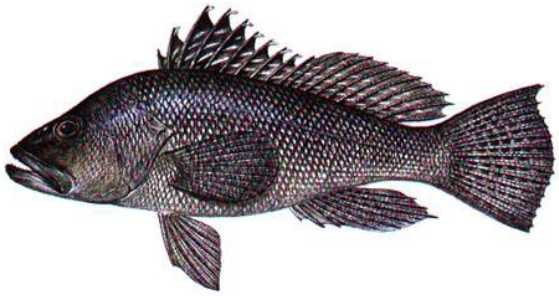

# Regulatory Amendment 16 to the Fishery Management Plan for the Snapper Grouper Fishery of the South Atlantic Region

# SUMMARY DOCUMENT

**March 2015**

# Background

In 2013, a stock assessment concluded that the black sea bass stock in the South Atlantic is not undergoing overfishing, is not overfished, and is rebuilt. In response to the stock assessment, the Council's Scientific and Statistical Committee (SSC), at their April 2013 meeting, recommended an increase to the acceptable biological catch (ABC) for black sea bass. The increase in the ABC allowed the commercial and recreational annual catch limits (ACL) to increase. The Council and NMFS, through Regulatory Amendment 19 to the Fishery Management Plan (FMP) for the Snapper Grouper Fishery of the South Atlantic Region (Snapper Grouper FMP) (SAFMC 2013), modified the ABC, ACLs, recreational annual catch target (ACT), and optimum yield (OY) for the black sea bass stock.

The increase to the commercial ACL could have extended fishing activity with black sea bass pot gear past November 1, the onset of right whale calving season in the South Atlantic and migration of large Endangered Species Act (ESA)-listed whales. Since black sea bass pot gear could potentially be used past November 1, the only way the ACL increase could be implemented quickly was for the Council and NMFS to implement a prohibition on the use of black sea bass pot gear from November 1 through April 30 each year, beginning in 2013. Further, with the change in the start of the commercial black sea bass fishing year to January 1 each year proposed in Regulatory Amendment 14, there would likely be pots in the water during the first part of the year when whales would be present in the South Atlantic.

Without the prohibition on the use of black sea bass pots during the large whale migration and right whale calving season, a re-initiation of formal consultation for the snapper grouper fishery would have been triggered under the ESA. The consultation would have required development of a biological opinion to perform the additional analyses to evaluate the effects of black sea bass pot gear on ESA listed species. Those analyses would not have been completed in time to allow the ACL increases to be implemented for the 2013-2014 fishing season, which began on June 1. The black sea bass pot prohibition was a precautionary step taken by the Council and NMFS to allow the black sea bass ACL to increase in the 2013-2014 fishing year, while preventing potential entanglements with ESA-listed whales until a comprehensive biological impact analysis could be completed.

Through Regulatory Amendment 16, the Council and NMFS are reconsidering the annual November 1 through April 30 prohibition on the use of black sea bass pot gear. Fishery managers are considering adjustments to both the geographical and temporal boundaries of the closure in order to improve socio-economic benefits to black sea bass pot endorsement holders while maintaining protection for ESA-listed whales in the South Atlantic region. During the scoping process for Regulatory Amendment 16, fishermen reported that fishing for black sea bass during winter months is important to them and claim that the fish migrate southward and are generally found closer to shore making them easier to harvest. Fishermen have also reported this time period is important due to the coloration of the fish. Fish tend to be a lot darker during winter months, which commands a higher price on the market.

# History of Management of the Black Sea Bass Pot Fishery

The black sea bass fishery has been managed under the Snapper Grouper FMP since the plan was first published in 1983. **Table 1** shows the actions implemented from 1983 through 2013 that have affected the black sea bass pot fishery.

**Table 1**. History of SAFMC management of the black sea bass pot fishery.

| Date | Document | Action |
|---|---|---|
| 8/31/83 | Original FMP | 8" size limit |
| 1/1/92 | Amendment 1 | Prohibit black sea bass pots south of Cape Canaveral |
| 8/31/92 | Emergency Rule | Modified definition of black sea bass pots<br>Allowed multigear trips for black sea bass<br>Retention of bycatch in the black sea bass fishery |
| 2/24/99 | Amendment 9 | 10" total length size limit<br>Require escape vents and degradable fasteners |
| 12/2/99 | Amendment 11 | Set overfished level at 3.72 mp |
| 10/23/06 | Amendment 13c | Commercial step-down in ACL from 477,000 lbs gw in 2006 to 309,000 lbs gw in 2008<br>Require 2" mesh on pots<br>Change fishing year to June through May |
| 7/1/12 | Amendment 18a | Reduced participation to 32 endorsements<br>1,000 lbs gw (1,180 ww) commercial trip limit<br>Maximum of 35 pots per vessel<br>Increased size limit to 11" total length<br>Pots must be brought to shore at the conclusion of a trip |
| 9/23/13<br>10/23/13 | Reg Amend 19<br>Reg Amend 19 | Increase commercial ACL from 309,000 to 780,020 lbs ww<br>Pot closure from 11/1 through 4/30 |
| 12/8/14 | Reg Amend 14 | Commercial fishing year changed to January - December<br>Hook and line trip limit is 300 lbs gw November 1 - April 30 |

Snapper Grouper Amendment 13c in 2006 greatly stepped down the commercial ACL for black sea bass, the majority of which is taken in the pot fishery. Two additional amendments, 18a and Regulatory Amendment 19 further affected commercial fishing for black sea bass, but in very different ways.

Amendment 18a saw the implementation of required endorsements to participate in the fishery. Thirty-two endorsements were issued. For the first time, there was a commercial trip limit of 1,000 lbs gw (1,180 lbs ww) for the pot fishery. Participants in the fishery were limited to no more than 35 pots per vessel, whereas some were fishing as many as 150 pots. Leaving black sea bass pots to soak unattended was prohibited, as pots were required to be brought back at the end of each trip. The size limit for commercial black sea bass was also increased from 10 to 11 inches total length.

While Amendment 18a generally limited participation and reduced gear presence in the water, Regulatory Amendment 19 increased the commercial ACL from 309,000 to 780,020 lbs ww. Because

of the limitations put into place in Amendment 18a, the commercial black sea bass pot fishery is expected to last much longer than it has in recent years.

All of these changes taken together create a management scenario that makes it difficult to predict how fishery participants will modify their behavior, and in turn, the economic effects in response to the alternatives proposed in this action. Because of the uncertainty, multiple scenarios must be considered where appropriate when estimating economic effects of potential management changes.

# Black sea bass pot fishery participation

This amendment, which considers alternatives allowing pot fishing during all or part of the closed season, at least in some areas, is expected to result in NMFS SERO Protected Resources beginning development of a Biological Opinion (BiOp) should the SAFMC choose any alternative other than **Alternative 1 (No Action)**. Until a new BiOp is in place, the previous BiOp from 2006 is considered current in the fishery. However, it should be noted that any new BiOp that would be developed for this fishery would also take into account decisions made by the Atlantic Large Whale Take Reduction Plan.

As discussed, Amendment 18a and Regulatory Amendment 19, as well as other factors such as the general downturn in the economy, greatly changed the black sea bass pot fishery since the 2006 Biological Opinion was published following the Council's development of Snapper Grouper Amendment 13c. The 2006 BiOp assessed potential impacts from the snowy grouper, golden tilefish, vermilion snapper, red porgy and black sea bass fisheries.

Section 3.1.2 of the 2006 BiOp addresses right whale critical habitat:

> *Northern right whale critical habitat (59 FR 28793) has been designated in the action area along coastal Florida and Georgia. To determine the potential impact of the proposed action on northern right whale critical habitat, we must evaluate how the proposed action will affect the environmental features (typically referred to as the primary constituent elements) of the critical habitat areas related to water temperature, bathymetry, and food availability. We feel the modes of operation for the fishery sectors under consultation are such that they are extremely unlikely to affect, in any measurable way, the primary constituent elements of the northern right whale critical habitat. Both the vertical line and longline sectors of the fishery primarily occur seaward the these designations (SAFMC 2006); the majority of the black sea bass pot fishing efforts occurs well north of critical habitat areas (SAFMC 2006); and while powerhead use may occur within these designated areas, fishers using powerheads do not target the prey of northern right whales and would not otherwise affect the primary constituent elements of the critical habitat. Additionally, these activities are extremely unlikely to impact the physical aspects (e.g., water temperature and water depth) of the critical habitat. We do not believe the proposed action will appreciably affect northern right whale critical habitat.*

**Table 2** shows a few of the characteristics of the black sea bass pot fishery. As the 2006 BiOp went into effect on June 7th of that year, the characteristics for 2006 are split for pre and post 2006 BiOp. While trips and pounds landed are additive for 2006, the number of vessels participating in the fishery are not because many of the vessels that participated in the fishery in the first part of the year also participated in the second part of the fishing year. Also, note that the effects of Amendment 18a and

Regulatory Amendment 19 are not reflected in these landings, as they were too recent in time to be reflected in the overall characteristics.

Since the 2006 BiOp, the average annual number of vessels participating in the black sea bass pot fishery has been reduced from 43 to 35 (19%) and the average number of trips has been reduced from 675 to 393 (42%). The changes were due largely to Amendment 13c that reduced the overall ACL for black sea bass.

**Table 2**. Black sea bass pot fishery characteristics, 2002 through 2012.

| | Year | Vessels | Trips | Pounds |
|---|---|---|---|---|
| Pre 2006 BiOP | 2002 | 42 | 717 | 345,106 |
| | 2003 | 42 | 699 | 421,064 |
| | 2004 | 47 | 753 | 501,901 |
| | 2005 | 39 | 530 | 308,319 |
| | 2006 | 33 | 379 | 189,764 |
| Post 2006 BiOP | 2006 | 27 | 314 | 181,436 |
| | 2007 | 35 | 486 | 268,615 |
| | 2008 | 35 | 456 | 302,935 |
| | 2009 | 40 | 635 | 439,489 |
| | 2010 | 37 | 347 | 314,723 |
| | 2011 | 30 | 163 | 210,885 |
| | 2012 | 34 | 270 | 189,448 |
| Pre 2006 BiOP | Averages | 43 | 675 | 394,098 |
| Post 2006 BiOP | | 35 | 393 | 287,683 |

Source: SEFSC Logbook data
Note: Landings from 2006 are excluded from Averages calculated for both Pre and Post 2006 Biological Opinion.

## Purpose for Action

The purpose of Regulatory Amendment 16 is to reconsider the annual November 1 through April 30 prohibition on the use of black sea bass pot gear and to restore the black sea bass commercial sector fishery closer to the balance between pot and other gear components that existed prior to changes in management caused by early season closures due to the commercial ACL being met. The amendment will enhance buoy line/weak link gear requirements and buoy line rope marking for black sea bass pots required by the Atlantic Large Whale Take Reduction Plan, to help identify black sea bass pot gear used in the South Atlantic.

## Need for Action

The need for the amendment is to reverse adverse socioeconomic impacts to black sea bass pot endorsement holders created by the existing closure implemented through Regulatory Amendment 19 and encourage the use of pot gear, which is more selective for legal sized black sea bass and results in fewer dead discards of black sea bass, while continuing to afford protection to ESA-listed whales in the South Atlantic region.

# Proposed Actions

## Action 1. Modify the annual November 1 through April 30 prohibition on the use of black sea bass pot gear

**Alternative 1 (No Action).** Retention, possession, and fishing for black sea bass is prohibited using black sea bass pot gear, annually, from November 1 through April 30.

The following provisions currently exist that may reduce entanglements of whales listed under the Endangered Species Act. The South Atlantic Fishery Management Council does not intend to change these provisions through this amendment.

Amendment 18A to the Snapper Grouper Fishery Management Plan of the South Atlantic Region (SAFMC 2012a):

- Established an endorsement program that capped the number of vessels utilizing pot gear at 32;
- Limited the number of pots per vessel to 35;
- Required that pots be brought back to shore after each trip;
- Established a commercial trip limit of 1,000 lbs gw;

See **Table 1.6.1** for measures mandated through the Atlantic Large Whale Take Reduction Plan.

**Alternative 2.** The black sea bass pot closure applies to the area currently designated as North Atlantic right whale critical habitat **(Figure 2.1.1)**. North Atlantic right whale critical habitat encompasses waters between 31° 15'N, (approximately the mouth of the Altamaha River, Georgia) and 30° 15'N (approximately Jacksonville, Florida) from the shoreline out to 15 nautical miles offshore; and the waters between 30° 15'N and 28 °00'N, (approximately Sebastian Inlet, Florida) from the shoreline out to 5 nautical miles. The closure applies to the area annually from November 15 through April 15.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations within state waters.

Note: This area represents North Atlantic right whale critical habitat in the South Atlantic region designated on June 3, 1994. The map below provides location of the critical habitat boundary. The critical habitat designation did not provide waypoints for the boundary. The boundary would not automatically change if the boundary for the right whale critical habitat were to change.

The following is language describing the North Atlantic right whale critical habitat area from 50 CFR 226:

*Southeastern United States: The area designated as critical habitat in these waters*

*encompasses waters between 31 deg.15'N (approximately located at the mouth of the Altamaha River, GA) and 30 deg.15'N (approximately Jacksonville, FL) from the shoreline out to 15 nautical miles offshore; and the waters between 30 deg.15'N and 28 deg.00'N (approximately Sebastian Inlet, FL) from the shoreline out to 5 nautical miles.*

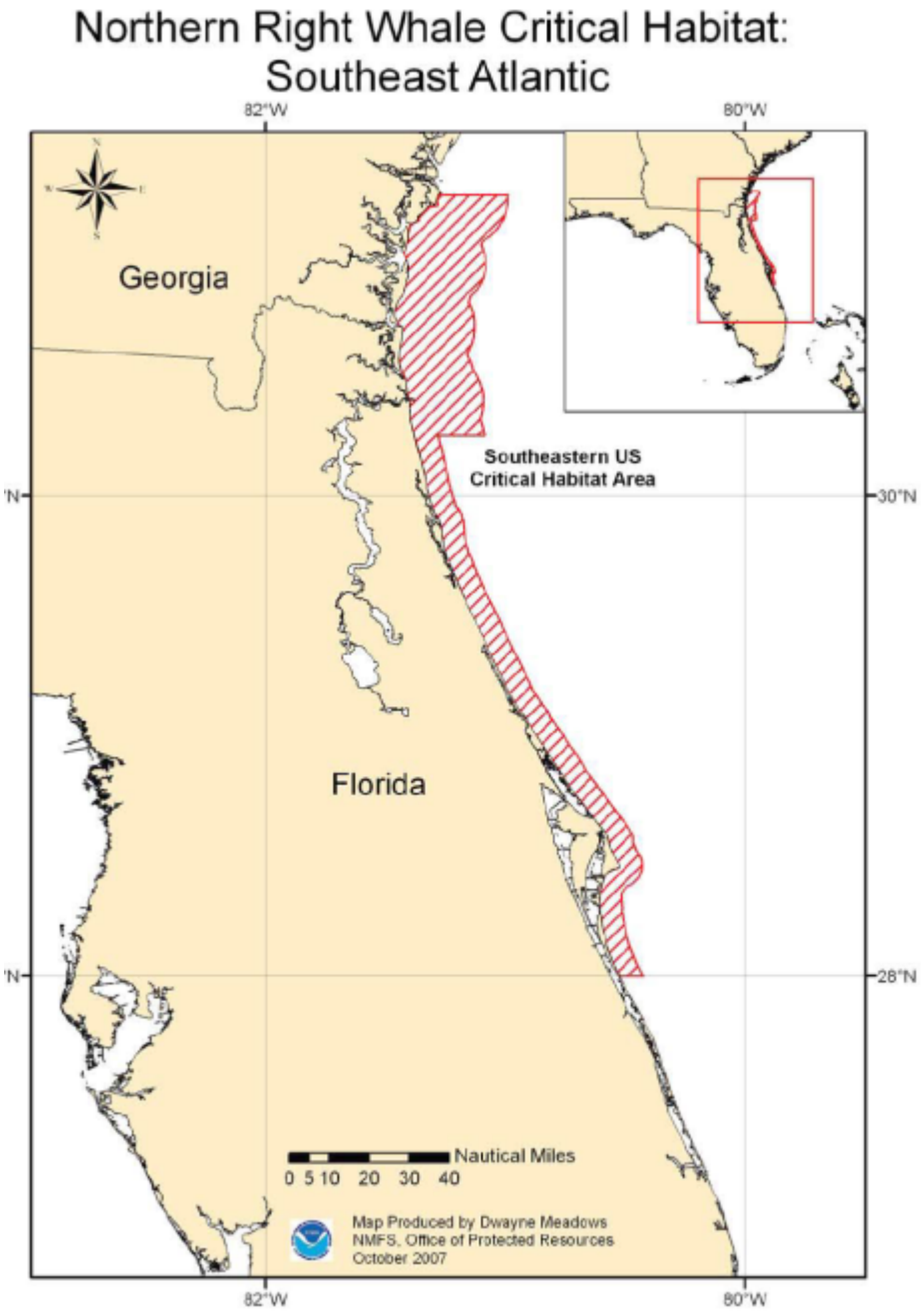


**Figure 2.1.1.** Area for the proposed black sea bass pot closure in **Alternative 2**.
Source: Dwayne Meadows, NMFS Office of Protected Resources.

**Alternative 3.** The black sea bass pot closure applies to waters inshore of points 1-15 listed below **(Table 2.1.1)**; approximately Ponce Inlet, Florida, to Cape Hatteras, North Carolina **(Figure 2.1.2)**. The closure applies to the area annually from November 1 through April 30.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations within state waters.

Note: This area likely represents North Atlantic right whale calving habitat. The area identified from Cape Fear, North Carolina, southward to 29°N (approximately Ponce Inlet, Florida) is based on model outputs (i.e., Garrison 2007, Keller et al. 2012, Good 2008). The area from Cape Fear, North Carolina, to Cape Hatteras, North Carolina, is an extrapolation of those model outputs and based on sea surface temperatures and bathymetry.

**Table 2.1.1.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 3**.

| Point | N Latitude | W Longitude |
|---|---|---|
| 1 | 35°15′ N | State/EEZ boundary |
| 2 | 35°15’ | 75°12’ |
| 3 | 34°51’ | 75°45’ |
| 4 | 34°21’ | 76°18’ |
| 5 | 34°21’ | 76°45’ |
| 6 | 34°12’ | 77°21’ |
| 7 | 33°37’ | 77°47 |
| 8 | 33°28’ | 78°33 |
| 9 | 32°59’ | 78°50’ |
| 10 | 32°17’ | 79°53’ |
| 11 | 31°31’ | 80°33’ |
| 12 | 30°43’ | 80°49’ |
| 13 | 30°30’ | 81°01’ |
| 14 | 29°45’ | 81°01’ |
| 15 | 29°00’ | State/EEZ boundary |

Source: Amanda Frick, NMFS SERO.

