

## **New Jersey's Implementation Plan for the Atlantic Migratory Group Cobia**

January 17, 2018

### **1. Recreational Fishery Management Measures**

#### **A. *De Minimis* States**

- I. New Jersey recreational harvest data, in pounds, were obtained from MRIP. These harvest estimates were compared to the coast wide estimates of recreational harvest from the Atlantic Coast. Based on this analysis, New Jersey qualifies for *de minimis* status with less than 1% of the coastwide recreational landings for all three years from 2014-2016.

	2014	2015	2016
NJ Recreational Harvest	0	0	0
Coastwide Recreational Harvest	1,049,100 lbs	2,211,251 lbs	1,724,992 lbs
Percentage of Coastwide Harvest	0	0	0

- II. In order to satisfy the *de minimis* management options required in the cobia fishery management plan, New Jersey will implement one of the following management options:
  - a. A *de minimis* state may match the recreational regulations of an adjacent (or the nearest) non-*de minimis* state. Please list the state non-*de minimis* state being matched as well as regulatory language that matches that of the non-*de minimis* state.
  - b. A 1 fish per vessel per trip limit and a minimum size limit of 29 inches fork length or 32 inches total length.

New Jersey will implement management option a, and will therefore match Virginia's cobia regulations. Virginia will finalize its 2018 Cobia regulations in early 2018. Based on Virginia's implementation plan, these regulations include a minimum size limit of 40 inches total length (equivalent to 36 inches fork length), a bag limit of 1 fish per person per day, a daily vessel limit of 3 or 4 fish, and a season starting no earlier than May 15 and ending no later than September 30. New Jersey's regulations allow the adjustment of creel, minimum size, and season by public notice. As Virginia completes their stakeholder process and finalizes their 2018 regulations, New Jersey will have the authority and the ability to rapidly match their regulations.

### **2. Commercial Fishery Management Measures**

In all New Jersey waters, commercial regulations will be:

- A. A minimum size limit of 33 inches fork length or 37 inches total length.

- B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.

The federal annual quota is 50,000 lbs. and is shared by all states from Georgia to New York. The season will be open until the coast wide quota is projected to be reached, as determined by NOAA Fisheries.

### **3. Implementation Timeline**

New Jersey has submitted draft regulations for review by the office of the Commissioner of the Department of Environmental Protection (see below). Although there is some uncertainty in the timing of formal approval, New Jersey anticipates having regulations effective in April 2018.

Full text of the changed rule follows (additions indicated in boldface **thus**, deletions indicated in brackets [thus]):

#### 7:25-18.1 Size, season, and possession limits

(a) (No change.)

(b) A person shall not purchase, sell, offer for sale, expose for sale, barter, trade, or exchange for money or for any other thing of value, or attempt to purchase, sell, offer for sale, barter, trade, or exchange for money or for any other thing of value, any species listed below less than the minimum length, measured in inches, except as may be provided elsewhere in this subchapter, and subject to the specific provisions of any such section. Any commercially licensed or permitted vessel or person shall be presumed to possess the following species for sale purposed and shall comply with the minimum sizes below. Fish length shall be measured from the tip of the snout to the tip of the tail (total length), except as noted below.

<u>Species</u>	<u>Minimum Size (inches)</u>
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1. – 2. (No change.)

3. A person shall not take in any one day or possess more than the possession limit specified below for each species listed, except as may be provided elsewhere in this subchapter, and subject to the specific provisions of any such section.

<u>Species</u>	<u>Possession Limit</u>
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Cobia	<b>2 per person, no more than 6 per vessel</b>
Red Drum	1, no more than 27 inches

(c) A person angling with a hand line or with a rod and line or using a bait net or spearfishing shall not have in his or her possession any species listed below less than the minimum length, nor shall such person take in any one day or possess more than the possession limits as provided below, nor shall such person possess any species listed below during the closed season for that species. Exceptions to this section as may be provided elsewhere in this subchapter shall be subject to the specific provisions of any such section. Fish length shall measure from the tip of the snout to the tip of the tail (total length), except as noted below:

<u>Species</u>	<u>Minimum Size In Inches</u>	<u>Open Season</u>	<u>Possession Limit</u>
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• • •

Cobia

**DEPENDENT ON VIRGINIA'S REGULATIONS**

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1. – 6. (No change.)

