  July 29, 2009 | Snapper grouper FMP Amendment 16 (SAFMC 2009a) | Protect spawning aggregations and snapper grouper in spawning condition by increasing the length of the spawning season closure, decrease discard mortality by requiring the use of dehooking tools, reduce overall harvest of gag and vermilion snapper to end overfishing. |
| Effective Date January 31, 2011 | Snapper Grouper Amendment 17B (SAFMC 2010b) | Specified ACLs and ACTs; management measures to limit recreational and commercial sectors to their ACTs; AMs, for species undergoing overfishing. Established a harvest prohibition of six snapper grouper species in depths greater than 240 feet. |
| Effective Date July 15, 2011 | Regulatory Amendment 9 (SAFMC 2011a) | Harvest management measures for black sea bass; commercial trip limits for gag, vermilion and greater amberjack |
| Effective Date  April 16, 2012 | Comprehensive ACL Amendment (SAFMC 2011c) | ACLs ACTs, and AMs for species not experiencing overfishing; accountability measures; an action to remove species from the fishery management unit as appropriate; and management measures to limit recreational and commercial sectors to their ACTs. |
| Effective Date  July 1, 2012 | Amendment 18A (SAFMC 2012a) | Established an endorsement program for black sea bass commercial fishery; established a trip limit; specified requirements for deployment and retrieval of pots; made improvements to data reporting for commercial and for-hire sectors |
| Target 2013 | Snapper Grouper Amendment 27 (Approved by South Atlantic Council) | Establish the SAFMC as the managing entity for Nassau grouper in the Southeast U.S.; modify the SG framework; modify management measures for blue runner; reevaluate captain and crew possession prohibition for vermilion snapper, groupers, and tilefish; and increase crew size limit for dual-permitted vessels. |
| Target 2014 | Snapper Grouper Amendment 29 (under development) | Update ABCs, ACLs, and ACTs for snapper grouper species based on recommendations from SSC. |
| Target 2013 | Regulatory Amendment 18 (Approved by South Atlantic Council) | Adjust ACLs and management measure for vermilion snapper and red porgy based on results from new update assessment. |
| Target 2013 | Regulatory Amendment 13 (Approved by South Atlantic Council) | Adjust ACLs and allocations for unassessed snapper grouper species with MRIP recreational estimates. |
| Target 2013 | Generic For-Hire Reporting Amendment | Require all federally-permitted headboats in the South Atlantic to report landings information electronically and on a weekly basis. |
| Target 2013 | Snapper Grouper Amendment 28  (Approved by South Atlantic Council) | Modify red snapper management measures, including the establishment of a process to determine future annual catch limits and fishing seasons. |
| Target 2013 | Amendment 30 | VMS for commercial sector of snapper grouper fishery. |
| Target 2013 | Joint For-Hire Headboat Amendment for the South Atlantic (Approved by South Atlantic Council) | Require headboats report landings through electronic means every week. |
| Target 2014 | Joint Commercial Logbook Reporting Amendment | Require all federally-permitted commercial fin fish fishermen in the southeast to report electronically. |
| Target 2014/2015 | Joint Charterboat Reporting Amendment | Require all federally-permitted charterboats to report landings information electronically. |

**9. Determine the magnitude and significance of cumulative effects.**

The proposed management action, as summarized in **Chapter 2** of this document, would increase the black sea bass ACLs and implemented a closure to the black sea bass pot fishery. Detailed discussions of the magnitude and significance of the impacts of the preferred alternatives on the human environment appear in **Chapter 4** of this document. None of the impacts have been determined to be significant.

**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 necessary for the successful implementation of the proposed actions in this amendment.

**11. Monitor the cumulative effects of the selected alternatives and adopt management.**

The effects of the proposed actions are, and will continue to be, monitored through collection of data by the National Marine Fisheries Service, states, stock assessments and stock assessment updates, life history studies, and other scientific observations.

## 6.2 Socioeconomic Cumulative Impacts

Participation in and the economic performance of the snapper grouper fishery has been affected by a combination of regulatory, biological, social, and external economic factors. Black sea bass is only one of the 60 species included in the snapper grouper fishery, and in most cases management actions affecting one species will have broader effects that could affect harvest and catch of many other snapper grouper species. In general, there are few or no individuals or fishing businesses that do not target multiple snapper grouper species throughout the year. The following analysis of cumulative social and economic impacts of the proposed actions in this amendment considers the snapper grouper fishery as a whole.