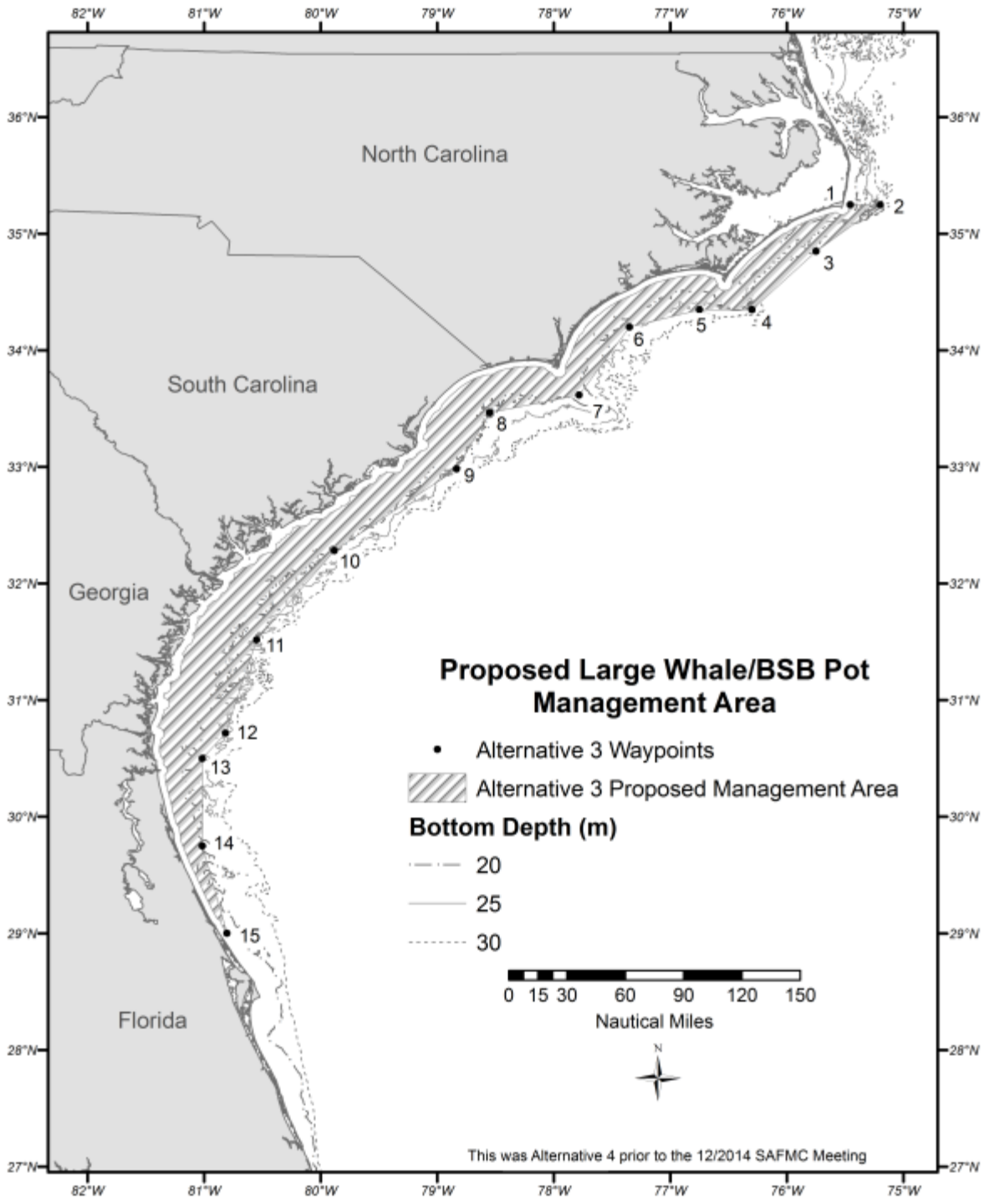


**Figure 2.1.2.** Area for the proposed black sea bass pot closure in **Alternative 3**.
Source: Amanda Frick, NMFS SERO.

**Alternative 4.** The black sea bass pot closure applies to waters inshore of points 1-28 listed below **(Table 2.1.2)**; approximately Cape Canaveral, Florida, to Cape Hatteras, North Carolina **(Figure 2.1.3)**. The closure applies to the area annually from November 1 through April 30.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations within state waters.

Note: This area generally represents waters 25 m or shallower from 28° 21 N (approximately Cape Canaveral, Florida) to Savannah, Georgia; from the Georgia/South Carolina border to Cape Hatteras, North Carolina, the closure applies to waters under Council management that are 30 m or shallower. This bathymetric area is based on right whale sightings (all demographic segments) and sightings per unit of effort (proxy of density) by depth and captures 97% and 96% of right whale sightings off the North Carolina/South Carolina area, and Florida/Georgia area, respectively. The map below provides an approximate location of the proposed boundary.

**Table 2.1.2.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 4**.

| Point | N Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15’ | State/EEZ boundary |
| 2 | 35° 15’ | 75° 08’ |
| 3 | 34° 58’ | 75° 41’ |
| 4 | 34° 49’ | 75° 50’ |
| 5 | 34° 47’ | 76° 05’ |
| 6 | 34° 31’ | 76° 18’ |
| 7 | 34° 20’ | 76° 13 |
| 8 | 34° 12’ | 77° 00’ |
| 9 | 33° 43’ | 77° 30’ |
| 10 | 33° 21’ | 77° 21’ |
| 11 | 33° 18’ | 77° 41’ |
| 12 | 33° 22’ | 77° 56’ |
| 13 | 33° 12’ | 78° 20’ |
| 14 | 33° 05’ | 78° 22’ |
| 15 | 33° 01’ | 78° 38’ |
| 16 | 32° 40’ | 79° 01’ |
| 17 | 32° 36’ | 79° 18’ |
| 18 | 32° 19’ | 79° 22’ |
| 19 | 32° 16’ | 79° 37’ |
| 20 | 32° 03’ | 79° 48’ |
| 21 | 31° 39’ | 80° 27’ |
| 22 | 30° 58’ | 80° 47’ |
| 23 | 30° 13’ | 81° 01’ |
| 24 | 29° 32’ | 80° 39’ |
| 25 | 29° 22’ | 80° 44’ |
| 26 | 28° 50’ | 80° 22’ |

| | | |
|---|---|---|
| 27 | 28° 21’ | 80° 18’ |
| 28 | 28° 21’ | State/EEZ boundary |

Source: Amanda Frick, NMFS SERO.

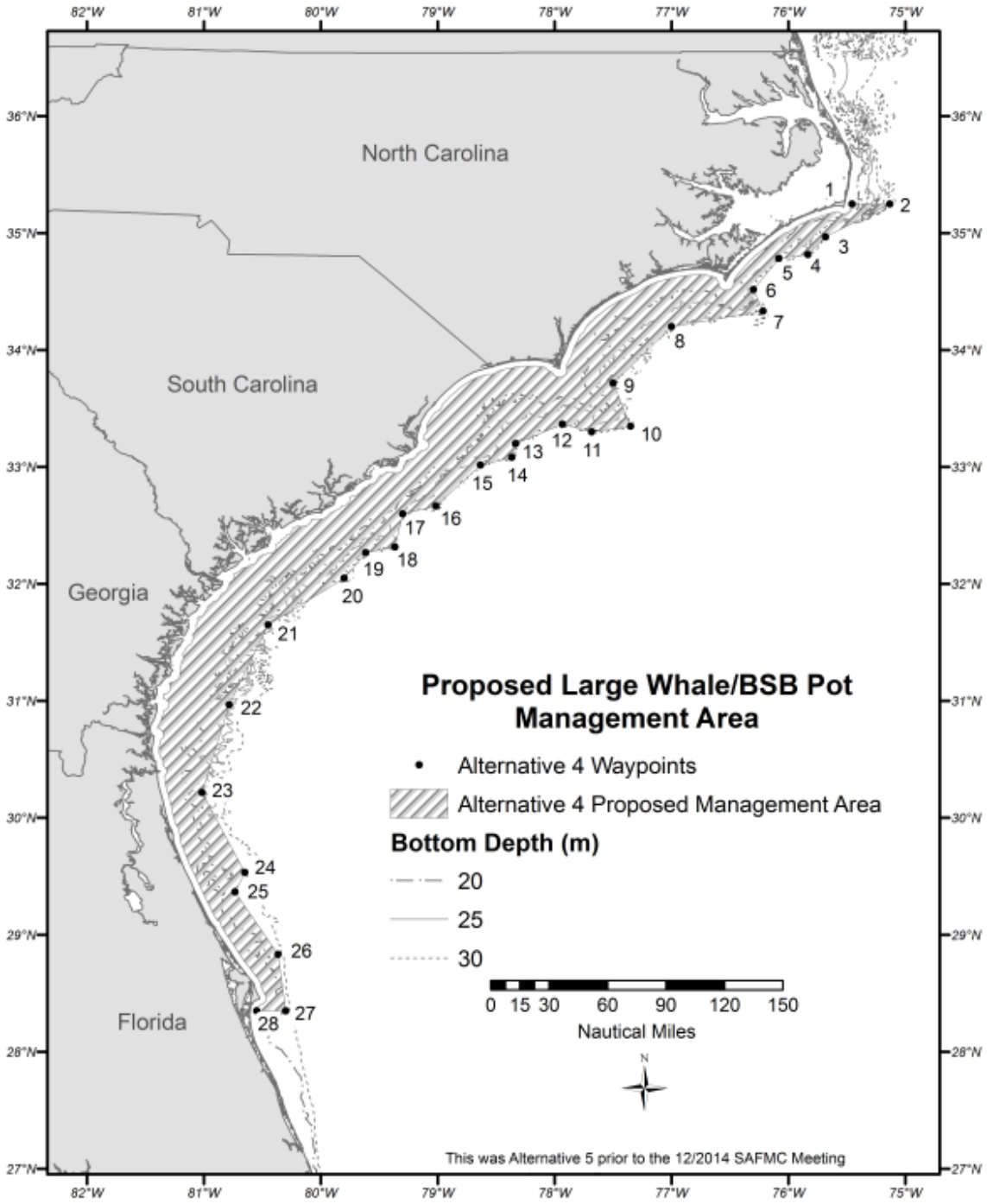


**Figure 2.1.3.** Area for the proposed black sea bass pot closure in **Alternative 4**.
Source: Amanda Frick, NMFS SERO.

**Alternative 5.** The black sea bass pot closure applies to waters inshore of points 1-28 listed below **(Table 2.1.3)**; approximately Daytona Beach, Florida, to Cape Hatteras, North Carolina **(Figure 2.1.4)**. The closure applies to the area annually from November 1 through April 30.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations within state waters.

Note: This area is based on joint comments received from non-government organizations (dated January 3, 2014) in response to NMFS' December 4, 2013, *Federal Register* Notice of Intent to Prepare this Draft Environmental Impact Statement (DEIS) (78 FR 72868). The non-government organizations proposed the area as a reasonable alternative for consideration. The area, also included in a Center for Biological Diversity et al. petition in 2009 for right whale critical habitat, is off the coasts of Georgia and Florida and based on calving right whale habitat modeling work of Garrison (2007) and Keller et al. (2012). This area represents the 75$^{th}$ percentile of sightings (91% of historical sightings included in their study) off Florida and Georgia (Garrison 2007 and Keller et al. 2012). Off the coasts of North Carolina and South Carolina, the closure extends from the ~~coastline~~ start of the EEZ to 30 nautical miles offshore. The map below provides approximate location of proposed boundary.

**Table 2.1.3.** Eastern boundary coordinates for the proposed black sea Bass pot closure in **Alternative 5**.

| Point | N Latitude | W Longitude |
|---|---|---|
| 1 | 35°15' | State/EEZ Boundary |
| 2 | 35°15' | 74°54' |
| 3 | 35°03' | 74°57' |
| 4 | 34°51' | 75°06' |
| 5 | 34°45' | 75°18' |
| 6 | 34°43' | 75°33' |
| 7 | 34°26' | 75°57' |
| 8 | 34°12' | 76°07' |
| 9 | 34°04' | 76°26' |
| 10 | 34°05' | 76°41' |
| 11 | 34°10' | 76°55' |
| 12 | 33°58' | 77°16' |
| 13 | 33°41' | 77°23' |
| 14 | 33°28' | 77°32' |
| 15 | 33°21' | 77°45' |
| 16 | 33°19' | 78°02' |
| 17 | 33°24' | 78°17' |
| 18 | 33°14' | 78°33' |
| 19 | 32°55' | 78°39' |

| | | |
|---|---|---|
| 20 | 32°39’ | 78°56’ |
| 21 | 31°42’ | 80°24’ |
| 22 | 31°31’ | 80°33’ |
| 23 | 30°43’ | 80°49’ |
| 24 | 30°30’ | 81°01’ |
| 25 | 29°45’ | 81°01’ |
| 26 | 29°31’ | 80°58’ |
| 27 | 29°13’ | 80°52’ |
| 28 | 29°13’ | State/EEZ boundary |

Source: Amanda Frick, NMFS SERO.

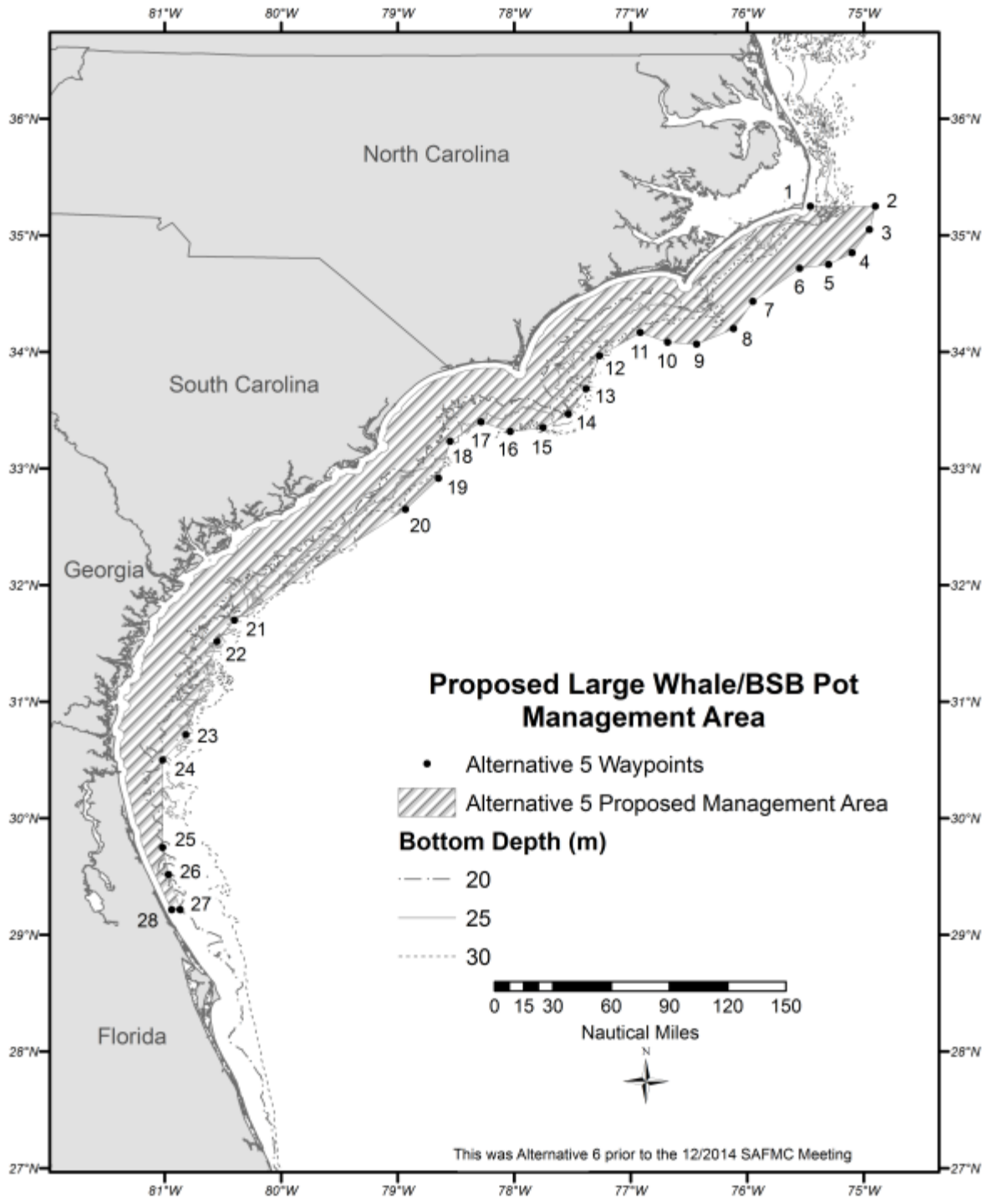


**Figure 2.1.4.** Area for the proposed black sea bass pot closure in **Alternative 5**.
Source: Amanda Frick, NMFS SERO.

**Alternative 6.** The black sea bass pot closure applies to waters inshore of points 1-20 listed below **(Table 2.1.4)**; approximately Sebastian, Florida, to Cape Hatteras, North Carolina. The closure applies to the area annually from November 1 through April 30.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations within state waters.

Note: This area is also based on joint comments received from a number of environmental groups (dated January 3, 2014) in response to NMFS' December 4, 2013, *Federal Register* Notice of Intent to Prepare this DEIS (78 FR 72868). The environmental groups proposed the area as a reasonable alternative for consideration. This area represents an existing management area, the Southeast Seasonal Gillnet Restricted Area, under the Atlantic Large Whale Take Reduction Plan; and an additional area off North Carolina. The area off North Carolina includes waters shallower than 30 meters and is northward of the designated ALWTRP Southeast Restricted Area.

**Table 2.1.4.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 6**.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35º ’15’ | State/EEZ Boundary |
| 2 | 35º ’15’ | 75º 08’ |
| 3 | 34º 58’ | 75º 41’ |
| 4 | 34º 49’ | 75º 50’ |
| 5 | 34º 47’ | 76º 05’ |
| 6 | 34º 31’ | 76º 18’ |
| 7 | 34º 20’ | 76º 13’ |
| 8 | 34º 12’ | 77º 00’ |
| 9 | 33º 43’ | 77º 30’ |
| 10 | 33º 21’ | 77º 21’ |
| 11 | 33º 18’ | 77º 41’ |
| 12 | 33º ’22’ | 77º ’56’ |
| 13 | 33º 19’ | 78º 06’ |
| 14 | 32º 58’ | 78º 39’ |
| 15 | 32º 39’ | 78º 59’ |
| 16 | 32º 37’ | 79º 14’ |
| 17 | 32º 22’ | 79º 22’ |
| 18 | 32º 00’ | 80º 00’ |
| 19 | 27º 51’ | 80º 00’ |
| 20 | 27º 51’ | State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

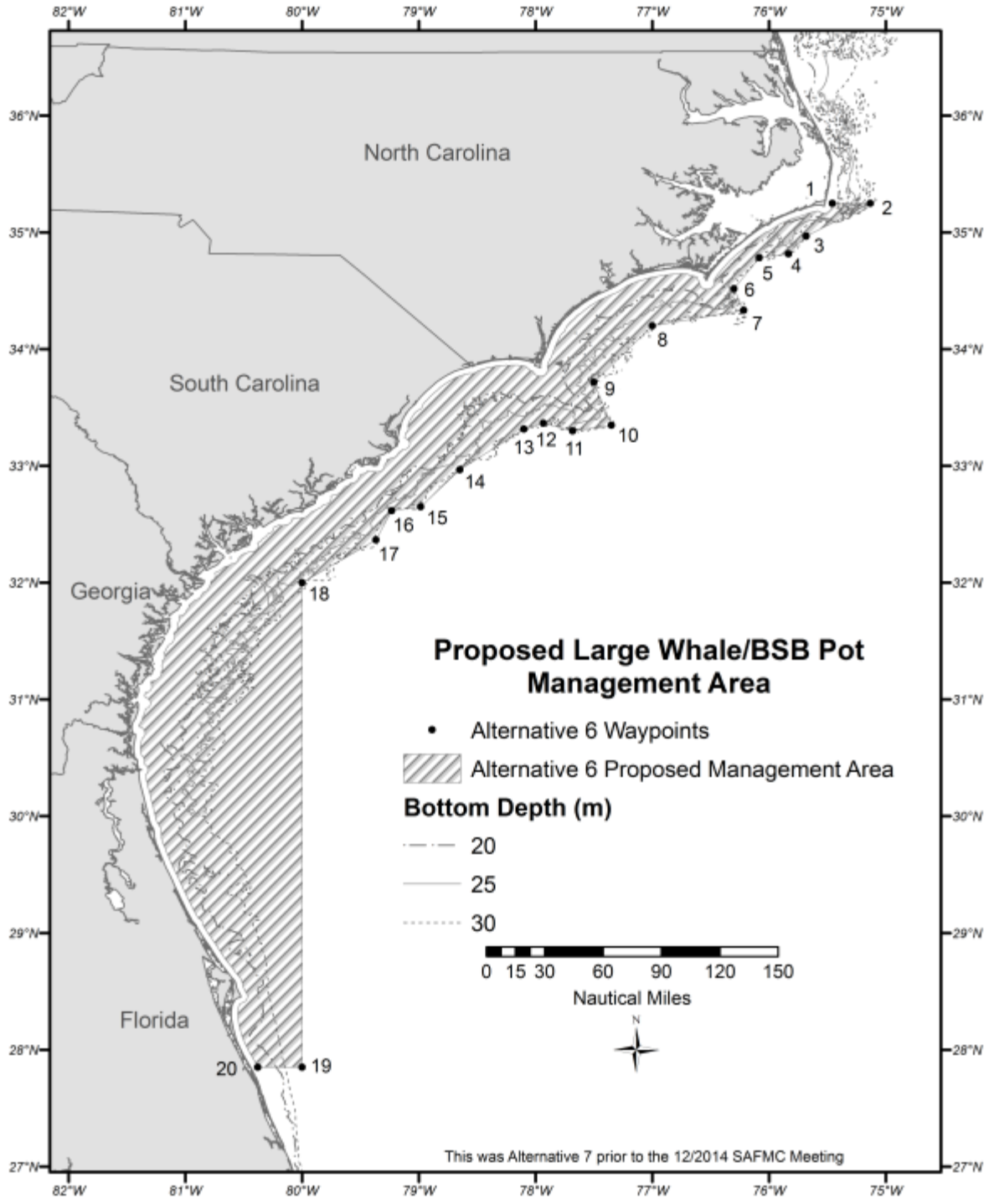


**Figure 2.1.5**. Area for the proposed black sea bass pot closure in **Alternative 6**.
Source: Amanda Frick, NMFS SERO.