(d) – (r) (No change.)



## State of Delaware Cobia Compliance Plan

January 1, 2018

### 1. Recreational Fishery Management Measures

#### B. *De minimis* States

I. Delaware's had no reported recreational landings of Cobia during 2014 through 2016, thus it had less than 1% of coastwide recreational landings during this period. While there is anecdotal evidence that Cobia were caught in Delaware during this period, none of these Cobia were picked up in APAIS intercepts.

II. Delaware has started its regulatory process to comply with the *de minimis* measures (see below). Delaware will present both de minimis options (default and nearest state) in a public hearing before finalizing an option.

### 2. Commercial Fishery Management Measures

Delaware has started its regulatory process to comply with the Cobia commercial fishery management measures (see below).

# DEPARTMENT OF NATURAL RESOURCES AND ENVIRONMENTAL CONTROL

## Division of Fish and Wildlife

### 3500 Tidal Finfish

#### 3550 Cobia (*Rachycentron canadum*)

##### 1.0 Recreational Possession Limits

- 1.1 It is unlawful for a recreational finfisher to take and reduce to possession more than one Cobia per day or per trip, whichever is longer.
- 1.2 Except in accordance with 3.0 of this section, it is unlawful to have aboard any boat or vessel more than one Cobia.

##### 2.0 Recreational Size Limit

- 2.1 It is unlawful for a recreational fisher to possess a Cobia that measures less than 32 inches in total length.

##### 3.0 Commercial Possession Limits

- 3.1 A commercial food fish licensee may take and reduce to possession no more than two Cobia per day or per trip, whichever is longer, using commercial fishing gear for which the licensee is lawfully permitted.
- 3.2 It is unlawful for a commercial finfisher to possess more than two Cobia per day or per trip, whichever is longer.
- 3.3 Notwithstanding 3.1 and 3.2, a commercial fishing vessel may have up to six Cobia per day or per trip, whichever is longer, onboard provided the number Cobia does not exceed twice the number of commercial foodfish licensees onboard that vessel.

##### 4.0 Commercial Size Limit

- 4.1 It is unlawful for a commercial foodfish licensee to possess, trade, barter or sell or attempt to trade, barter or sell any Cobia that measure less than 37 inches in total length.

OR

##### 1.0 Recreational Season(s)

- 1.1 It is unlawful for a recreational finfisher to possess any Cobia during the periods January 1 through May 31 and September 16 through December 31.
- 1.2 It is lawful for a recreational finfisher to possess Cobia during the period June 1 through September 15 in accordance with sections 2.0 and 3.0.

##### 2.0 Recreational Possession Limits

- 2.1 It is unlawful for a recreational finfisher possess more than one Cobia per day or per trip, whichever is longer.
- 2.2 Except in accordance with 4.0 of this section, it is unlawful to have aboard any vessel more than three Cobia.

##### 3.0 Recreational Size Limit

3.1 It is unlawful for a recreational finfisher to possess any Cobia that measures less than 40 inches in total length.

#### 4.0 Commercial Possession Limits

- 4.1 A commercial food fish licensee may take and reduce to possession no more than two Cobia per day or per trip, whichever is longer, using commercial fishing gear for which the licensee is lawfully permitted.
- 4.2 It is unlawful for a commercial finfisher to possess more than two Cobia per day or per trip, whichever is longer.
- 4.3 Notwithstanding 3.1 and 3.2, a commercial fishing vessel may have up to six Cobia per day or per trip, whichever is longer, onboard provided the number Cobia does not exceed twice the number of commercial foodfish licensees onboard that vessel.

#### 5.0 Commercial Size Limit

- 5.1 It is unlawful for a commercial foodfish licensee to possess, trade, barter or sell or attempt to trade, barter or sell any Cobia that measure less than 37 inches in total length.