Regulatory measures have obviously affected the quantity and composition of harvests, through the various size limits, seasonal restrictions, trip or bag limits, and quotas. Gear restrictions, notably fish trap and longline restrictions, have also affected harvests and economic performance. The limited access program implemented in 1998/1999 substantially affected the number of participants in the fishery. Biological forces that either motivate certain regulations or simply influence the natural variability in fish stocks have played a role in determining the changing composition of the fishery. Additional factors, such as changing career or lifestyle preferences, stagnant to declining ex-vessel fish prices due to imports, increased operating costs (e.g., gas, ice, insurance, dockage fees, etc.), and increased waterfront/coastal value leading to development pressure for non-fishery uses have impacted both the commercial and recreational fishing sectors.

Given the variety of factors that affect fisheries, persistent data issues, and the complexity of trying to identify cause-and-effect relationships, it is not possible to differentiate actual or cumulative regulatory effects from external cause-induced effects. In general, it can be stated, however, that the regulatory environment for all fisheries has become progressively more complex and burdensome, increasing, in tandem with other adverse influences, the likelihood of economic losses, business failure, occupational changes, and associated adverse pressures on associated families, communities, and industries. Some reverse of this trend is possible and expected. The recent establishment of ACLs and AMs for species undergoing overfishing is expected to help protect and sustain harvest at the optimum yield level. 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 preferred alternative for the action in this amendment would relieve some of the negative cumulative effects experienced by fishermen in recent years. A detailed description of the expected social and economic impacts of the actions in this amendment is contained in **Chapter 4**.

Amendment 17B (SAFMC 2010b) specified harvest controls (ACLs and/or ACTs) and AMs for several snapper grouper species, and modified the framework to allow more efficient modification of these measures in the future, where necessary. While some final specifications of these measures may result in additional short-term reductions in social and economic benefits to participants in the fisheries, these measures would be expected to support more stable management and sustainable social and economic benefits from enhanced resource protection, larger and/or more consistent harvests, and long-term stable stocks.

The cumulative impact of Amendments 16 (SAFMC 2009a), 17A (SAFMC 2010a), and 17B (SAFMC 2010b) are expected to be significant for commercial and recreational fisheries participants and those indirectly impacted by the actions contained in those amendments. The cumulative impact of Amendments 17A (SAFMC 2010a) and 17B (SAFMC 2010b) have been estimated and are contained in Amendment 17A (SAFMC 2010a). The impacts from the three amendments will likely result in commercial and for-hire vessel exit and loss of fishery infrastructure as a result.

Additional actions have been implemented for snapper grouper species in Amendment 24 (red grouper rebuilding plan), Regulatory Amendment 9 (lower bag limit from 5 to 10 black sea bass per day) (SAFMC 2011a), and Amendment 18A (endorsement program for black sea bass pots) that could contribute to the cumulative impact on commercial and for-hire captains and crew, for-hire customers, dealers, consumers, and associated businesses and communities. Additionally, several potential new snapper grouper amendments are being considered that will have some effects on the snapper grouper fishery, including Regulatory Amendment 14 (gray triggerfish, hogfish, black sea bass, greater amberjack and vermilion snapper), Regulatory Amendment 18B (longline endorsement program for golden tilefish), Amendment 27 (Nassau grouper, blue runner, crew size on dual-permitted vessel, captain crew retention of bag limit on for-hire vessels), and Regulatory Amendment 17 (marine protected areas to protect warsaw grouper and speckled hind).

It is likely that most commercial fishermen with snapper grouper permits also hold other state and federal permits in order to switch fisheries during a closure or to take advantage of the market for a species. At a minimum, snapper grouper commercial fishermen can obtain an Atlantic dolphin wahoo commercial permit or Spanish mackerel commercial permit because these are both open access programs. Additionally, all federal for-hire permits for the South Atlantic (dolphin-wahoo, coastal migratory pelagics, and snapper grouper) are open access permits and can be obtained for for-hire vessels when necessary. Lastly, recreational anglers likely target species from several management units. Therefore, it should be noted that changes in the snapper grouper fishery could have significant impacts on effort in other fisheries.