**Alternative 7.** The black sea bass pot closure applies to the area currently designated as North Atlantic right whale critical habitat, in addition to waters inshore of points 1-29 listed below **(Table 2.1.5)**; approximately North of the Altamaha River, Georgia, to Cape Hatteras, North Carolina **(Figure 2.1.6)**.

> **Sub-alternative 7a.** The black sea bass pot closure applies to the area annually from November 1 through December 15 and March 15 through April 30.
>
> **Sub-alternative 7b.** For the area off North Carolina and South Carolina, the black sea bass pot closure applies annually from November 1 through December 15 and March 15 through April 30. For the area off Georgia and Florida, the black sea bass pot closure applies annually from November 15 through April 15.
>
> **Sub-alternative 7c.** For the area off North Carolina and South Carolina, the black sea bass pot closure applies annually from February 15 through April 30. For the area off Georgia and Florida, the black sea bass pot closure applies annually from November 15 through April 15.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations for the portion of the area within state waters.

Note: This area represents North Atlantic right whale critical habitat in the South Atlantic region designated on June 3, 1994. Off North Carolina and South Carolina, the black sea bass pot closure applies in the exclusive economic zone in waters shallower than 25 meters. The eastern boundary of the closure between these two areas was formed by drawing a straight line from the southeastern corner waypoint of the northern portion (NC/SC) to the northeastern corner waypoint of the southern section (FL/GA).

The following is language describing the North Atlantic right whale critical habitat area from 50 CFR 226:

> *Southeastern United States: The area designated as critical habitat in these waters encompasses waters between 31 deg.15'N (approximately located at the mouth of the Altamaha River, GA) and 30 deg.15'N (approximately Jacksonville, FL) from the shoreline out to 15 nautical miles offshore; and the waters between 30 deg.15'N and 28 deg.00'N (approximately Sebastian Inlet, FL) from the shoreline out to 5 nautical miles.*

**Table 2.1.5.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 7**.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15’ | ’State/EEZ boundary |
| 2 | 35° 15’ | 75° 09’ |
| 3 | 35° 06’ | 75° 22’ |
| 4 | 35° 06’ | 75° 39’ |
| 5 | 35° 01’ | 75° 47’ |
| 6 | 34° 54’ | 75° 46’ |
| 7 | 34° 52’ | 76° 04’ |
| 8 | 34° 33’ | 76° 22’ |
| 9 | 34° 23’ | 76° 18’ |
| 10 | 34° 21’ | 76° 27’ |
| 11 | 34° 25’ | 76° 51’ |
| 12 | 34° 09’ | 77° 19’ |
| 13 | 33° 44’ | 77° 38’ |
| 14 | 33° 25’ | 77° 27’ |
| 15 | 33° 22’ | 77° 40’ |
| 16 | 33° 28’ | 77° 41’ |
| 17 | 33° 32’ | 77° 53’ |
| 18 | 33° 22’ | 78° 26’ |
| 19 | 33° 06’ | 78° 31’ |
| 20 | 33° 05’ | 78° 40’ |
| 21 | 33° 01’ | 78° 43’ |
| 22 | 32° 56’ | 78° 57’ |
| 23 | 32° 44’ | 79° 04’ |
| 24 | 32° 42’ | 79° 13’ |
| 25 | 32° 34’ | 79° 23’ |
| 26 | 32° 25’ | 79° 25’ |
| 27 | 32° 23’ | 79° 37’ |
| 28 | 31° 53’ | 80° 09’ |
| 29 | 31° 15’ | 80° 59’ |
| 30 | 30° 56’ | 81° 05’ |
| 31 | 30° 42’ | 81° 07’ |
| 32 | 30° 15’ | 81° 05’ |
| 33 | 30° 15’ | 81° 17’ |

| | | |
|---|---|---|
| 34 | 29° 40’ | 81° 07’ |
| 35 | 29° 08’ | 80° 51’ |
| 36 | 28° 36’ | 80° 28’ |
| 37 | 28° 26’ | 80° 25’ |
| 38 | 28° 20’ | 80° 31’ |
| 39 | 28° 11’ | 80° 30’ |
| 40 | 28° 00’ | 80° 25’ |
| 41 | 28° 00’ | ’State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

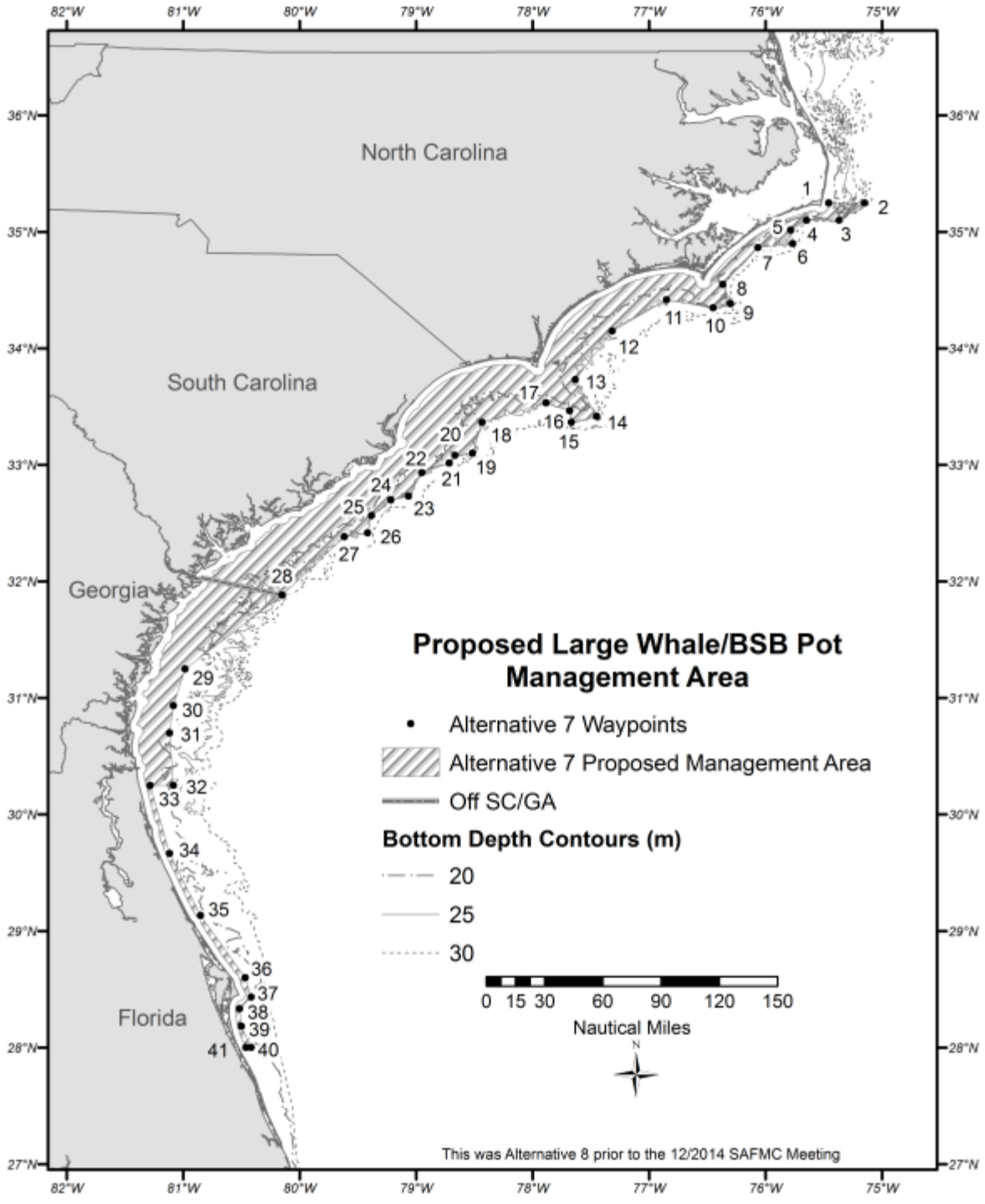


**Figure 2.1.6.** Area for the proposed black sea bass pot closure in **Alternative 7**.
Source: Amanda Frick, NMFS SERO.

**Alternative 8 .** The black sea bass pot closure applies to waters inshore of points 1-35 listed below **(Table 2.1.6)**; approximately Daytona Beach, Florida, to Cape Hatteras, North Carolina **(Figure 2.1.7)**.

**Sub-alternative 8a.** The black sea bass pot closure applies to the area annually from November 1 through April 15.

**Sub-alternative 8b.** For the area off North Carolina and South Carolina, the black sea bass pot closure applies annually from November 1 through December 15 and February 15 through April 30. For the area off Georgia and Florida, the black sea bass pot closure applies annually from November 15 through April 15.

Note: Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations for the portion of the area within state waters.

Note: In **Alternative 8**, the boundaries off Florida and Georgia are identical to the boundaries in **Alternative 5**. Off North Carolina and South Carolina, the black sea bass pot closure applies in the exclusive economic zone in waters shallower than 25 meters.

**Table 2.1.6.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 8**.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15’ | ’State/EEZ Boundary |
| 2 | 35° 15’ | 75° 09’ |
| 3 | 35° 06’ | 75° 22’ |
| 4 | 35° 06’ | 75° 39’ |
| 5 | 35° 01’ | 75° 47’ |
| 6 | 34° 54’ | 75° 46’ |
| 7 | 34° 52’ | 76° 04’ |
| 8 | 34° 33’ | 76° 22’ |
| 9 | 34° 23’ | 76° 18’ |
| 10 | 34° 21’ | 76° 27’ |
| 11 | 34° 25’ | 76° 51’ |
| 12 | 34° 09’ | 77° 19’ |
| 13 | 33° 44’ | 77° 38’ |
| 14 | 33° 25’ | 77° 27’ |
| 15 | 33° 22’ | 77° 40’ |
| 16 | 33° 28’ | 77° 41’ |
| 17 | 33° 32’ | 77° 53’ |
| 18 | 33° 22’ | 78° 26’ |
| 19 | 33° 06’ | 78° 31’ |
| 20 | 33° 05’ | 78° 40’ |
| 21 | 33° 01’ | 78° 43’ |
| 22 | 32° 56’ | 78° 57’ |
| 23 | 32° 44’ | 79° 04’ |
| 24 | 32° 42’ | 79° 13’ |
| 25 | 32° 34’ | 79° 23’ |
| 26 | 32° 25’ | 79° 25’ |

| | | |
|---|---|---|
| 27 | 32° 23’ | 79° 37 |
| 28 | 31° 53’ | 80° 09’ |
| 29 | 31º 31’ | 80º 33’ |
| 30 | 30º 43’ | 80º 49’ |
| 31 | 30º 30’ | 81º 01’ |
| 32 | 29º 45’ | 81º 01’ |
| 33 | 29º 31’ | 80º 58’ |
| 34 | 29º 13’ | 80º 52’ |
| 35 | 29º 13’ | State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

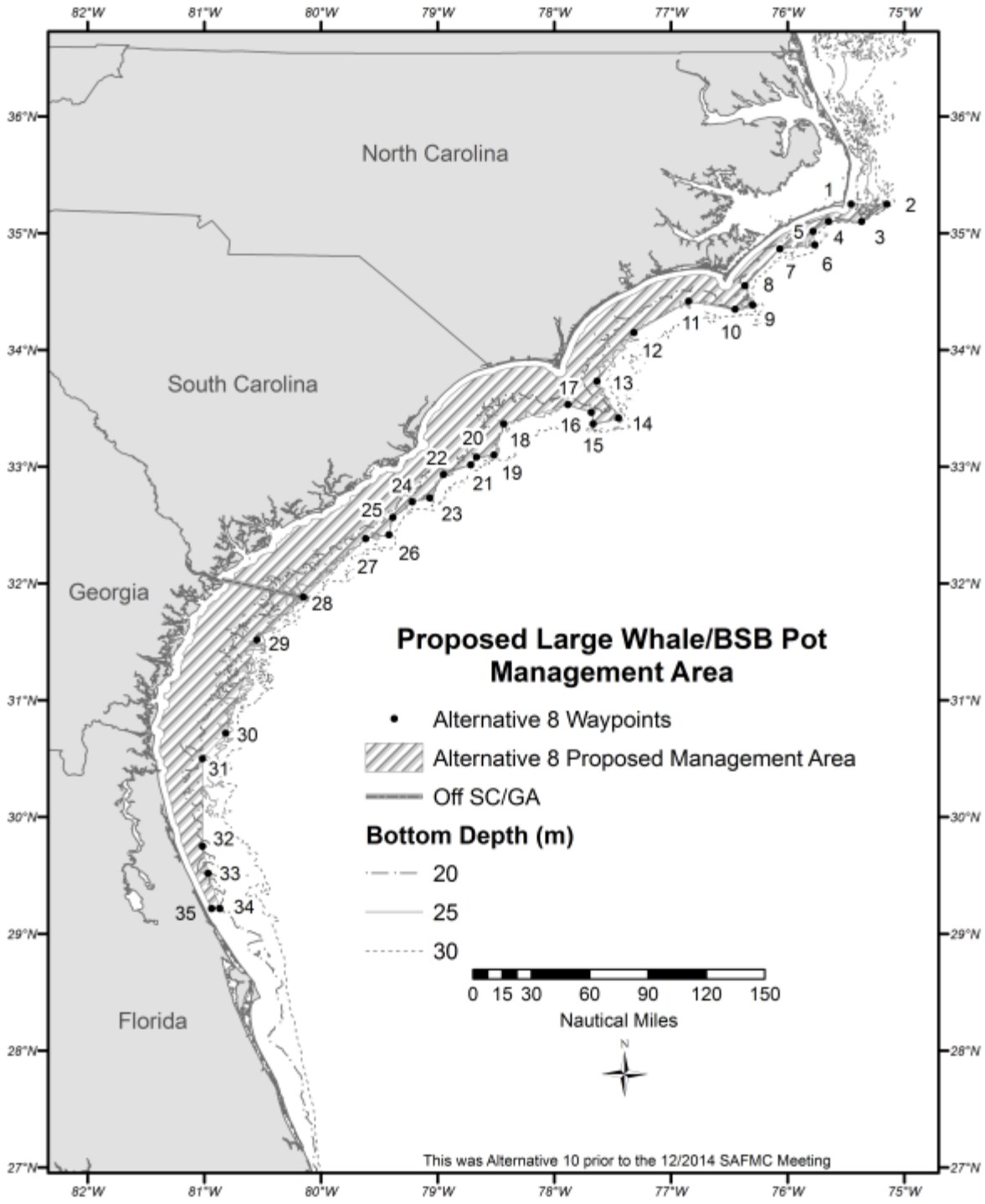


**Figure 2.1.7.** Area for the proposed black sea bass pot closure in **Alternative 8**.
Source: Amanda Frick, NMFS SERO.

**Preferred Alternative 9.** The black sea bass pot closure applies to waters inshore of points 1-18 listed below **(Table 2.1.7)**; approximately Daytona Beach, Florida, to Cape Hatteras, North Carolina **(Figure 2.1.8)**.

> **Preferred Sub-alternative 9a.** The black sea bass pot closure applies to the area annually from November 1 through April 15.
>
> **Sub-alternative 9b.** For the area off North Carolina and South Carolina, the black sea bass pot closure applies annually from November 1 through December 15 and February 15 through April 30. For the area off Georgia and Florida, the black sea bass pot closure applies annually from November 15 through April 15.

**Note:** Federal regulations would only apply to that portion of the area within the South Atlantic EEZ. The states will be asked to implement compatible regulations for the portion of the area within state waters.

**Note:** In **Preferred Alternative 9**, the boundaries off Florida and Georgia are identical to the boundaries in **Alternative 5**. Off North Carolina and South Carolina, the black sea bass pot closure applies in the exclusive economic zone in waters shallower than 20 meters.