*Larry Hogan*, Governor  
*Boyd Rutherford*, Lt. Governor  
*Mark Belton*, Secretary  
*Joanne Throwe*, Deputy Secretary

## **Maryland's Implementation Plan for the Atlantic Migratory Group Cobia**

December 29, 2017

### **1. Recreational Fishery Management Measures**

#### A. *De minimis* States

- I. Maryland recreational harvest data, in pounds, were obtained from the Southeast Fishery Science Center (SEFSC). These harvest estimates were compared to the coast wide estimates of recreational harvest from Virginia, North Carolina, South Carolina, and Georgia. Based on this analysis, Maryland qualifies for *de minimis* status with less than 1% of the coast wide recreational harvest in all three of the years examined.

	2014	2015	2016
Maryland Recreational Harvest	0 lbs	0 lbs	1,762 lbs
Coastwide Recreational Harvest	544,050 lbs	1,540,978 lbs	1,289,993 lbs
Percentage of Coastwide Harvest	0%	0%	0.14%

- II. In order to satisfy the *de minimis* management options required in the cobia fishery management plan, Maryland will implement one of the following management options:

- a. A *de minimis* state may match the recreational regulations of an adjacent (or the nearest) non-*de minimis* state. Please list the state non-*de minimis* state being matched as well as regulatory language that matches that of the non-*de minimis* state.
- b. A 1 fish per vessel per trip limit and a minimum size limit of 29 inches fork length or 32 inches total length.

Maryland will implement management option a, and will therefore match Virginia's cobia regulations. Virginia will finalize its 2018 Cobia regulations in early 2018. Based on Virginia's implementation plan, these regulations include a minimum size limit of 40 inches total length (equivalent to 36 inches fork length), a bag limit of 1 fish per person per day, a daily vessel limit of 3 or 4 fish, and a season starting no earlier than May 15 and ending no later than September

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30. Maryland's proposed regulation allows the adjustment of creel, minimum size, and season by public notice. As Virginia completes their stakeholder process and finalizes their 2018 regulations, Maryland will have the authority and the ability to rapidly match their regulations.

## **2. Commercial Fishery Management Measures**

In all Maryland waters, commercial regulations will be:

- A. A minimum size limit of 33 inches fork length or 37 inches total length.
- B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.

The federal annual quota is 50,000 lbs. and is shared by all states from Georgia to New York. The season will be open until the coast wide quota is projected to be reached, as determined by NOAA Fisheries.

## **3. Implementation Timeline**

Maryland has submitted draft regulations to the Maryland Legislature (see below). Although there is some uncertainty in the timing of formal approval, Maryland anticipates having regulations effective in April 2018.

## **Maryland's Proposed Cobia Regulations**

### **Chapter 05 Fish**

#### **.17 [Repealed]Cobia.**

*A. Recreational. The recreational size limit, catch limit, and season for cobia shall be established and may be modified through a public notice issued in accordance with §C of this regulation.*

*B. Commercial.*

*(1) Minimum Size. An individual who harvests cobia for commercial purposes may not catch or possess a cobia with a fork length that is less than 33 inches.*

*(2) Daily Catch Limits.*

*(a) Except as provided in §(2)(b) and (c) of this regulation, a commercial licensee may not catch, possess, or land more than two cobia per person per day.*

*(b) A commercial licensee with one additional individual on board the vessel may not catch, possess, or land more than four cobia per vessel per day.*

*(c) A commercial licensee with two or more additional individuals on board the vessel may not catch, possess, or land more than six cobia per vessel per day.*

*(3) A person may not catch, possess, or land cobia for commercial purposes when the National Oceanic and Atmospheric Administration closes the fishery in federal waters.*

*(4) Cobia harvested for commercial purposes from Maryland waters of the Atlantic Ocean or from the waters of the Exclusive Economic Zone (EEZ) and landed in Maryland shall be sold to a federally permitted dealer.*

*C. Public Notice.*

*(1) The Secretary may establish or modify catch limits, size limits and seasons for cobia in order to implement the Atlantic States Marine Fisheries Commission Interstate Fishery Management Plan for the Atlantic Migratory Group of Cobia, by issuing a public notice on the Department's website.*

*(2) The public notice shall state its effective hour and date and shall be published on the Department's website at least 48 hours in advance of the effective hour and date.*