The cumulative social and economic effects of past, present, and future amendments may be described as limiting fishing opportunities in the short-term. However, the preferred alternative of this amendment is expected to improve prospects for sustained participation in the respective fisheries over time. Specifically, the adjusted ACLs for black sea bass will better reflect current conditions in the fishery. The increased ACL could help extend the commercial and recreational seasons for black sea bass.

### **Chapter 7. List of Preparers**

Table 7.1.1. List of Regulatory Amendment 19 preparers.

|  |  |  |
| --- | --- | --- |
| **Name** | **Agency/Division** | **Area of Amendment Responsibility** |
| Andy Herndon | NMFS/SF | Protected Resources Biologist |
| Brian Cheuvront | SAFMC | Economist |
| Gregg Waugh | SAFMC | Deputy Executive Director/ IPT co-lead |
| Jack McGovern | NMFS/SF | Fishery Scientist |
| Kari MacLauchlin | SAFMC | Fishery Social Scientist |
| Mike Errigo | SAFMC | Fishery Scientist |
| Myra Brouwer | SAFMC | Fishery Biologist/ IPT co-lead |
| Nick Farmer | NMFS/SF | Fishery Scientist |
| Rick DeVictor | NMFS/SF | Fishery Biologist/ IPT co-lead |
| Tony Lamberte | NMFS/SF | Economist |

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

Table 7.1.2. List of Regulatory Amendment 19 interdisciplinary plan team members.

|  |  |  |
| --- | --- | --- |
| **Name** | **Organization** | **Title** |
| Akbar Marvasti | SEFSC |  |
| Andy Herndon | NMFS/PR | Protected Resources Biologist |
| Anna Martin | SAFMC | Fishery Scientist |
| Brian Cheuvront | SAFMC | Economist |
| David Dale | NMFS/HC | EFH Specialist |
| David Keys | NMFS/SER | Regional NEPA Coordinator |
| Gregg Waugh | SAFMC | Deputy Executive Director |
| Jack McGovern | NMFS/SF | Fishery Biologist |
| Jessica Powell | NMFS/PR |  |
| John Carmichael | SAFMC | Science and Statistics Program Manager |
| Kari MacLauchlin | SAFMC | Fishery Social Scientist |
| Karla Gore | NMFS/SF | Fishery Biologist |
| Kate Andrews |  |  |
| Kate Michie | NMFS/SF | Fishery Biologist |
| Mara Levy | NOAA GC |  |
| Mike Errigo | SAFMC | Data Analyst |
| Mike Jepson | NMFS/SF | Fishery Social Scientist |
| Monica Smit-Brunello | NMFS SERO/GC | Attorney |
| Myra Brouwer | SAFMC | Fishery Biologist |
| Nick Farmer | NMFS/SF | Fishery Biologist |
| **Name** | **Organization** | **Title** |
| Otha Easley | NOAA/OLE | Special Agent |
| Rick DeVictor | NMFS/SF | Fishery Biologist |
| Roger Pugliese | SAFMC | Sr. Fishery Biologist |
| Scott Sandorf | NMFS/SF | Technical Writer & Editor |
| Stephen Holiman | NMFS/SF |  |
| Tony Lamberte | NMFS/SF | Economist |

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

### **Chapter 8. Agencies and Persons Consulted**

Responsible Agency

**Regulatory Amendment 18: Environmental Assessment:**

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List of Agencies, Organizations, and Persons Consulted

SAFMC Law Enforcement Advisory Panel

SAFMC Snapper Grouper Advisory Panel

SAFMC Scientific and Statistical Committee

North Carolina Coastal Zone Management Program

South Carolina Coastal Zone Management Program

Georgia Coastal Zone Management Program

Florida Coastal Zone Management Program

Florida Fish and Wildlife Conservation Commission

Georgia Department of Natural Resources

South Carolina Department of Natural Resources

North Carolina Division of Marine Fisheries

North Carolina Sea Grant

South Carolina Sea Grant

Georgia Sea Grant

Florida Sea Grant

Atlantic States Marine Fisheries Commission

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

# **Chapter 9. References**

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