**Table 2.1.7.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Preferred Alternative 9**.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15′ | State/EEZ Boundary |
| 2 | 35° 15’ | 75° ’20’ |
| 3 | 35° 05’’ | 75° ’24’ |
| 4 | 35° 08’’ | ’75° 38’ |
| 5 | 35° 04’’ | ’75° 52’ |
| 6 | 34° ’51’ | ’76° 11’ |
| 7 | 34° 36’’ | 76° 24’ |
| 8 | 34° 24’’ | 76° 19’ |
| 9 | 34° 21’’ | ’76° 27’ |
| 10 | 34° 33’’ | ’76° 48’ |
| 11 | 34° 16’ | 77° 25’ |
| 12 | 33° 44’ | 77° 46’ |
| 13 | 33° 30’ | 77° 31’ |
| 14 | 33° 28’ | 77° 35’ |
| 15 | 33° 36’ | 77° 55’ |
| 16 | 33° 34’ | 78° 28’ |
| 17 | 32° 59’ | 78° 52’ |
| 18 | 32° 59’ | 79° 02’ |
| 19 | 32° 31’ | 79° 30’ |
| 20 | 31° 57’ | 80° 27’ |
| 11 | 31° ’42’ | 80° ’24’ |
| 12 | 31º 31’ | 80º 33’ |
| 13 | 30º 43’ | 80º 49’ |
| 14 | 30º 30’ | 81º 01’ |
| 15 | 29º 45’ | 81º 01’ |
| 16 | 29º 31’ | 80º 58’ |
| 17 | 29º 13’ | 80º 52’ |
| 18 | 29º 13’ | State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

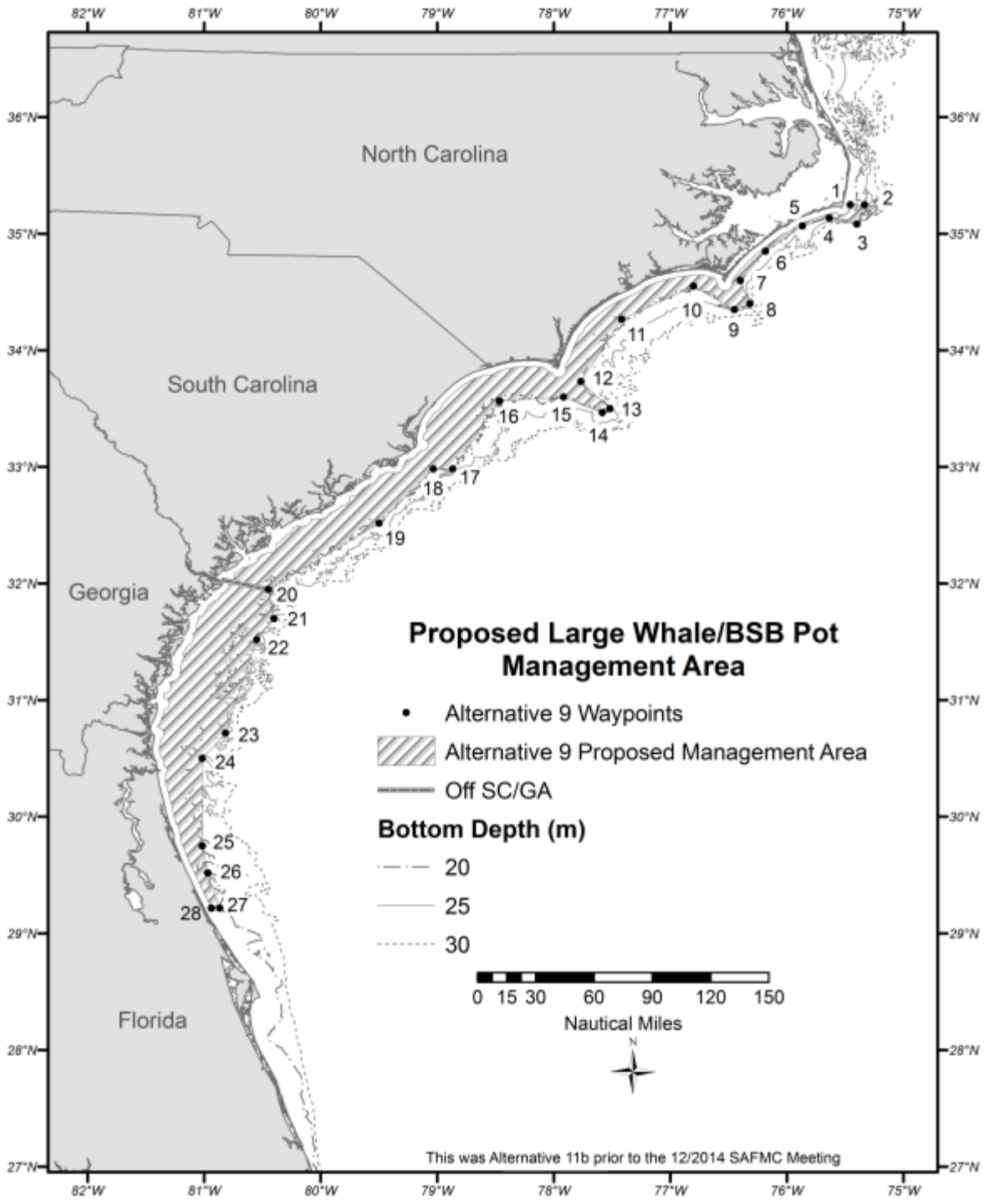


**Figure 2.1.8.** Area for the proposed black sea bass pot closure in **Preferred Alternative 9**. Source: Amanda Frick, NMFS SERO.

**Alternative 10.** From November 1 through December 15, the black sea bass pot closure applies to waters inshore of points 1-20 listed below **(Table 2.1.8)**, approximately Georgia/South Carolina State Line, to Cape Hatteras, North Carolina **(Figure 2.1.9).**

From February 15 through April 30, the black sea bass pot closure applies to waters inshore of points 1-28 listed below **(Table 2.1.9)**, approximately Georgia/South Carolina State Line, to Cape Hatteras, North Carolina **(Figure 2.1.10).**

From December 16 through February 14, there would be no closure off of the Carolinas.

From November 15 through April 15, the black sea bass pot closure applies to waters inshore of points 20-28 listed below **(Table 2.1.8)**, approximately Georgia/South Carolina State Line, to approximately Daytona Beach, Florida **(Figure 2.1.9).**

**Note:** In **Alternative 10**, the boundaries off Florida and Georgia are identical to the boundaries in **Alternative 5**. Off North Carolina and South Carolina, the black sea bass pot closure applies in the exclusive economic zone in waters shallower than 20 meters from November 1 through December 15 and 25 meters from February 15 through April 30.

**Table 2.1.8.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 10** for November 1 through December 15.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15′ | State/EEZ Boundary |
| 2 | 35° 15’ | 75° ’20’ |
| 3 | 35° 05’’ | 75° ’24’ |
| 4 | 35° 08’’ | ’75° 38’ |
| 5 | 35° 04’’ | ’75° 52’ |
| 6 | 34° ’51’ | ’76° 11’ |
| 7 | 34° 36’’ | 76° 24’ |
| 8 | 34° 24’’ | 76° 19’ |
| 9 | 34° 21’’ | ’76° 27’ |
| 10 | 34° 33’’ | ’76° 48’ |
| 11 | 34° 16’ | 77° 25’ |
| 12 | 33° 44’ | 77° 46’ |
| 13 | 33° 30’ | 77° 31’ |
| 14 | 33° 28’ | 77° 35’ |
| 15 | 33° 36’ | 77° 55’ |
| 16 | 33° 34’ | 78° 28’ |
| 17 | 32° 59’ | 78° 52’ |
| 18 | 32° 59’ | 79° 02’ |
| 19 | 32° 31’ | 79° 30’ |
| 20 | 31° 57’ | 80° 27’ |
| 21 | 31° ’42’ | 80° ’24’ |
| 22 | 31º 31’ | 80º 33’ |
| 23 | 30º 43’ | 80º 49’ |
| 24 | 30º 30’ | 81º 01’ |
| 25 | 29º 45’ | 81º 01’ |

| | | |
|---|---|---|
| 26 | 29º 31’ | 80º 58’ |
| 27 | 29º 13’ | 80º 52’ |
| 28 | 29º 13’ | State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

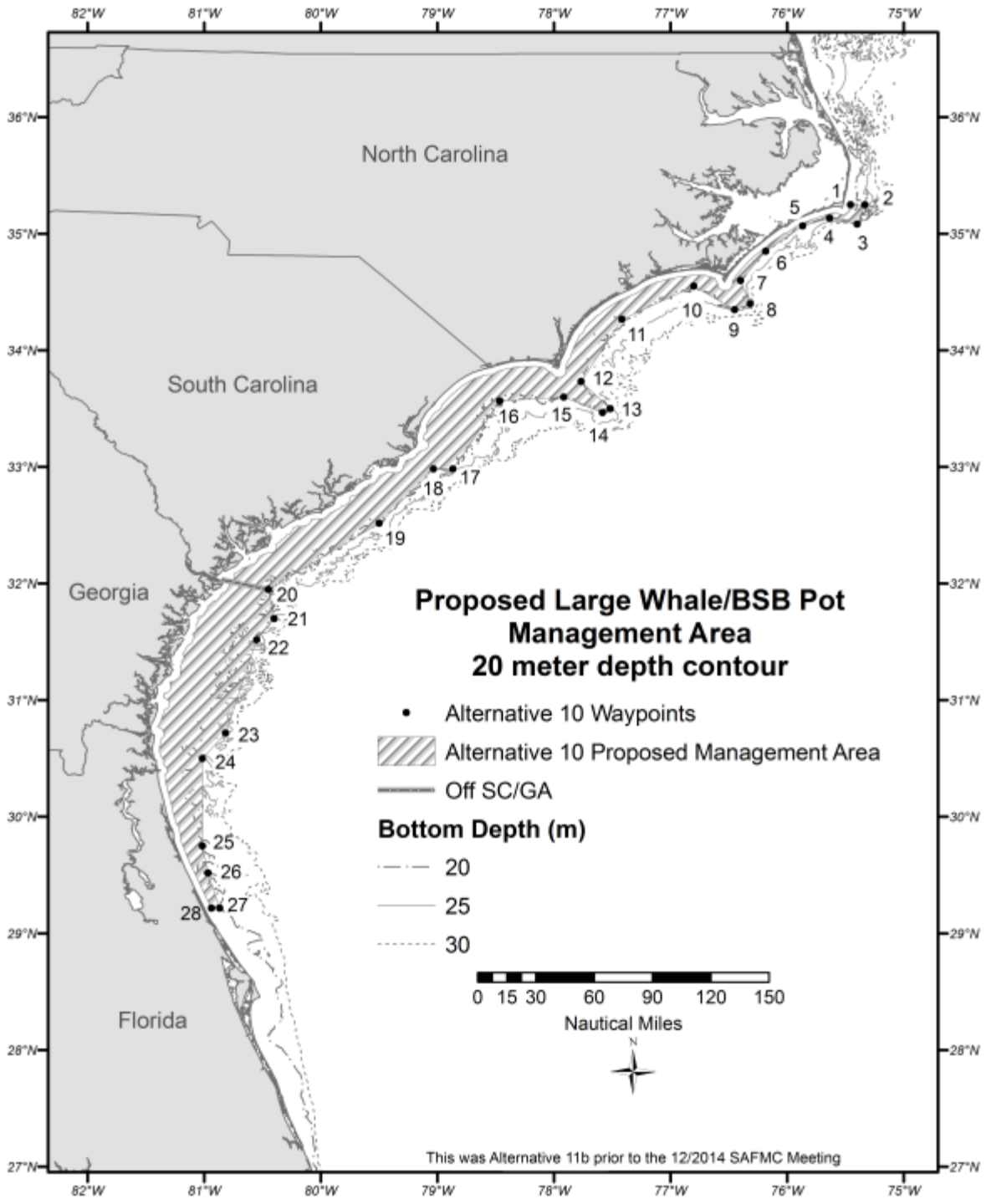


**Figure 2.1.9.** Area for the proposed black sea bass pot closure in **Alternative 10** from November 1 through December 15.
Source: Amanda Frick, NMFS SERO.

**Table 2.1.9.** Eastern boundary coordinates for the proposed black sea bass pot closure in **Alternative 10** for February 15 through April 30.

| Point | N. Latitude | W Longitude |
|---|---|---|
| 1 | 35° 15’ | ’State/EEZ Boundary |
| 2 | 35° 15’ | 75° 09’ |
| 3 | 35° 06’ | 75° 22’ |
| 4 | 35° 06’ | 75° 39’ |
| 5 | 35° 01’ | 75° 47’ |
| 6 | 34° 54’ | 75° 46’ |
| 7 | 34° 52’ | 76° 04’ |
| 8 | 34° 33’ | 76° 22’ |
| 9 | 34° 23’ | 76° 18’ |
| 10 | 34° 21’ | 76° 27’ |
| 11 | 34° 25’ | 76° 51’ |
| 12 | 34° 09’ | 77° 19’ |
| 13 | 33° 44’ | 77° 38’ |
| 14 | 33° 25’ | 77° 27’ |
| 15 | 33° 22’ | 77° 40’ |
| 16 | 33° 28’ | 77° 41’ |
| 17 | 33° 32’ | 77° 53’ |
| 18 | 33° 22’ | 78° 26’ |
| 19 | 33° 06’ | 78° 31’ |
| 20 | 33° 05’ | 78° 40’ |
| 21 | 33° 01’ | 78° 43’ |
| 22 | 32° 56’ | 78° 57’ |
| 23 | 32° 44’ | 79° 04’ |
| 24 | 32° 42’ | 79° 13’ |
| 25 | 32° 34’ | 79° 23’ |
| 26 | 32° 25’ | 79° 25’ |
| 27 | 32° 23’ | 79° 37 |
| 28 | 31° 53’ | 80° 09’ |
| 29 | 31º 31’ | 80º 33’ |
| 30 | 30º 43’ | 80º 49’ |
| 31 | 30º 30’ | 81º 01’ |
| 32 | 29º 45’ | 81º 01’ |
| 33 | 29º 31’ | 80º 58’ |
| 34 | 29º 13’ | 80º 52’ |
| 35 | 29º 13’ | State/EEZ Boundary |

Source: Amanda Frick, NMFS SERO.

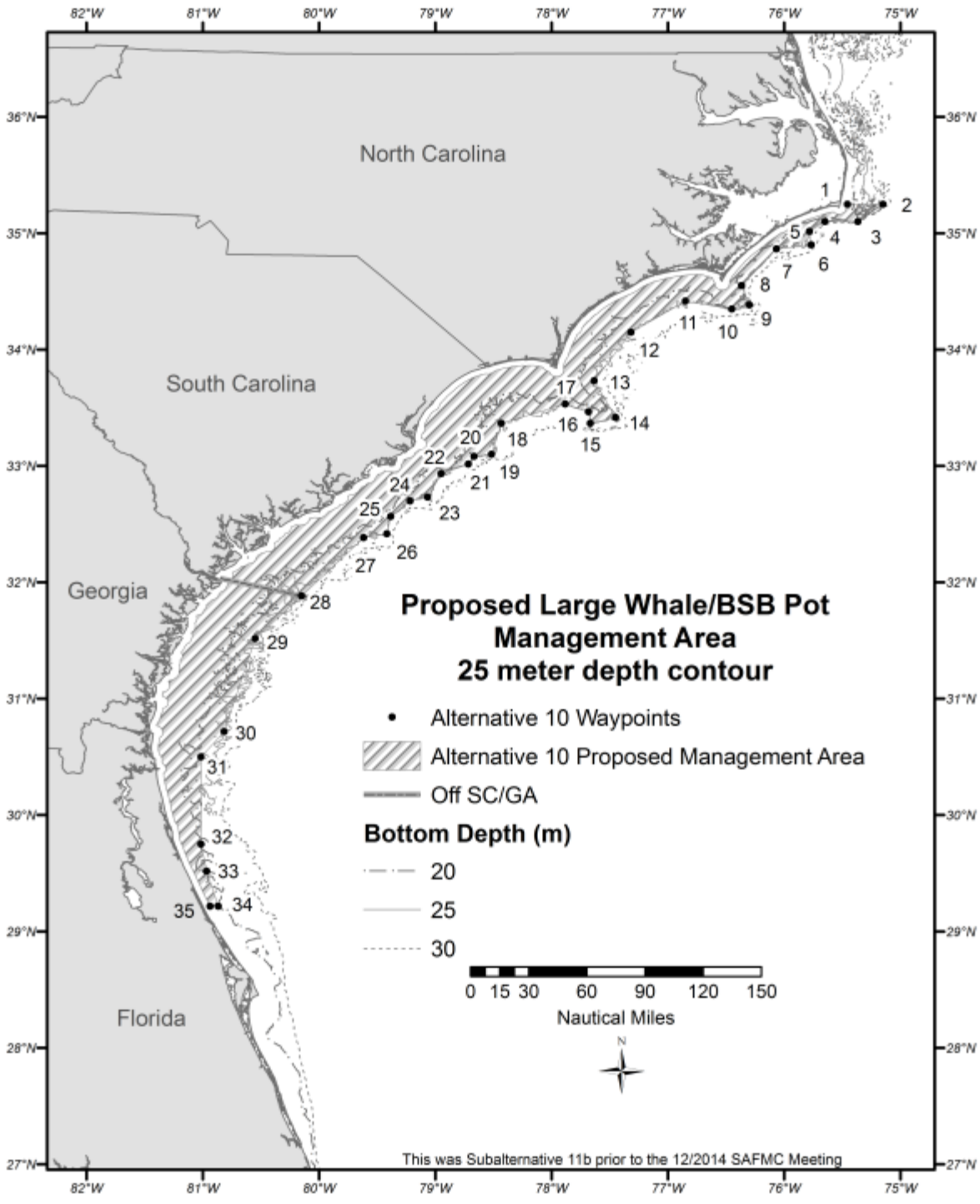


**Figure 2.1.10.** Area for the proposed black sea bass pot closure in **Alternative 10** from February 15 through April 30.

Source: Amanda Frick, NMFS SERO.

## Biological Effects:

### Black Sea Bass

Regardless of which alternative the South Atlantic Council chooses, no biological impacts to the black sea bass stock are expected. Adverse effects are prevented because overall harvest in the commercial sector is limited to the commercial ACL by the commercial accountability measures, and the ACL is reduced from the overfishing level as required to address assessment uncertainty. In addition, there is no evidence to suggest that changing the timing of harvest within the periods covered by the alternatives would have adverse biological impacts. These alternatives offer no advantages to the black sea bass stock in terms of further reduced harvest because it is estimated that 97-100% of the ACL would be taken (**Table 4.1.1.1**). Therefore, there is no difference in the biological effects on black sea bass from the alternatives.

**Table 4.1.1.1** Expected closure dates for the commercial black sea bass fishery and percent of the ACL taken with a January 1 fishing year start date.

| | **Scenario 1** | **Scenario 2** | **Scenario 3** | **Scenario 4** |
|---|---|---|---|---|
| Alternative 1 | No Closure | No Closure | No Closure | No Closure |
| Alternative 2 | 10/2 | 8/4 | 10/26 - 11/4 | 11/19 - 12/3 |
| Alternative 3 | 11/26 - 12/5 | 10/4 - 10/17 | 10/26 - 11/4 | 11/19 - 12/3 |
| Alternative 4 | 12/20 - 12/30 | 12/7 - 12/22 | 12/11 - 12/18 | 12/19 - 12/30 |
| Alternative 5 | 12/16 - 12/24 | 12/1 - 12/11 | 12/6 - 12/11 | 12/15 - 12/23 |
| Alternative 6 | 12/20 - NC* | 12/7 - 12/25 | 12/10 - 12/20 | 12/19 - NC |
| Sub-Alternative 7a | 10/11 - 10/12 | 8/18 - 8/20 | 10/6 - 10/9 | 10/7 - -10/9 |
| Sub-Alternative 7b | 12/28 - NC | 12/18 - 12/30 | 12/17 - 12/21 | 12/28 - NC |
| Sub-Alternative 7c | 12/22 - 12/28 | 12/9 - 12/17 | 12/11 - 12/14 | 12/23 - 12/29 |
| Sub-Alternative 8a | 12/6 - 12/11 | 10/14 - 10/25 | 10/29 - 11/5 | 12/5 - 12/9 |
| Sub-Alternative 8b | 12/29 - NC | 12/20 - 12/30 | 12/18 - 12/21 | 12/29 - NC |
| **Preferred Sub-Alternative 9a** | 10/28 - 11/9 | 9/15 - 9/27 | 10/13 - 10/19 | 10/24 - 11/3 |
| Sub-Alternative 9b | 12/26 - NC | 12/15 - 12/28 | 12/14 - 12/20 | 12/26 - NC |
| Alternative 10 | 12/27 - NC | 12/17 - 12/29 | 12/16 - 12/20 | 12/28 - NC |

* NC = No Closure

Source: SERO Analysis from February 2015

### Protected Resources

The overall effect of **Alternatives 2** through **10** on protected resources is unknown. The South Atlantic black sea bass pot fishery is listed as a Category II fishery by the NMFS Large Whale Take Reduction Plan due to potential interactions with endangered species including fin and humpback whales (CFR 2014). Pot gears in other areas are Category I fisheries and have been documented to cause serious injury and death to North Atlantic right whales (Johnson et al. 2005, Knowlton et al. 2012). Currently there are no published documents citing serious injury or death of large whales due to interactions

with black sea bass pot gear in the South Atlantic; however, it cannot be ruled out as a fishery with interactions because determining the fishery that interacted with a whale is difficult (NMFS 2014).

The western North Atlantic right whale stock is critically endangered and at very low levels (less than 500 individuals, Waring et al. 2014). The potential biological removal for right whales is 0.9 individuals, and any mortality or serious injury is considered significant (Waring et al. 2014). Serious injury and mortality due to human anthropogenic impacts has exceeded the PBR from 2006 to 2011 (Waring et al. 2013, Waring et al. 2014). Population estimates of North Atlantic right whale increased from the 1990s to 2010s with an estimated population growth rate of 2.8% per year (Waring et al. 2014). Over this time, the minimum estimate of stock size for the North Atlantic right whale population grew from 295 (Knowlton et al. 1994) to 455 whales (Waring et al. 2014). The population trajectory is meeting two of the four criteria for down-listing (not recovery) in the revised Recovery Plan based on the growth rate exceeding 2.0% from 1990 to 2010 and less than 1% chance of quasi-extinction in 100 years (NMFS 2014). In the 2014 NMFS Biological Opinion for the American Lobster Fishery, consultation was not required unless the mortality and serious injury of right whales exceeded an annual average of 3.25 individuals over a five year period. NMFS (2014) further stated, "Given all of the available data, it is logical to conclude that commercial fishery interactions are not threatening the survival of North Atlantic right whales, particularly in light of the increasing population trend." Due to an unusually high rate of interactions 2007 to 2011 (4.25), consultation was initiated with NMFS.