*(3) The Secretary shall make a reasonable effort to disseminate a public notice issued under this section through various other media so that an affected individual has a reasonable opportunity to be informed.*

*(4) A violation of the restrictions set by the Secretary in accordance with this section is a violation of this regulation.*

### **Chapter 12 Endangered and Threatened Fish Species**

#### **.03 Listing of Species.**

A. The following species are listed as in need of conservation:

- (1)—(17) (text unchanged)
- (18) Atlantic menhaden (*Brevoortia tyrannus*); [and]
- (19) Jonah crab (*Cancer borealis*)[.]; and
- (20) Cobia (*Rachycentron canadum*).

B. (text unchanged)

MARK J. BELTON  
Secretary of Natural Resources



MARYLAND - VIRGINIA  
"Potomac River Compact of 1958"

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## **Cobia Implementation Plan**

January 2018

### **1. Recreational Fishery Management Measures**

- A) *Non-De Minimis States* - N/A
- B) *De Minimis States/Jurisdictions*

- (i) Potomac River landings are recorded and reported by either Maryland or Virginia, and we believe they have been very minimal.
- (ii) The Potomac River Fisheries Commission will adopt at their next meeting on March 2, 2018 either the recreational regulations of Virginia or a one fish per vessel per trip and a minimum size limit of 32 inches total length.

### **2. Commercial Fishery Management Measures**

- A) The Potomac River Fisheries Commission will adopt at their next meeting on March 2, 2018 a minimum size limit of 37 inches total length, and a possession limit no greater than two fish per person and no greater than six fish per vessel.

Note: the Potomac River Fisheries Commission will meet at their next quarterly meeting on March 2, 2018. At this meeting, an Order will be adopted that will bring the PRFC into compliance with the Interstate Fishery Management Plan for Cobia.



## *COMMONWEALTH of VIRGINIA*

*Marine Resources Commission*

*2600 Washington Avenue*

*Third Floor*

*John M.R. Bull*

*Molly Joseph Ward*

*Secretary of Natural Resources*

*Newport News, Virginia 23607*

*Commissioner*

**TO:** **Michael Schmidtke, FMP Coordinator**

**FROM:** **Ryan Jiorle, Virginia Representative for the ASMFC Cobia TC**

**Fisheries Management Division, Virginia Marine Resources Commission DATE:**

**12/29/2017**

**SUBJECT: Virginia Cobia Fishery Management Plan Implementation Plan**

At its October meeting, the South Atlantic State/Federal Fisheries Management Board (Board) took final action on the Interstate Fishery Management Plan (FMP) for Cobia. Per the agreement of the Board, implementation plans are due January 1, 2018. Jurisdictions must implement the FMP regulations by April 1, 2018.

### **Recreational Fishery Management Measures**

#### **A. Non-*De Minimis* States**

- I. A minimum size limit of 36 inches fork length or 40 inches total length (converted using combined sex length-length conversion function from SEDAR 28).
  - Virginia will maintain its current 40-inch, total length, minimum size limit (See Appendix I).
- II. A bag limit of 1 fish per person.
  - Virginia will maintain its current, 1-fish-per-person daily possession limit (Appendix I).
- III. A daily vessel limit no greater than 6 fish per vessel.

*An Agency of the Natural Resources Secretariat*

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- Virginia will either maintain its current 3-fish daily vessel limit (Appendix I) or increase to a 4-fish daily vessel limit. See subsection IV, Table 1 for potential options.
- IV. A fishing season that, in conjunction with previously defined measures, will achieve a harvest that is at or below a state's allocated recreational harvest target. State recreational harvest targets are shown in the following table. Note: Recreational management measures will be developed by the state, reviewed by the Technical Committee, and approved by the Management Board.

State	GA	SC	NC	VA
Harvest Target (pounds)	58,311	74,885	236,313	244,292

Table 1: A comparison of predicted 2018 recreational landings, in pounds, for multiple season lengths and daily vessel limits. Included are calculations based on the 2011-2015 average weight estimate from the Southeast Fisheries Science Center (SEFSC column) and calculations based on year-by-year average weight estimates from the Virginia Marine Resources Commission's Marine Sportfish Collection Project (VMRC donations column). Due to lack of sufficient sample sizes, the SEFSC average weight estimate for Virginia had to be derived by pooling samples across the entire 5 years, leading to one average weight estimate of 34.04 pounds for all 5 years. More information on the Marine Sportfish Collection Project Data is provided in Table 2.