Potential serious injury or mortality to right whales should be considered for management measures in the black sea bass pot fishery because right whales may be found in the South Atlantic Fishery Management Council's (SAFMC's) jurisdiction from November 1 through April 30 (NMFS 2008). The bulk of the black sea bass pot fishery effort traditionally operated from November to April. Since 2010, the black sea bass pot fishery has not opened during this time period due to ACL closures (2010 and 2011) or the regulation which closed the season for the pot fishery from November 1 through April 30 that was required by NMFS to enable an increase in the ACL without a biological opinion (since 2012) which would have delayed the ACL increase. New restrictions enacted in 2012 to reduce potential serious injury or mortality with large whales include a maximum of 35 pots per fishermen, pots must be removed from the water when the trip is completed, and an endorsement to limit the number of fishermen (32 fishermen) that could use pots to harvest black sea bass. Since these restrictions were enacted, the average number of pots in the water per day is 75 for all endorsement holders with a maximum reported number of pots fished on a day of 278; the total pots fished cannot exceeded 1,120 pots (32 fishermen times 35 pots) in the South Atlantic (SAFMC 2014).

In an effort to provide the SAFMC with means to quantify the different alternatives in Action 1, SERO conducted a risk analysis of whale observations and black sea bass pot gear location based on different management alternatives. The model assumed as a proxy that the overlap of whale observations and gear was equivalent to risk for this analysis. The Council's Scientific and Statistical Committee (SSC) agreed that the whale

interaction prediction model developed by SERO provides useful spatial information on the current distribution of black sea bass pot effort and right whale distribution. The SSC considered the analysis an appropriate evaluation of potential overlap between black sea bass pot fishing and whale observations, but did not support the use of results as a proxy for whale interaction or entanglement. The SSC also did not agree with expressing differences between alternatives in terms of interaction risk, given that there is no information available to quantify current interaction risk. Instead, the SSC recommended presenting results as a dimensionless scalar value. While the analysis also provides a useful tool that could allow the Council to distinguish between alternatives, no indication of the uncertainty in the outcome for each alternative is provided, thus there is no way to determine if different outcomes are significant. Further, the ability to distinguish differences in alternatives is further reduced by omitting uncertainties in critical inputs, such as the whale distribution model. Therefore, it is unlikely that the apparent differences between alternatives are true and robust. To provide the Council with a method to qualitatively quantify the different alternatives, alternatives are grouped based on the results of the analysis.

**Alternative 1** retains the closure of the black sea bass pot fishery and thus would not change the overlap between the fishery gear and right whales (lowest potential overlap)(**Table 4.1.1.2**). **Alternative 2** would prohibit black sea bass pot gear from the currently designated Right Whale Critical Habitat Area from November 15 through April 15. This reduces the current closure by 30 days in the critical habitat and would allow pot fishing off North Carolina and South Carolina until the ACL is reached. **Alternative 2** would increase the overlap of pot gear and whales off North Carolina to the highest potential level (no closed area) and increase the overlap of pot gear and whales off Florida, Georgia, and South Carolina to the second highest potential level (smallest closed area)(**Table x**).

**Alternative 3** would prohibit black sea bass pot gear from the modeled calving ground from November 1 through April 30. This alternative closes areas generally less than 20 meters (m) from Cape Hatteras, North Carolina southward to the Georgia/Florida line where it gradually tapers shoreward. The timing of the closed area is greater than **Alternative 2** and closes area off North Carolina and South Carolina. However, there is still potential overlap of whales and fishery gear off Florida and Georgia and **Alternative 3** would result in the fourth highest potential overlap (**Table 4.1.1.2**).

**Alternative 4** would prohibit the use of pots in depths less than 30 meters off North Carolina and South Carolina and in depths less than 25 m off Florida and Georgia. The closed area encompasses greater than 96% of the whale sightings. The closed area is inshore from **Alternative 3** off Georgia and Florida where the highest concentration of right whale observations are located. However, the model predicts there will be little overlap between the pot fishery and right whales. **Alternative 4** has a similar potential overlap as **Alternative 6** and has the third lowest potential overlap of gear and right whales (**Table 4.1.1.2**).

**Alternative 5** would prohibit the use of pots from November 1 through April 30 in a similar area to **Alternative 3** but have a smaller closed area off Florida from Daytona Beach to Cape Canaveral and a larger closed area from Georgetown, South Carolina through Cape Hatteras, North Carolina. This alternative has less potential overlap of right whales and gear compared to **Alternative 3** but more potential overlap than **Alternative 4** likely due to the smaller closed area off Florida (**Table 4.1.1.2**).

**Alternative 6** would prohibit the use of pots from November 1 through April 30 in depths less than 30 m off North Carolina and South Carolina and in the gillnet restricted area off Florida and Georgia. This alternative has the second lowest potential overlap of gear and right whales but has very similar potential overlap to **Alternative 4** (**Table 4.1.1.2**).

**Sub-Alternatives 7a** and **7b** restrict pot use in depths less than 25 m off North Carolina and South Carolina from November 1 through December 15 and March 15 through April 30 and the currently designated Right Whale Critical Habitat Area off Georgia and Florida during differing periods. **Sub-Alternative 7a** would prohibit the use of pots in the currently designated Right Whale Critical Habitat from November 1 through December 15 and March 15 through April 30. **Sub-Alternative 7b** would prohibit the use of pots in the currently designated Right Whale Critical Habitat from November 15 through April 15. Both of these sub-alternatives have higher potential for overlap between gear and right whales than most of the other alternatives and sub-alternatives (**Table 4.1.1.2**). In particular, **Sub-Alternative 7a** does not restrict the use of pots in the currently designated Right Whale Critical Habitat from December 16 to March 14 when right whales are known to occur in the area (NMFS 2008).

**Alternative 7c** is similar to **Sub-Alternative 7b** for the prohibited area and timing off Florida and Georgia and has a closed area off North Carolina and South Carolina in depths less than 25 m from February 15 through April 30. This alternative likely has a higher potential overlap relative to most other alternatives and similar to **Sub-Alternatives 7a** and **7b** (**Table 4.1.1.2**).

**Sub-Alternatives 8a** and **8b** prohibit use of pots in depths less than 25 m off North Carolina and South Carolina over different seasons and the modelled calving grounds over different seasons. **Sub-Alternative 8a** has a longer closed pot season off the South Atlantic than **Sub-Alternative 9b** and likely has lower potential overlap between gear and right whales (**Table 4.1.1.2**). **Sub-Alternatives 8a** and **8b** likely has higher potential overlap compared to **Alternatives 1, 4, 5,** and **6** but less than **Alternative 2** and **Sub-Alternatives 7a** and **7b** (**Table 4.1.1.2**).

**Sub-Alternatives 9a (Preferred)** and **9b** and **Alternative 10** closes the same area off Georgia and Florida as **Alternative 5** from November 15 through April 15 but closes less area than **Alternative 5** off North Carolina and South Carolina. **Preferred Alternative 9a** has lower potential overlap than **Sub-Alternative 9b** and **Alternative 10** due to the longer closed and similar to **Sub-Alternatives 8a** and **8b** in overlap.

Although these models do provide an estimate of overlap between pot gear and right whales, there is little information on the distribution of right whales off North Carolina. Observations off North Carolina and South Carolina are more rare because the whales tend to surface less during migration and there have been fewer surveys in the area. However, right whales must migrate through the Carolinas during their migration routes north and south. Caution should be used when considering the overlap between pot gear and right whales because the serious injury or mortality of one individual is considered to be significant.

In summary, ranking the alternatives from the lowest to the highest potential overlap is as follows (**Table 4.1.1.2**): **Alternative 1** has the lowest potential overlap; **Alternatives 4**, **5**, and **6** have similar potential overlap with **Alternative 5** having slightly lower overlap off North Carolina and higher off Florida to South Carolina; **Alternative 3** has moderate potential overlap; **Alternative 2** and **Sub-Alternative 7a** and **7b** have similar potential overlap and ranked the highest of the alternatives for potential overlap.

**Table 4.1.1.2.** The overlap ranking of pot gear fishing location and right whale observations for Action 1 alternatives. Rank=1 indicates lowest potential overlap of the Alternatives and 12 indicates highest potential overlap of the Alternatives. Some Alternatives and Sub-Alternatives had similar overlap and were given equal rank.

| | Overlap Rank | |
|---|---|---|
| Alternative | Off Florida through South Carolina | Off North Carolina |
| Alternative 1 | 1 | 1 |
| Alternative 2 | 14 | 14 |
| Alternative 3 | 5 | 5 |
| Alternative 4 | 3 | 3 |
| Alternative 5 | 2 | 4 |
| Alternative 6 | 3 | 1 |
| Sub-Alternative 7a | 11 | 13 |
| Sub-Alternative 7b | 12 | 12 |
| Sub-Alternative 7c | 12 | 10 |
| Sub-Alternative 8a | 6 | 5 |
| Sub-Alternative 8b | 8 | 8 |
| **Preferred Sub-Alternative 9a** | 7 | 7 |
| Sub-Alternative 9b | 10 | 10 |
| Alternative 10 | 9 | 8 |

## Economic Effects:

Several factors impact the potential economic effects for each of the alternatives for **Action 1**. The following are taken into account as part of this analysis:

- The variations in price per pound for black sea bass from month to month over different time series
- The daily fishing rate expected for black sea bass for the alternatives
- The date the commercial ACL for black sea bass is expected to be reached, if at all
- Trip costs associated with black sea bass pot trips
- Other fishing activity black sea bass pot vessels traditionally participated in if not fishing black sea bass pots

**Price per pound by month**

There are many ways of analyzing prices, but for the present analysis, monthly price per pound is generated by taking averages over a period of years. Two periods, fishing years 2000/2001 through 2012/2013 and fishing years 2010/2011 through 2012/2013, are chosen for the present analysis. These two series were chosen because the first typifies a long time series and the second because it reflects the most recent fishing years. However, in this analysis because of so many management changes affecting this fishery in recent years (**Table 4.1.2.1**), any choice of years for analyzing prices has advantages and drawbacks. Using 2000/2001 through 2012/2013 is good for showing what has occurred on average over the long period, but is confounded by more management measures. Using 2010/2011 through 2012/2013 does show most recent trends, but prices for the months of June through October may be depressed due to a glut in the market caused by a derby in the pot component in the fishery and artificially inflate the value of fish caught in the winter months when few black sea bass were available. Additional analyses, such as calculating price values for the seasons of 2006/2007 through 2008/2009 might be of value as these were the last full seasons when there were not routine closures due to the commercial sector reaching is its ACL. (The 2008/2009 season did close two weeks prior to the end of the fishing year, however, it operated normally up until that closure.)

**Figure 4.1.2.1** below shows the average price per pound (gw) by month for fish caught from 2000 through 2013 and for 2011 through 2013. From 2000 through 2013, average monthly price per pound varied about $0.40 from lowest month to highest month. The average price ranged from a low of $2.26 (2013 dollars) in June to a high of $2.62 (2013 dollars) in August and September. The average annual price per pound paid at time of landing was $2.44 (in 2013 dollars) for these same fishing seasons.

From 2011 through 2013 price per pound averaged $3.96 and $4.13 (in 2013 dollars) in November and December. The lowest price per pound values were in June, July, August, September, October, and January, averaging $2.06, $2.55, $2.96, $2.92, $2.83, and $2.88 (in 2013 dollars), respectively. The average annual price per pound paid at time of landing was $2.57 (in 2013 dollars) for these same fishing seasons. Note that the

commercial fishing season for black sea bass closed early on 10/7/2010, 7/15/11, and 10/08/2012 for the three fishing years used in the analysis. Prices for months after the closure were based on relatively low landings that could affect the level of prices. The analysis assumes value will remain constant even if landings increase in months where there was little data to estimate price per pound.

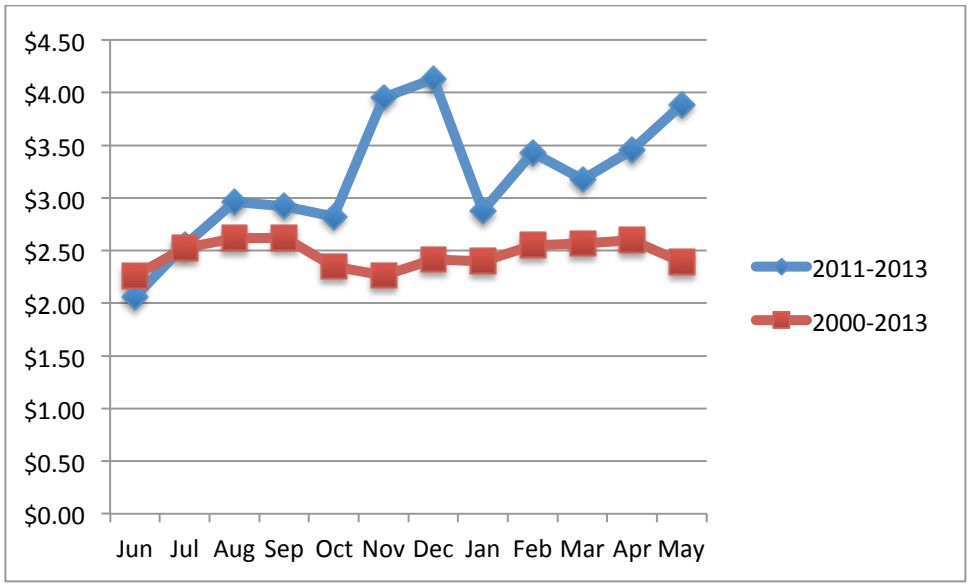


**Figure 4.1.2.1**. Average price per pound (gw) in the South Atlantic region for black sea bass by month for 2000 – 2013 and 2011 – 2013 (in 2013 dollars).
Source: SEFSC/SSRG Economic Panel Data, ACL_Tables_07102914

Since 2011 price per pound for black sea bass changed due to product availability on the market as well as condition of the fish. With the rebuilding of the black sea bass stock, larger fish are now landed that were not available in previous years (Personal Comm. Jack Cox, January 16, 2015). The price of black sea bass in the South Atlantic region is also affected by the availability of black sea bass from the Mid-Atlantic region trawl fishery. When both fisheries are open, prices tend to be lower. Market quality of the fish is higher in winter months since the fish sold tend to be larger and darker in color, both of which lead to a higher price per pound.

The alternatives proposed under **Action 1** result in different expected dates when the commercial ACL would be reached. However, the months the fishery is open will not affect the price fishermen receive if future price per pound trends mirror the longer, 2001-2013 trend. Alternatives that would allow the pot fishery to remain open in November, December, February, April, and May would be expected to result in the greatest return for black sea bass pot fishermen if future price per pound trends mirror the shorter, 2011-2013 trend. In the future, it is probable that the price per pound trend from month to month will be somewhere between the two ranges presented here.

**Daily fishing rate**

The alternatives for **Action 1** specify various closure conditions for January through April and for November and December. Because the size and areas closed vary during these months from alternative to alternative, the expected daily rate for landing black sea bass also varies. The analyses here use the daily fishing rates provided by SERO (2014). In calculating the expected daily fishing rates, the SERO (2014) report based calculations on multiple scenarios of two factors: predicted pot placement locations (Scenarios A, B, and C) and catch rate estimates (Scenarios 1, 2, 3, and 4). The analyses in this section analyze all four catch rate scenarios, but only analyzed pot placement Scenario C (pot locations based on the last three seasons 2006/2007 through 2008/2009). Scenarios A (based on the spatial distribution of trap gear endorsement holder landings under simulated Amendment 18A regulations for the Nov-May period of the 2008/09 season) and B (based on the spatial distribution of trap gear endorsement holder landings during the June-Oct period of the 2013/14 season) were not considered at this time because Scenario C was the scenario considered the trap placement for the entire calendar year in the last three seasons when black sea bass pots were able to fish all year long.

**Expected closure date**

**Table 4.1.1.1** shows expected closure dates for **Alternatives/Sub-alternatives 1** through **10**. **Table 4.1.2.2** shows expected closure dates for **Alternatives/Sub-alternatives 1** through **10** assuming that mean conditions exist and are shown only for pot placement Scenario C (placement for 2006/2007 through 2008/2009 seasons) and for each of the four catch rate scenarios.

**Table 4.1.2.2.** Expected closure dates for each alternative/sub-alternative of Action 1 using Scenario C (last three complete year around seasons prior to current management for mean conditions) for each of the four catch rate scenarios (Scenarios 1-4).

| Scenario C | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|
| **Alternative 1** | No Closure | No Closure | No Closure | No Closure |
| **Alternative 2** | 10/2 | 8/4 | 9/20 | 9/27 |
| **Alternative 3** | 11/26 | 10/4 | 10/26 | 11/19 |
| **Alternative 4** | 12/20 | 12/7 | 12/11 | 12/19 |
| **Alternative 5** | 12/16 | 12/1 | 12/6 | 12/15 |
| **Alternative 6** | 12/20 | 12/7 | 12/10 | 12/19 |
| **Sub-Alternative 7a** | 10/11 | 8/18 | 10/6 | 10/7 |
| **Sub-Alternative 7b** | No Closure | 12/27 | 12/19 | No Closure |
| **Sub-Alternative 7c** | 12/27 | 12/16 | 12/13 | 12/28 |
| **Sub-Alternative 8a** | 12/6 | 10/17 | 10/29 | 12/5 |
| **Sub-Alternative 8b** | No Closure | 12/28 | 12/20 | No Closure |
| **Preferred Sub-Alternative 9a** | 10/28 | 9/15 | 10/13 | 10/24 |
| **Sub-Alternative 9b** | 12/31 | 12/24 | 12/17 | No Closure |
| **Alternative 10** | No Closure | 12/25 | 12/18 | No Closure |

Because the commercial black sea bass fishing year was changed to start January 1 through the implementation of Snapper Grouper Regulatory Amendment 14 (SAFMC 2014), alternatives that would project the entire ACL to be available to the black sea bass pot fishery for the entire calendar year would be expected to have the highest positive economic effect.

The commercial black sea bass sector was closed prior to the end of the fishing year in 2008/2009 when the commercial ACL was met. Commercial harvest of black sea bass was closed on May 15, 2009. Prior to that season, the fishery operated without closures. **Figure 4.1.2.2** shows the average percent of total annual commercial black sea bass landings by month from June 2000 through May 2009, the most recent seasons prior to years when there were ACL-related closures. When operating without closures, the months of June through September saw the fewest commercial landings of black sea bass, ranging from 2-4% each month, while landings tended to increase in November with an average of 11% of the landings. However, fall through spring months saw the highest percentage of annual landings. Highest average annual percentage of total landings occurred in December at 19% and in January at 18%.

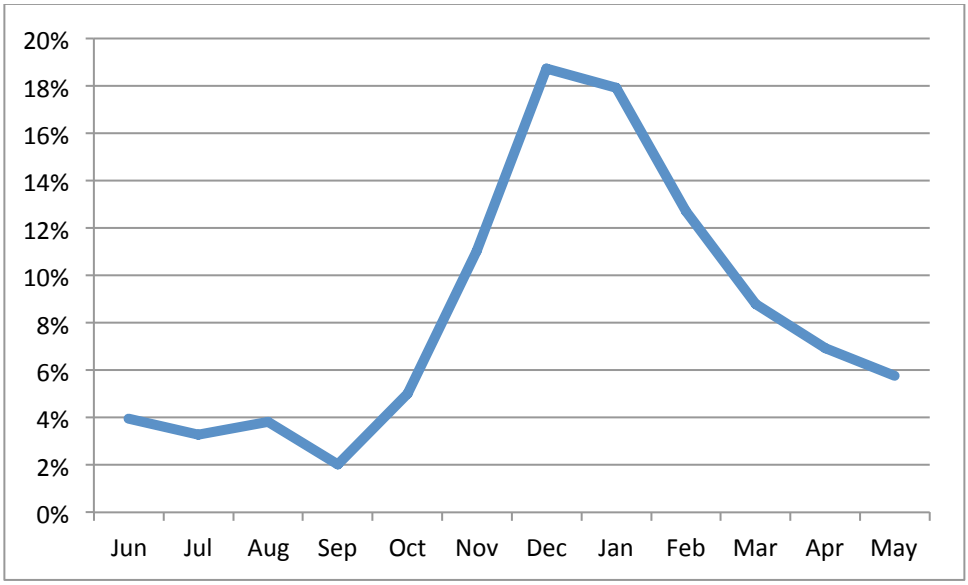


**Figure 4.1.2.2** Percent of average annual commercial black sea bass landings by month from June 2000 through May 2009.
Source: SEFSC/SSRG Economic Panel Data

**Expected dockside revenue of the commercial black sea bass fishery**

This analysis of the expected value of the alternatives and applied scenarios assumes that demand for black sea bass will at least remain constant regardless of when the fish will be landed. At the very least, demand for black sea bass is assumed to be at the same level as in those years when no closures were in effect.

Expected closure date alone does not give the best estimate of expected value because the price per pound changes from month to month. The highest expected economic value

will come when the expected landings are highest in months with the highest price per pound. Various estimates of average monthly price per pound, daily expected catch rates, and anticipated closure dates were used to calculate estimated annual dockside values for black sea bass. Estimates are shown for the four catch rate scenarios used in the SERO (2014) analysis and are based on the assumption that spatial location of gear in future years will mirror the average of the 2006/2007 through 2008/2009 fishing seasons where there was no closure in the commercial black sea bass season. **Table 4.1.2.3** shows the expected dockside values.

**Table 4.1.2.3.** Expected dockside value of commercial black sea bass under the alternatives of Action 1 using two price per pound estimates, the four different catch rate scenarios (SERO 2014), and estimations of spatial locations of gear based on the 2006/2007 through 2008/2009 fishing seasons (Scenario C; SERO 2014).

| | Price/lb years | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 |
|---|---|---|---|---|---|
| **Alternative 1** | 2000-2013 | $1,569,123 | $1,569,123 | $1,569,123 | $1,569,123 |
| | 2011-2013 | $1,887,971 | $1,887,971 | $1,887,971 | $1,887,971 |
| **Alternative 2** | 2000-2013 | $1,635,233 | $1,618,721 | $1,639,565 | $1,644,952 |
| | 2011-2013 | $1,945,365 | $1,936,277 | $1,945,624 | $1,918,559 |
| **Alternative 3** | 2000-2013 | $1,627,184 | $1,636,790 | $1,631,444 | $1,627,930 |
| | 2011-2013 | $1,901,609 | $1,912,821 | $1,918,138 | $1,895,652 |
| **Alternative 4** | 2000-2013 | $1,620,180 | $1,621,455 | $1,623,395 | $1,619,423 |
| | 2011-2013 | $1,941,208 | $1,916,327 | $1,943,233 | $1,938,245 |
| **Alternative 5** | 2000-2013 | $1,621,240 | $1,625,121 | $1,622,455 | $1,612,037 |
| | 2011-2013 | $1,933,117 | $1,904,803 | $1,929,912 | $1,918,463 |
| **Alternative 6** | 2000-2013 | $1,620,934 | $1,622,535 | $1,617,945 | $1,620,283 |
| | 2011-2013 | $1,942,206 | $1,917,652 | $1,933,480 | $1,951,499 |
| **Sub-Alternative 7a** | 2000-2013 | $1,633,016 | $1,623,399 | $1,636,256 | $1,637,312 |
| | 2011-2013 | $1,898,353 | $1,931,969 | $1,929,920 | $1,905,005 |
| **Sub-Alternative 7b** | 2000-2013 | $1,612,980 | $1,618,994 | $1,619,331 | $1,609,540 |
| | 2011-2013 | $1,953,797 | $1,956,812 | $1,953,024 | $1,947,064 |
| **Sub-Alternative 7c** | 2000-2013 | $1,618,203 | $1,615,920 | $1,615,784 | $1,616,142 |
| | 2011-2013 | $1,966,755 | $1,958,723 | $1,951,712 | $1,962,483 |
| **Sub-Alternative 8a** | 2000-2013 | $1,622,132 | $1,631,986 | $1,631,998 | $1,627,641 |
| | 2011-2013 | $1,908,323 | $1,902,456 | $1,919,048 | $1,911,242 |
| **Sub-Alternative 8b** | 2000-2013 | $1,611,962 | $1,622,657 | $1,628,335 | $1,607,346 |
| | 2011-2013 | $1,954,835 | $1,968,018 | $1,971,977 | $1,946,311 |
| **Preferred Sub-Alternative 9a** | 2000-2013 | $1,630,090 | $1,635,086 | $1,636,224 | $1,631,169 |
| | 2011-2013 | $1,889,515 | $1,923,914 | $1,929,137 | $1,891,417 |
| **Sub-Alternative 9b** | 2000-2013 | $1,617,278 | $1,619,225 | $1,621,199 | $1,618,966 |
| | 2011-2013 | $1,863,517 | $1,960,196 | $1,956,662 | $1,964,635 |
| **Alternative 10** | 2000-2013 | $1,619,643 | $1,560,437 | $1,624,093 | $1,614,361 |
| | 2011-2013 | $1,968,247 | $1,862,060 | $1,964,981 | $1,958,558 |

**Figure 4.1.2.3** and **Figure 4.1.2.4** graphically show the expected economic value for each of the alternatives under Scenarios 1 – 4 and using each of the price per pound calculation methods.

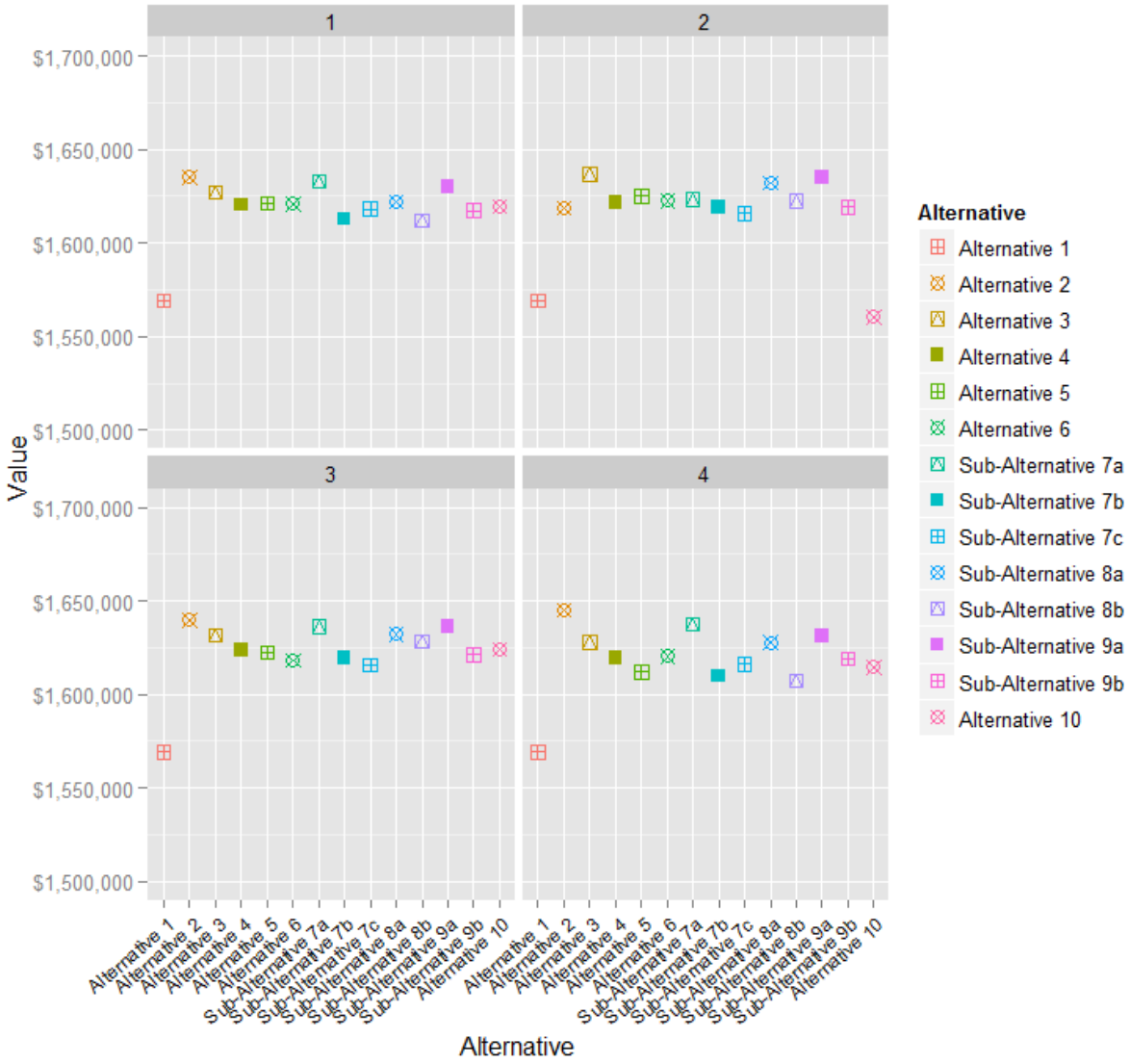


**Figure 4.1.2.3.** Graphic representation of economic value of Alternatives 1-10 and Scenarios 1-4 using 2000-2013 monthly average price per pound (in 2013 dollars).

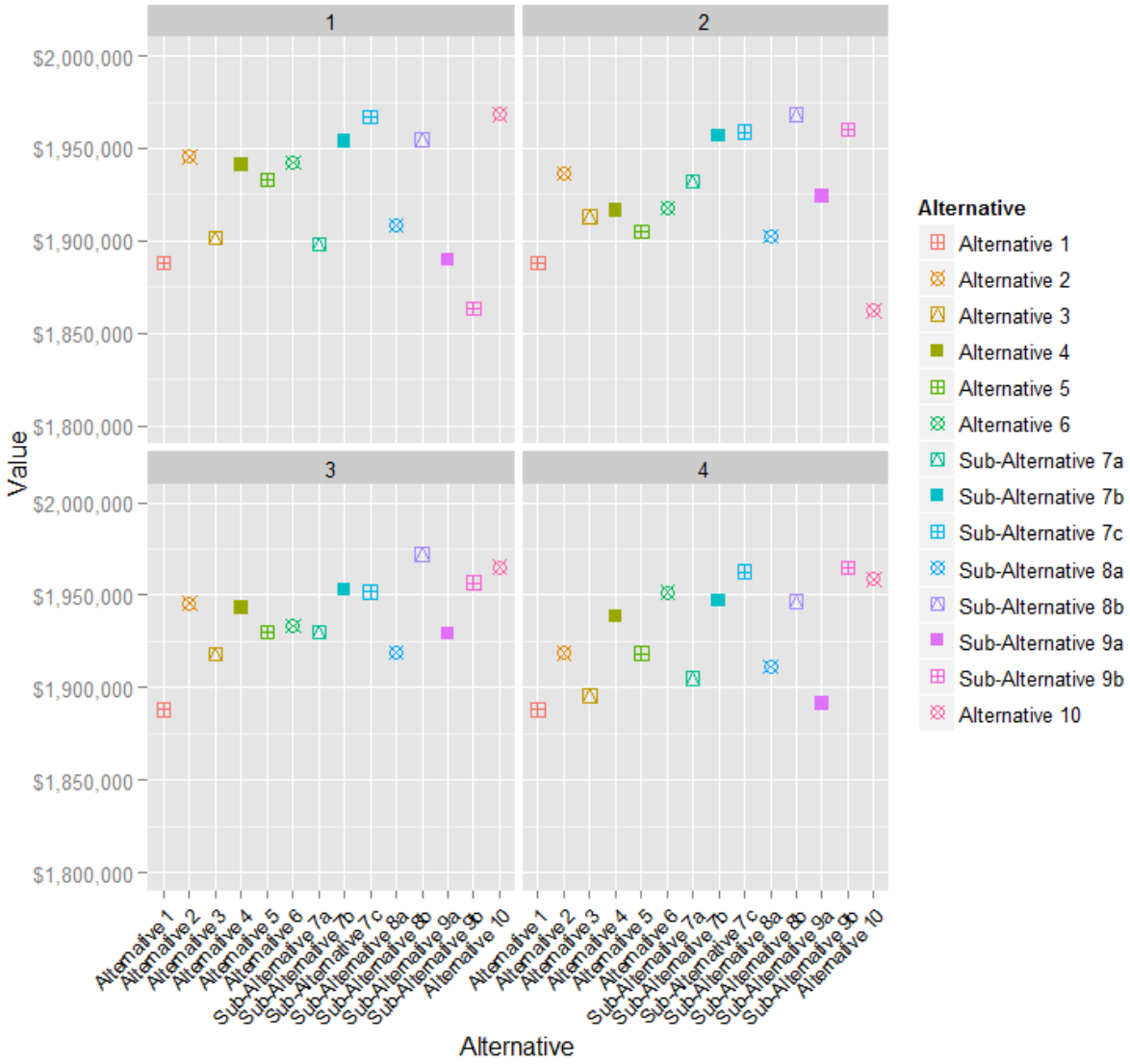


**Figure 4.1.2.4.** Graphic representation of economic value of Alternatives 1-10 and Scenarios 1-4 using 2011-2013 monthly average price per pound (in 2013 dollars).

When 2000-2013 price per pound estimates are used, **Alternatives 2** (Scenarios 1, 3, and 4) and **3** (Scenario 2) produced 4-5% higher expected economic returns compared to **Alternatives 1 (No Action)** (Scenarios 2-4) and **10** (Scenario 1). When 2011-2013 price per pound estimates are used, **Alternatives 2 – 3** and **Sub-alternative 8b** produced 5-6% higher expected economic returns compared to **Alternatives 1 (No Action)** (Scenarios 3-4), **9b** (Scenario 1) and **10** (Scenario 2).

As shown in **Table 4.1.2.4**, regardless of which price per pound value time series, **Alternative 10** (Scenario 2) had the lowest expected price per pound when compared to **Alternative 2** through **Alternative 10**. The alternatives with the highest expected economic values are not the same for each of the price per pound calculations as the pattern of months with the highest and lowest values are not the same across both time

periods. Using the average monthly price per pound for the years 2000 – 2013, **Alternative 2** (scenario 4 – landings rate equivalent to the mean rate by month for the 2006/2007 – 2008/2009 seasons) estimates the highest expected economic value. Using the average monthly price per pound for the years 2011 – 2013, **Sub-alternative 8b** (Scenario 3 – landings rate equivalent to catch rate from Oct 2013) estimates the highest expected economic value.

**Table 4.1.2.4.** Maximum and minimum expected economic values of Alternatives 1 – 10 using the 2000-2013 and 2011-2013 prices per pound (gw) for black sea bass (all gears) in 2013 dollars.

| | 2000-2013 | 2011-2013 |
|---|---|---|
| Maximum | $1,644,952<br>Alternative 2 | $1,971,977<br>Sub-Alternative 8b |
| Minimum | $1,560,437<br>Alternative 10 | $1,862,060<br>Alternative 10 |
| Difference | $84,515 | $109,917 |
| % Difference | 5% | 6% |

**Trip costs**

The net profitability of a fishing trip is determined by subtracting individual trip costs (fuel, bait, gear, crew payments, etc.) and apportioning sunk costs (insurance, loan payments, license/permits, etc.). Sunk costs will occur regardless of the trip characteristics and are constant. Individual trip characteristics affect individual trip costs. For example, the distance a vessel must travel will influence fuel needed for the trip.

Perruso and Waters (2005) estimated trip-level cost for trap vessels based on effort (number of traps), days away (trip duration), and pounds landed. Crew expenses are excluded from the model because crewmembers are assumed to be compensated through a share payment system. Based on this model, and using average trip characteristics for black sea bass endorsement holders, the estimated cost of a trip is $541.24 (2013 dollars). Net revenue (dockside value minus trip costs) analysis could be conducted in the future.

Fewer trips are needed to land the commercial ACL when landings per trip increase. **Table 4.1.2.5** shows average landings per trip by year and month for all participants in the black sea bass pot fishery. However, current landings per trip are constrained by the trip limit of 1,000 lbs gw that went into effect July 1, 2012 (SAFMC 2012). Net profit for a trip will increase when the landings per trip are higher assuming trip costs remain relatively the same regardless of when a black sea bass pot trip occurs up until the trip limit is reached. The months of November through March have the potential for greater profitability per trip because of the higher average landings per trip in these months. The months of April through October had the lowest average landings per trip.

**Table 4.1.2.5.** Average landings of black sea bass per trip using pot gear by year and month for 2001 – 2013 (lbs gw). 2012 and 2013 landings are for endorsement holders only.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **January** | 735 | 584 | 531 | 893 | 955 | 636 | 625 | 648 | 758 | | | | | 707 |
| **February** | 592 | 470 | 529 | 757 | 770 | 597 | 635 | 651 | 657 | | | | | 629 |
| **March** | 412 | 418 | 499 | 653 | 658 | 450 | 566 | 588 | 593 | | | | | 538 |
| **April** | 368 | 269 | 427 | 626 | 581 | 416 | 412 | 334 | 331 | | | | | 418 |
| **May** | 315 | 298 | 357 | 436 | 491 | 301 | 344 | 566 | Conf. | | | | | 389 |
| **June** | 365 | 244 | 375 | 395 | 264 | 333 | 340 | 536 | 612 | 739 | 1229 | | 648 | 507 |
| **July** | 344 | 227 | 382 | 406 | 266 | 361 | Conf. | 402 | 641 | 670 | 971 | 663 | 634 | 497 |
| **August** | 257 | 242 | 552 | 653 | 283 | 364 | 216 | 621 | 735 | 840 | | 685 | 629 | 506 |
| **September** | 223 | 243 | 395 | 452 | Conf. | 239 | Conf. | 309 | 645 | 896 | | 595 | 590 | 459 |
| **October** | 243 | 362 | 481 | 509 | 339 | 434 | 262 | 502 | 618 | 1005 | | 715 | 609 | 507 |
| **November** | 383 | 453 | 668 | 591 | 475 | 653 | 446 | 786 | 689 | | | | | 571 |
| **December** | 441 | 676 | 1036 | 760 | 505 | 735 | 576 | 877 | 720 | 1255 | | | | 758 |

Source: SEFSC/SSRG Economic Panel Data.

**Other fishing opportunity**

**Alternative 1 (No Action)** provides a 6-month window in which all black sea bass pot fishing must occur. Even with no restrictions on where pots may be set from May 1 through October 31, the commercial sector is not expected to be able to reach its ACL each year (SERO 2014). In years past when the black sea bass commercial sector fishery was open all year, fishermen tended to take fewer trips in summer months (**Table 4.1.2.6**). In years where there were closures due to the ACL being reached, a summer derby took place. The commercial portion of the ACL was caught earlier each year as the black sea bass stock recovered and the ACL remained steady. The months of November through April had the highest average number of trips in years when fishing occurred in those months. The months of May through October had the lowest average number of trips.

**Table 4.1.2.6.** Average number of trips landing black sea bass using pot gear by year and month for 2001 – 2013. 2012 and 2013 landings are for endorsement holders only.

| | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **January** | 112 | 199 | 85 | 104 | 90 | 111 | 81 | 115 | 101 | | | | | 111 |
| **February** | 72 | 92 | 54 | 95 | 66 | 89 | 110 | 76 | 99 | | | | | 84 |
| **March** | 86 | 63 | 55 | 100 | 40 | 59 | 100 | 43 | 59 | | | | | 67 |
| **April** | 115 | 54 | 50 | 68 | 63 | 57 | 52 | 46 | 48 | | | | | 61 |
| **May** | 83 | 34 | 88 | 62 | 67 | 71 | 23 | 21 | Conf. | | | | | 56 |
| **June** | 53 | 34 | 28 | 37 | 57 | 54 | 24 | 13 | 49 | 112 | 163 | | 92 | 60 |
| **July** | 27 | 40 | 39 | 32 | 22 | 26 | Conf. | 23 | 41 | 68 | 58 | 110 | 78 | 47 |
| **August** | 67 | 24 | 63 | 17 | 13 | 38 | 12 | 20 | 55 | 68 | | 124 | 59 | 47 |
| **September** | 56 | 31 | 26 | 19 | Conf. | 33 | Conf. | 10 | 74 | 54 | | 57 | 62 | 42 |
| **October** | 98 | 29 | 57 | 67 | 18 | 63 | 21 | 31 | 65 | 12 | | 25 | 61 | 46 |
| **November** | 127 | 64 | 83 | 92 | 53 | 74 | 54 | 57 | 72 | | | | | 75 |
| **December** | 187 | 119 | 130 | 117 | 88 | 102 | 96 | 66 | 63 | 77 | | | | 105 |

Source: SEFSC/SSRG Economic Panel Data.

Assuming the commercial black sea bass fishery would remain open all year, or nearly all year, the fishery is currently less likely to operate as a derby. Instead of feeling forced to fish for black sea bass during a time of the year when there is a derby, black sea bass pot fishermen might choose to participate in other fisheries that might have a higher net return.

**Table 4.1.2.7** shows the average monthly value for black sea bass and total value of landings (in 2013 dollars) from all federally managed species by black sea bass endorsement holders from 2000 through 2013. The data are grouped into two categories, one showing 2000 through 2009 when the fishery was a year around fishery and from 2010 through 2013 when the fishery was constrained by the ACL and was closed for at least part of the year. From 2000 through 2009, an average of 28.6 endorsement holders fished each year. Average black sea bass value per endorsement from 2000 through 2009 was $25,958 per endorsement and total average annual value from all federally managed species was $47,104. From 2010 through 2013 an average of 26.75 endorsement holders fished each year. Average black sea bass value per endorsement from 2010 through 2013 was $23,399 per endorsement and total average annual value from all federally managed species from all trips (not just black sea bass pot trips) was $53,280. These values do not include landings for those fisheries not included on federal logbooks such as state managed fisheries.

**Table 4.1.2.7.** Value (in 2013 dollars) black sea bass and total value of federal landings by month by black sea bass pot endorsement holders, 2000 – 2013.

| | 2000 - 2009 | | | 2010 - 2013 | | |
|---|---|---|---|---|---|---|
| | BSB Revenue | Total Revenue | % Rev from BSB | BSB Revenue | Total Revenue | % Rev from BSB |
| January | $144,312 | $176,279 | 82% | $0 | $87,510 | 0% |
| February | $104,550 | $134,354 | 76% | $0 | $52,838 | 0% |
| March | $76,271 | $130,874 | 58% | $0 | $36,094 | 0% |
| April | $56,530 | $98,924 | 57% | $0 | $34,417 | 0% |
| May | $39,442 | $105,963 | 37% | $888 | $103,130 | 1% |
| June | $27,617 | $98,862 | 28% | $169,497 | $223,667 | 76% |
| July | $22,588 | $79,336 | 28% | $144,861 | $265,855 | 54% |
| August | $29,740 | $84,068 | 35% | $123,302 | $199,221 | 62% |
| September | $21,031 | $63,657 | 33% | $81,475 | $161,669 | 50% |
| October | $39,789 | $98,367 | 40% | $48,027 | $93,752 | 51% |
| November | $39,789 | $98,367 | 40% | $995 | $51,195 | 2% |
| December | $140,732 | $178,132 | 79% | $56,874 | $115,902 | 49% |
| Annual | $742,391 | $1,347,182 | 55% | $625,919 | $1,425,251 | 44% |

Source: SEFSC/SSRG Economic Panel Data and SERO Permits Database.

Prior to 2010, the black sea bass pot fishery occurred all year long. As ACLs went into effect, a derby developed and the fishery lasted for as little as two months. The lowest monthly black sea bass revenues for 2000 through 2009 occurred in the months of June through August. Once the ACLs started shortening the season, the majority of black sea

bass fishing shifted to June through September. However, given the increased ACL implemented in Regulatory Amendment 19 (SAFMC 2013c), the fishing season is expected to last much longer regardless of which alternative is chosen as the preferred alternative for **Action 1** compared to the years 2010 through 2013.

**Table 4.1.2.8** indicates the shift in landings and dockside revenue (in 2013 dollars) from those landings in the South Atlantic. 2012 and 2013 are the two seasons in which an endorsement was required to land black sea bass using pot gear. The ACL increased to 780,000 lbs ww in 2013. From 2012 to 2013, black sea bass pot endorsement holders increased their landings by just over 2,000 lbs ww. However, all other gears (primarily hook and line) landings of black sea bass increased by over 65,000 lbs ww, an increase of over 50% of the previous year's landings by other gears.

**Table 4.1.2.8.** Pounds landed and revenue (in 2013 dollars) of black sea bass landed from 2000 through 2013 by endorsement holders (pots only landings), all landings by pots (including endorsement holders), and all other gears (not black sea bass pots).

| | Endorsement Holders | | All Pot Fishermen | | All Other Gears | |
|---|---|---|---|---|---|---|
| | Pounds | Revenue | Pounds | Revenue | Pounds | Revenue |
| 2000 | 204,436 | $538,858 | 402,475 | $1,077,881 | 67,652 | $184,532 |
| 2001 | 249,915 | $596,232 | 442,115 | $1,073,488 | 69,902 | $169,700 |
| 2002 | 242,962 | $542,892 | 361,034 | $804,127 | 64,168 | $149,288 |
| 2003 | 294,477 | $676,505 | 441,871 | $1,018,357 | 64,444 | $149,105 |
| 2004 | 388,906 | $858,743 | 524,262 | $1,168,114 | 74,942 | $165,333 |
| 2005 | 291,896 | $719,028 | 333,153 | $818,833 | 57,057 | $140,779 |
| 2006 | 363,667 | $1,018,508 | 395,025 | $1,108,578 | 51,431 | $142,683 |
| 2007 | 261,299 | $791,825 | 307,182 | $924,528 | 40,404 | $119,743 |
| 2008 | 277,394 | $790,753 | 326,514 | $924,070 | 45,346 | $127,522 |
| 2009 | 386,543 | $1,025,710 | 473,896 | $1,259,066 | 64,636 | $171,413 |
| 2010 | 304,176 | $789,048 | 342,530 | $892,347 | 49,156 | $130,358 |
| 2011 | 180,508 | $412,161 | 256,589 | $549,130 | 46,204 | $96,760 |
| 2012 | 206,678 | $598,888 | 211,773 | $612,118 | 90,964 | $267,628 |
| 2013 | 208,862 | $613,044 | 220,915 | $644,546 | 156,700 | $463,714 |

Source: SEFSC/SSRG Economic Panel Data.

If the commercial black sea bass ACL could continue to be made to last year around as occurred in 2014, there probably will not be a derby in the future. Fishermen may go back to participating in fisheries similar to what they did prior to the ACL closures. Assuming the entire black sea bass ACL would be landed each year, black sea bass pot endorsement holders might be more likely to increase participation in other fisheries, primarily in the months of June through August. **Table 4.1.2.9** shows the predominant other federally managed fisheries (non-black sea bass fisheries) black sea bass pot endorsement holders participated in by month for the years 2000 through 2009 and 2010 through 2013.

**Table 4.1.2.9.** Predominant non-black sea bass federally managed fisheries participation by month for 2000-2009 and 2010-2013 by black sea bass pot endorsement holders.

| | 2000 - 2009 | 2010 - 2013 |
|---|---|---|
| January | king mackerel | vermilion, triggerfish, king mack, tilefish |
| February | king mackerel | vermilion, triggerfish, king mack, tilefish |
| March | king mackerel | vermilion, triggerfish, king mackerel |
| April | king mack, gag, triggerfish, vermilion | king mackerel |
| May | shallow water groupers, king mack | shallow water groupers, king mack |
| June | shallow water groupers, vermilion | shallow water groupers, grunts, porgies |
| July | shallow water groupers, vermilion | jacks, vermilion, shallow water groupers |
| August | shallow water groupers, vermilion | jacks, vermilion, shallow water groupers |
| September | shallow water groupers, vermilion | jacks, vermilion, shallow water groupers |
| October | shallow water groupers, vermilion | jacks, grunts, shallow water groupers |
| November | shallow water groupers, vermilion | grunts, jacks, king mackerel |
| December | shallow water groupers, king mack | king mackerel |

Source: SEFSC/SSRG Economic Panel Data.

**Summary comparison of economic effects**

**Table 4.1.2.10** is a summary of economic effects from **Alternatives 1** through **10** for **Action 1**. The table shows the rank order from lowest to highest expected economic return for each alternative based on the data shown in **Table 4.1.2.3**. The expected closure date of the commercial black sea bass fishery (SERO 2014) for the alternative expected to produce the greatest positive economic effect for each of the four catch rate scenarios and the two price per pound calculation methods is shown. The order of expected least to most economic value is based on the two time periods for calculating average monthly prices (either 2000-2013 or 2011-2013) described above and the four landings rate scenarios (SERO 2014). The insertion of these factors into the analysis adds enough variability to the results indicating that there is no clear "best choice" alternative. However, **Alternatives 2** through **Alternative 10** had a higher expected rate of economic return than **Alternative 1 (No Action)**, except for **Alternative 10** (Scenario 2) where the expected economic value was expected to be less than **Alternative 1 (No Action)**.

**Table 4.1.2.10.** Ranking of alternatives for Action 1 from least to most expected positive economic effects for two price per pound calculation methods and four catch rate scenarios with expected closure date for the alternative with the greatest positive expected economic value.

| | Scenario 1 | | Scenario 2 | | Scenario 3 | | Scenario 4 | |
|---|---|---|---|---|---|---|---|---|
| | 2000-2013 | 2011-2013 | 2000-2013 | 2011-2013 | 2000-2013 | 2011-2013 | 2000-2013 | 2011-2013 |
| **Least +** | Alt. 1 | Sub-Alt. 9b | Alt. 10 | Alt. 10 | Alt. 1 | Alt. 1 | Alt. 1 | Alt. 1 |
| | Sub-Alt. 8b | Alt. 1 | Alt. 1 | Alt. 1 | Sub-Alt. 7c | Alt. 3 | Sub-Alt. 8b | Sub-Alt. 9a |
| | Sub-Alt. 7b | Sub-Alt. 9a | Sub-Alt. 7c | Sub-Alt. 8a | Alt. 6 | Sub-Alt. 8a | Sub-Alt. 7b | Alt. 3 |
| | Sub-Alt. 9b | Sub-Alt. 7a | Alt. 2 | Alt. 5 | Sub-Alt. 7b | Sub-Alt. 9a | Alt. 5 | Sub-Alt. 7a |
| | Sub-Alt. 7c | Alt. 3 | Sub-Alt. 7b | Alt. 3 | Sub-Alt. 9b | Alt. 5 | Alt. 10 | Sub-Alt. 8a |
| | Alt. 10 | Sub-Alt. 8a | Sub-Alt. 9b | Alt. 4 | Alt. 5 | Sub-Alt. 7a | Sub-Alt. 7c | Alt. 5 |
| | Alt. 4 | Alt. 5 | Alt. 4 | Alt. 6 | Alt. 4 | Alt. 6 | Sub-Alt. 9b | Alt. 2 |
| | Alt. 6 | Alt. 4 | Alt. 6 | Sub-Alt. 9a | Alt. 10 | Alt. 4 | Alt. 4 | Alt. 4 |
| | Alt. 5 | Alt. 6 | Sub-Alt. 8b | Sub-Alt. 7a | Sub-Alt. 8b | Alt. 2 | Alt. 6 | Sub-Alt. 8b |
| | Sub-Alt. 8a | Alt. 2 | Sub-Alt. 7a | Alt. 2 | Alt. 3 | Sub-Alt. 7c | Sub-Alt. 8a | Sub-Alt. 7b |
| | Alt. 3 | Sub-Alt. 7b | Alt. 5 | Sub-Alt. 7b | Sub-Alt. 8a | Sub-Alt. 7b | Alt. 3 | Alt. 6 |
| | Sub-Alt. 9a | Sub-Alt. 8b | Sub-Alt. 8a | Sub-Alt. 7c | Sub-Alt. 9a | Sub-Alt. 9b | Sub-Alt. 9a | Alt. 10 |
| | Sub-Alt. 7a | Sub-Alt. 7c | Sub-Alt. 9a | Sub-Alt. 9b | Sub-Alt. 7a | Alt. 10 | Sub-Alt. 7a | Sub-Alt. 7c |
| **Most +** | Alt. 2 | Alt. 10 | Alt. 3 | Sub-Alt. 8b | Alt. 2 | Sub-Alt. 8b | Alt. 2 | Sub-Alt. 9b |
| **Closure date** | **3-Oct** | **No Closure** | **4-Oct** | **28-Dec** | **6-Oct** | **20-Dec** | **27-Sep** | **No Closure** |

## Social Effects:

The social effects of removal or modifications to the seasonal closure for black sea bass pots include direct effects on participants in the black sea bass pot fishery, and direct effects on participants in the hook-and-line (and other gear types) portion of the black sea bass fishery. For pot fishermen, the potential effects are primarily associated with foregone economic benefits due to restricted or no access to the black sea bass resource during the winter. For hook-and-line fishermen, the potential effects of removal or modifications to the seasonal closure for black sea bass pots are associated with greater competition with pot fishermen, less access to the increased black sea bass ACL, and a likely shorter fishing season because the ACL would be more available to the pot fishermen, who make up most of the landings. Minimal indirect effects are expected for recreational anglers and for-hire businesses.

Black sea bass pot fishermen have been affected by multiple management changes in a relatively short period of time through recent Council actions. Following the restrictive catch limits implemented in the rebuilding plan, and an effort shift from other target species due to ACLs and AMs, pot fishermen have experienced increasingly shorter seasons and continual overages. When the endorsement program was implemented through Amendment 18A (SAFMC 2011), more than half of active pot fishermen did not receive an endorsement and could no longer participate in the fishery. Although the landings level of active fishermen who did not qualify for an endorsement was relatively small (to qualify for a black sea bass endorsement, a fishermen with a valid snapper grouper commercial must have had black sea bass landings using black sea bass pot gear averaging at least 2,500 pounds whole weight, annually during the period January 1, 1999 through December 31, 2010), the endorsement program also created an additional barrier for future participants. Overall, the endorsement program permanently locked out most fishermen from this portion of the black sea bass fishery.

Fishermen, who did receive endorsements, were placed under a new trip limit, the new pot limit, and requirement to bring pots to shore at the end of each trip. The final rule for Regulatory Amendment 19 (SAFMC 2013) more than doubled the ACL, and there were only partial positive effects for the pot fishermen due to the closure from November through April that has restricted them from benefitting from the extended season and larger ACL. [While the closure was intended to minimize potential interaction of pot gear with large whales, it was also included in Regulatory Amendment 19 to expedite the increase in the black sea bass ACL due to the additional time that would have been required for NMFS to complete a Section 7 consultation for the snapper grouper fishery (SAFMC 2013).] Additionally, black sea bass pot fishermen are required to comply with the Atlantic Large Whale Take Reduction Plan (ALWTRP) gear and seasonal requirements, which have been in place since 2007.

Under **Alternative 1 (No Action)**, pot fishermen would continue to forego economic benefits that would be available if harvest by pot was allowed into the winter months. Some fishermen report that black sea bass caught in the winter are larger and more abundant, and market prices are better. However, some pot fishermen from the Carolinas have voiced concern that the winter pot fishery for black sea bass would favor Florida fishermen. Weather in Florida is generally better than weather conditions in North Carolina and South Carolina, and Florida pot fishermen could catch a greater proportion of the commercial ACL in winter months. Public input also indicates that some pot fishermen feel that compliance with the ALWTRP requirements, in addition to the measures established with the endorsement program, are sufficient to protect right whales and calves, and keeping the seasonal closure invalidates the rationale and purpose for all protection measures under the ALWTRP and through Amendment 18A.

For black sea bass participants who do not have a black sea bass pot endorsement, **Alternative 1 (No Action)** would be expected to provide the most benefits. The seasonal pot closure allows fishermen without a black sea bass pot endorsement to use gear types other than black sea bass pots to fish for black sea bass in the winter months. If pots are used during the winter months, it is more likely that the commercial ACL for black sea bass would be met before the end of the calendar year. Additionally, hook and line fishermen would have the opportunity to supply the winter market for black sea bass and take advantage of higher market prices.

It is noted that the seasonal closure under **Alternative 1 (No Action)** could also produce broad social benefits through improved protection of right whales during migration to and from calving grounds during the winter. However, these benefits will only be realized if the seasonal closure actually contributes to lowering the frequency of interactions for the North Atlantic right whale population as a whole, including interactions along the entire Eastern coast. The analysis of where black sea bass pot fishermen place their gear compared to observed and estimated right whale migration routes would be required provides more detail on the expected benefits to the right whales under **Alternative 1 (No Action)**.

The effects of **Alternatives 2-10** on fishermen and associated communities vary with the temporal and spatial characteristics of the closures. **Alternative 2** would likely be the most beneficial for the pot fishermen by allowing them to fish during the winter months, but would also contribute to a faster rate of harvest and early in-season closure, which would affect not only the pot fishing businesses but also the hook and line fishermen, dealers, and fish house owners. **Alternative 3** would provide an additional four weeks to the current fishing season for pots and allow pots to be fished outside of the currently designated right whale designated critical habitat, so that pot fishermen could take advantage of the increased ACL. Depending on the areas that could be closed to pot fishing and actual areas where fishermen place their pots, **Alternatives 2-10** all provide some way for pot fishing to continue to some degree in the winter months, and would be expected to generate some of the same benefits to pot fishermen**.** However, all possible negative effects due to an earlier in-season closure would be expected under **Alternatives 3-10**.

## Snapper Grouper AP Comments:

From their November 2013 meeting
Council staff reviewed alternatives to address the proposed annual closure of black sea bass pots from November 1 to April 30. Regulatory Amendment 19 implemented this regulation as well as an increase to the black sea bass ACL. The AP discussed the feasibility of the pot closure only applying to within designated Right Whale Critical Habitat. Some of the AP members from North Carolina indicated that migratory whales are frequently encountered in water 30-60 feet deep off the NC coast. Migrating whales are distributed from the Gulf of Maine south in spring and fall and congregate al calving grounds. The number of black sea bass pots the whales encounter in the South Atlantic is minuscule relative to the number of pots in the Gulf of Maine.

The AP approved the following motion:
MOTION: RECOMMEND ALTERNATIVE 4 AS PREFERRED
Alternative 4. Prohibit retention, possession, and fishing for black sea bass using black sea bass pot gear, annually, from November 1 to April 30, in designated right whale critical habitat in the South Atlantic region.

From their April 2014 meeting
The AP recommended that the closure on the use of pots be limited to designated Right Whale Critical Habitat in the South Atlantic region. The AP made no further recommendations on the amendment but reiterated that vertical lines in the northeast lobster fishery pose a much more severe threat to whales than black sea bass pots and questioned why there are no restrictions in place for the northeast lobster fishery.

From their October 2014 meeting
No analyses were available for the AP to comment on.
The following are highlights from the discussion:

- Concerns that the Council has not been given credit thus far for measures that have been implemented, e.g., endorsement program for pots, restriction on

number of pots and soak time, etc.

- There have been no documented interactions between black sea bass pots and right whales.
- Amendment 18A drastically reduced effort effectively creating a day-boat fishery. Common sense indicates that there is very little risk to whales, especially since there has not been a single interaction between a whale and black sea bass pot even when the number of pots in the water was much larger and with longer soak times.
- While effort could potentially shift based on the area that is closed, it is very unlikely.
- Price of black sea bass is higher in winter. NC wants their winter fishery back.

The AP approved the following motions:
MOTION: RECOMMEND ALTERNATIVE 2 AS PREFERRED
Alternative 2. Remove the annual November 1 through April 30 prohibition on the retention, possession, and fishing for black sea bass using black sea bass pot gear.

MOTION: RECOMMEND THAT THE COUNCIL CONSIDER A SEPARATE ACL FOR THE COMMERCIAL HOOK AND LINE SECTOR FOR BLACK SEA BASS IF THE CURRENT CLOSURE ON BLACK SEA BASS POTS IS REMOVED.

## Law Enforcement AP Comments:

The Law Enforcement Advisory Panel (LEAP) received a general overview of the alternatives proposed under Regulatory Amendment 16 during their March 3, 2014 meeting. The LEAP did not express concerns or provide recommendations. One LEAP member, however, stated that the annual closure of black sea bass pots is negatively impacting North Carolina fishermen who hold endorsements to fish for black sea bass using pot gear.

## SSC Comments:

The following is directly from the October 2014 SSC final report.

*The SSC reviewed the analysis of Regulatory Amendment 16 alternatives conducted by SERO staff. The most relevant comments, concerns, and discussion points brought up during the SSC meeting included:*

- *The SSC expressed concern about the lack of detail in uncertainty characterizations in the analysis. Several sensitivity runs were conducted to evaluate major uncertainties. However, the Committee expressed concern with the ability to discern differences between management alternatives given the information provided. The Committee advised that further exploration and reporting of within-model uncertainties would improve insight into the variability associated with model parameters and help to distinguish between the different alternatives considered. The SSC recognizes that conducting a more complete, in-depth uncertainty characterization would provide a more robust picture of the proposed management alternatives given the amount of uncertainty in model*

*outputs. At the very least it would be useful to explore uncertainty in a subset of runs and give a better picture of how well this analysis can distinguish between alternatives.*

- *Dr. Nick Farmer explained that rerunning the original model using bootstrapping or MCMC technique is not feasible given the current timeline for the amendment. However, the SSC recommended clearly defining this particular deficiency in the analysis such that the Council understands that the ranking of considered alternatives might not hold true if a full uncertainty analysis was undertaken.*

*Overall, the SSC felt the presentation was informative. The approach of ranking the alternatives on a relative scale was supported. Inferring that the analysis evaluates and quantifies risk to whale encounters was not supported. With some refinement, directed at providing information on error associated with estimated scalar values for the alternatives, the analysis could allow the Council to distinguish between the different alternatives.*

*The SSC cautioned that assuming model output of co-occurrence between black sea bass pot effort and whale sightings is a proxy for whale interaction or entanglement overstates model and data capabilities. The Committee recommended presenting the scalar as a dimensionless value to avoid potential misunderstandings and misuse of the term 'risk'.*

*In terms of next steps regarding this issue the SSC provided the following recommendations:*

1. *Convene an SSC ad hoc sub-Committee to advise Dr. Nick Farmer (SERO) on uncertainty analyses to more reliably distinguish between alternatives.*
2. *The SSC recommends an analysis of relative sea bass gear-whale sighting encounter scalar values (relative to alternative 2) that consider historic as well as current levels of effort.*
3. *The SSC also requested that a staff member from NMFS Protected Resources Division attend the next SSC meeting to address Committee questions and clarify how these types of analyses are used to create a Biological Opinion and guide management.*

## Action 2. Enhance the existing buoy line/weak link gear requirements and buoy line rope marking for black sea bass pots

**Alternative 1 (No Action).** Retain the existing buoy line and weak link gear requirements for black sea bass pots as required by the Atlantic Large Whale Take Reduction Plan. From November 15 through April 15, the breaking strength of the buoy lines must not exceed 2,200 lbs in federal waters off Florida, Georgia, and South Carolina. The breaking strength of the weak links must not exceed 600 lbs in federal waters off Florida, Georgia, and South Carolina.

Retain the existing rope marking requirements for the buoy line for black sea bass pots as required by the Atlantic Large Whale Take Reduction Plan. The buoy line rope must be marked at least three times (top, middle, and bottom) and each mark must total 12-inch in length. During certain times of the year, the buoy line rope marking must be green and orange for federal waters within the Southeast Restricted Area North (Nov. 15-April 15), black for the Offshore Trap/Pot Area (Sept. 1-May 31), and orange for the Southern Nearshore Trap/Pot Waters Area (Sept. 1-May 31) **(Figure 2.1.11)**.

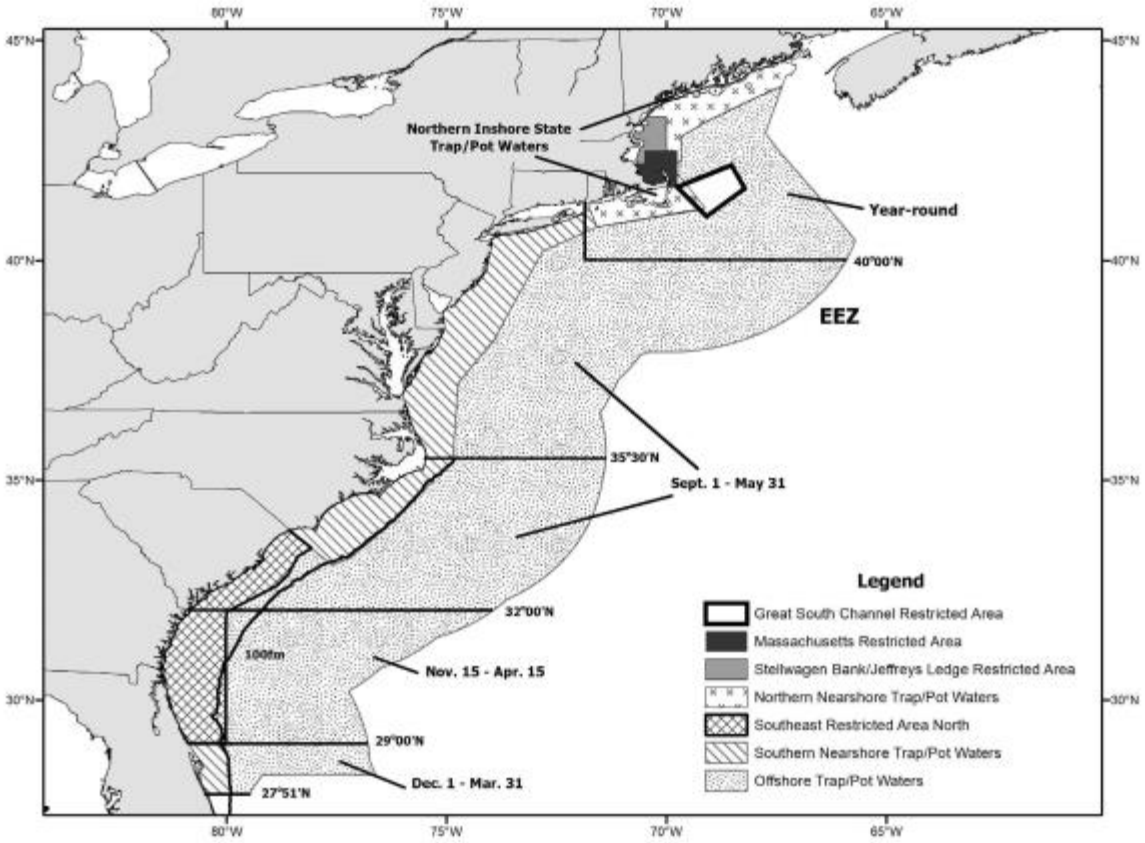


**Figure 2.1.11.** The trap/pot management areas in the South Atlantic developed through the Atlantic Large Whale Take Reduction Plan.
Source:

**Alternative 2.** Retain Atlantic Large Whale Take Reduction Plan gear restrictions and requirements. In addition, specify a buoy line strength where the breaking strength must not exceed 2,200 lbs in federal waters off North Carolina and the breaking strength of the weak links must not exceed 400 lbs for black sea bass pots in the South Atlantic EEZ (waters adjacent to Florida, Georgia, South Carolina, and North Carolina).

**Sub-alternative 2a:** The additional buoy line and weak link requirements of this action are required from November 1 through April 30.

**Sub-alternative 2b:** The additional buoy line and weak link requirements of this action are required year round

**Alternative 3.** Retain Atlantic Large Whale Take Reduction Plan gear restrictions and requirements. In addition to the Plan's gear marking requirements, include a feature specifically distinguishing the South Atlantic black sea bass pot fishery. In addition to the 3 12-inch color marks at the top, midway, and bottom sections of the buoy line specified for the individual management area in which the gear is deployed as required by the Atlantic Large Whale Take Reduction Plan, a 2-inch wide colored band will be added at the end of each required 12-inch colored mark. Total mark would be 14 inches in length.

**Sub-alternative 3a:** The additional gear marking requirements of this action are required from November 1 through April 30.

**Sub-alternative 3b:** The additional gear marking requirements of this action are required year round

**Alternative 4**. Specify a buoy line strength in federal waters of the South Atlantic EEZ (waters adjacent to Florida, Georgia, South Carolina, and North Carolina) from November 1 to April 30:

**Sub-Alternative 4a:** The breaking strength must not exceed 1,200 lbs.

**Sub-Alternative 4b:** The line diameter cannot exceed xx.

The Council has requested that the Snapper Grouper AP, the SSC, SEP, and IPT look at the structuring of the alternatives in **Action 2**. What are appropriate buoy line strengths to consider? Should the strengths be listed as lbs breaking strength or in buoy line diameter? Should the requirements be all year or just from November 1 through April 30

## Biological Effects:

Black Sea Bass

The alternatives range from maintaining the current pot gear requirements to specifying buoy line strength and decreasing weak link breaking weight to adding an extra marking on the buoy line. Regardless of which alternative the South Atlantic Council chooses, no biological impacts to the black sea bass stock are expected. Adverse effects are prevented because overall harvest in the commercial sector is limited to the commercial ACL; commercial accountability measures are also in place. The ACL is reduced from the overfishing level as required to address assessment uncertainty. In addition, there is no evidence to suggest that changing the gear requirements for the black sea bass pot fishery

would have adverse biological impacts. These alternatives are not predicted to reduce harvest and would not provide additional protection to the black sea bass stock. Therefore, there is no difference in the biological effects on black sea bass from the alternatives.

Protected Resources

The overall effect of **Alternatives 2** and **3** on protected resources is unknown. The South Atlantic black sea bass pot fishery is listed as a Category II fishery by the NMFS Large Whale Take Reduction Plan due to potential interactions with endangered species including fin and humpback whales (CFR 2014). Pot gears in other areas are Category I fisheries and have been documented to cause serious injury and death to North Atlantic right whales (Johnson et al. 2005, Knowlton et al. 2012). Currently there are no published documents citing serious injury or death of large whales due to interactions with black sea bass pot gear in the South Atlantic; however, it cannot be ruled out as a fishery with interactions because determining the fishery that interacted with a whale is difficult (NMFS 2015).

**Alternative 2** would keep the same vertical line breaking strength in the Large Whale Take Reduction plan for Federal waters in the Southeast Restricted Area North (≤ 2,200 lbs) but would reduce the weak link breaking strength from ≤600 lbs to ≤400 lbs. The reduced weak link strength may provide additional protections to young calves if an interaction were to occur.

**Alternative 3** provides a mechanism to identify the black sea bass pot fishery if a line entangles a whale. Not all gear remains on the individual after an interaction occurs. This alternative provides a mechanism to identify the black sea bass pot fishery if an interaction occurs and if the gear remains entangled on the whale. This gear marking would be in addition to the gear marking required in the Large Whale Take Reduction Plan (**Table 4.2.1.1**).

Neither of these alternatives would reduce the potential of interaction between a black sea bass pot and right whales. The alternatives would reduce the potential of serious injury or mortality (**Alternative 2**) and potentially identify or eliminate the black sea bass pot fishery as a gear with an entanglement (**Alternative 3**).

**Table 4.2.1.1.** Area specific gear marking requirements from the Large Whale Take Reduction Team and includes both pots and gillnets.

| Gear Marking Color | Applicable Gillnet Management Area |
|---|---|
| RED | • Massachusetts Restricted Area<br>• Northern Nearshore Trap/Pot Waters<br>• Northern Inshore State Trap/Pot Waters<br>• Stellwagen Bank Jeffreys Ledge Restricted Area<br>• Great South Channel Restricted Area overlapping Lobster Management Area (LMA) 2 and/or the Outer Cape (OC) LMA. |
| ORANGE | • Southern Nearshore Trap/Pot Waters. |
| BLACK | • Offshore Trap/Pot Waters; Great South Channel Restricted Area overlapping with the LMA 2/3 Overlap and/or LMA 3 |
| BLUE & ORANGE | • Southeast Restricted Area North (state waters) |
| GREEN & ORANGE | • Southeast Restricted Area North (Federal waters) |
| GREEN | • Cape Cod Bay Restricted Area<br>• Great South Channel Restricted Gillnet Area<br>• Great South Channel Sliver Restricted Gillnet Area<br>• Stellwagen Bank/Jeffreys Ledge Restricted Area<br>• Other Northeast Gillnet Waters (Northeast & Mid-Atlantic) |
| BLUE | • Mid/South Atlantic Gillnet Waters |
| YELLOW | **Excluding Shark Gillnet:**<br>• Southeast US Restricted Area South*<br>• Other Southeast Gillnet Waters* |
| GREEN & BLUE | **Shark Gillnet (with webbing of 5" or greater)**<br>• Southeast US Monitoring Area*<br>• Southeast US Restricted Area South*<br>• Other Southeast Gillnet Waters* |

* Southeast gillnet management areas also require that each gillnet panel be marked along both the floatline and the leadline at least once every 100 yards, unless otherwise required.

## Economic Effects:

**Action 2** proposes to modify gear requirements for back sea bass pots. The type of gear modifications being considered involve an initial one-time expense and future expenses incurred as a result of this action would be related to ongoing maintenance. All black sea bass pot endorsement holders would be required to switch out the weak links attached to their traps. Currently, a 600-lb strength weak link is permitted. Presumably, **Alternative 3** which would only require additional marking on the buoy line would not affect the functionality of the gear.

The estimates of costs associated with **Alternatives 2** and **3** assume that all fishermen would be affected by the additional gear requirements. However, what is not known is how many fishermen have gear that already would meet the additional requirements. Therefore, the estimates in this analysis represent the maximum costs expected.

There are 32 Black Sea Bass Pot Endorsements in the South Atlantic. North Carolina fishermen hold 17 active or renewable endorsements (http://sero.nmfs.noaa.gov/operations_management_information_services/constituency_services_branch/freedom_of_information_act/common_foia/SBPE.htm, accessed on January 29, 2015). Cost estimates were based on values obtained from HamiltonMarine.com (accessed on January 29, 2015).

**Alternative 2** would require minimum line breaking strength of 2,400 lbs for North Carolina, which is already a requirement for South Carolina, Georgia, and Florida (**Alternative 1 – No Action**). A typical black sea bass pot buoy line is 100 to 130' in length (Jack Cox, pers. comm.) Assuming all 17 North Carolina fishermen had 35 pots and needed to replace all the buoy lines, at 125' per pot, to buy four bundles of line would cost $716 per fisherman.

**Alternative 2** would require a step-down from 600 to 400-lb strength weak link. One potential side effect of this step-down in weak links could be an increased probability of the links breaking and resulting in gear loss. However, the probability of such occurrences cannot be estimated at this time. All 32 endorsement holders in all four states could be required to buy new weak links as the current required links have a 600 lb breaking strength. The cost for new weak links for each fisherman is estimated to be $100. The total maximum cost associated with **Alternative 2** for all fishermen combined is $26,112.

**Alternative 3** would require fishermen to mark 2" bands on each buoy line. If using paint, it is assumed that one quart of marine buoy paint would be sufficient to paint the bands on 35 traps. The cost for a quart of marine buoy paint is $47.35. The total maximum cost associated with **Alternative 3** for all fishermen combined is $1,515.

Because of the potential need to buy new buoy line, North Carolina fishermen could see an average one-time cost of $763 should both **Alternatives 2** and **3** be chosen as preferred alternatives. Black sea bass pot endorsement holders from South Carolina,

Georgia, or Florida could see an average one-time cost of $147 ($100 for weak links + $47 for buoy paint) should both **Alternatives 2** and **3** be chosen as preferred alternatives.

## Social Effects:

In general, the social effects of additional gear specifications would be associated with the economic effects and burden on black sea bass fishermen, and with broad social benefits that could occur with improved protection for right whales.

As discussed in the economics effects, there could be some economic costs for fishermen if gear specifications require purchase of additional line and marking supplies. This could affect business cost decisions, which may have some negative effects on crew and associated shoreside support. Under **Alternative 1 (No Action)**, these effects would not be expected because the black sea bass pot fishermen are already required to have the ALWTRP gear specifications. Changing the specified breaking strength under **Alternatives 2 - 4** would likely increase business costs by requiring new gear to meet the requirements. The time periods specified in **Sub-alternatives 2a, 2b, 3a, 3b,** and **Alternative 4** would likely have little to no difference in the effects on black sea bass pot fishermen, because if the breaking strength or gear marking is required in only one part of the year (**Sub-alternatives 2a, 3a,** and **Alternative 4b**) would likely be as much of a burden in terms of requiring new or additional gear purchases as a year-round requirement (**Sub-alternatives 2b** and **3b**). The gear marking requirement in **Alternative 3** may be beneficial to the black sea bass pot fishermen by allowing NMFS to better identify gear associated with entanglements, which could help decipher entanglements with gear from other fisheries from black sea bass pot gear.

Marine mammal protection has broad social effects as well, as conservation of endangered species can produce societal benefits by protecting species for aesthetic, economic, scientific, and historical value to the U.S. and citizens. The social benefits would be tied to any benefits for right whale protection, as discussed in the biological effects. If the biological benefits and contribution to right whale protection are higher, the broad social benefits associated with protected species conservation will be higher. However, because of limited information on actual risk of interaction is unknown, so that any associated social benefits would also be unknown. With all other regulations and management measures in place for the black sea bass pot fishery that contribute to minimizing potential interactions through Council actions and ALWTRP requirements, the return on investment of additional gear specifications under **Alternatives 2-4** could be low, particularly for a relatively small fishery such as the black sea bass pot fishery. Overall, any social benefits that would be expected to result from improved right whale protection will only be realized when biological benefits to the right whales can be measured and demonstrated.

# Timing for SG Regulatory Amendment 16

- South Atlantic Council reviewed/revised the document at the March 2015 meeting and chose **Preferred Alternative 9, Sub-Alternative 9a** as preferred their alternative/sub-alternative for **Action 1**. No preferred alternative was chosen for **Action 2**.
- The Snapper Grouper AP, SSC, and SEP will review Regulatory Amendment 16 in April 2015 and make their recommendations to the South Atlantic Council.
- South Atlantic Council will review recommendations made by the Snapper Grouper AP, SSC, SEP, and IPT then revise the document, as appropriate at the June 2015 meeting. The Council is scheduled to approve the document for public hearings.
- Public hearings August 2015.
- The DEIS comment period must end prior to September 14, 2015, the first day of the Council's September 2015 meeting.
- South Atlantic Council reviews public comments, DEIS comments, and receives additional public comment; reviews the final document and makes any modifications as necessary; and approves all actions at the September 2015 meeting.
- South Atlantic Council reviews the final document, makes any modifications as necessary, and approves for formal review in December 2015.
- Send SG Regulatory Amendment 16 for formal review by January 15, 2016.
- Target date for regulations to be in place is by Summer 2016.