Open season	Vessel limit	Predicted landings (SEFSC average weight)	Predicted landings (VMRC donations average weight)
May 15-September 15	3	270,058	225,445
May 15-August 31	3	268,238	223,470
June 1-September 30	3	238,908	200,368
June 1-September 15	3	237,088	198,393
May 15-August 31	4	268,238	223,470
June 1-September 30	4	239,622	201,142
June 1-September 15	4	237,445	198,780

The VMRC does not yet have a preferred option because it would first like to solicit public comment on which vessel limit and elements of the recreational season are most important to stakeholders.

Table 2: Length data from the Virginia Marine Resources Commission's Marine Sportfish Collection Project. The number of samples refers to the number of fish measured for length, which were then converted to weight using the equation from SEDAR 28:

$$\text{Weight (kg)} = 2\text{E-}9 * (\text{Fork length, mm})^{3.28}$$

Year	Number of samples	Average fork length (mm)	Average weight (SEDAR conversion, kg)	Average weight (pounds)
2011	90	1069.29	17.24	37.92
2012	77	1011.92	14.39	31.65
2013	198	985.90	13.21	29.06
2014	296	979.62	12.93	28.45
2015	350	961.61	12.17	26.77

B. *De minimis* States

- I. Justification of *de minimis* status, shown by recreational harvests, in weight, that are less than 1% of the coastwide recreational landings for 2 of 3 years from 2014-2016.
- II. Management measures that satisfy the *de minimis* management requirements of the FMP. Please include language that satisfies one of the following management methods:
  - a. A *de minimis* state may match the recreational regulations of an adjacent (or the nearest) non-*de minimis* state. Please list the state non-*de minimis* state being matched as well as regulatory language that matches that of the non-*de minimis* state.
  - b. A 1 fish per vessel per trip limit and a minimum size limit of 29 inches fork length or 32 inches total length.

**Commercial Fishery Management Measures**

- A. A minimum size limit of 33 inches fork length or 37 inches total length.
  - Virginia will maintain its current 37-inch, total length, minimum size limit (Appendix I).
- B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.
  - Currently, the only gear that has a vessel limit is the commercial hook-and-line fishery, which operates under an exemption that allows any commercial hook-and-line licensee to harvest 6 cobia per vessel per day, regardless of how many crew members are on board. Because this is in conflict with the “2-per-person” provision of the FMP, the VMRC will be adjusting or eliminating this exemption at its February 27, 2018 Commission meeting. The VMRC will establish either a 2-per-person possession limit or 2-per-commercial-licensee

possession limit for hook-and-line fishing. Although it is unclear which will be adopted, both regulations are within the above requirements. All other commercial gears are set at 2 per commercial licensee, but without any vessel limit. Thus, the VMRC will establish a 6-fish vessel limit (or something more restrictive) for all other gears while maintaining the 6-fish vessel limit already in place for hook-and-line.

### **3. Timeline for Implementation**

- The VMRC will be addressing its commercial and recreational cobia measures at its February 27, 2018 Commission meeting.

**VIRGINIA MARINE RESOURCES COMMISSION  
"PERTAINING TO AMBERJACK AND COBIA"  
CHAPTER 4 VAC 20-510-10 ET SEQ.**

**PAGE 1 OF 5**

**PREAMBLE**

This chapter establishes possession limits and minimum size limits for cobia and amberjack in Virginia waters.

This chapter is promulgated pursuant to authority contained in §28.2-201 of the Code of Virginia. This chapter amends and re-adopts previous Chapter 4 VAC 20-510-10 et seq. which was adopted on March 28, 2017 and effective on April 1, 2017. The effective date of this chapter, as amended, is October 25, 2017.

**4VAC20-510-10. PURPOSE.**

The purpose of this chapter is to control the harvest, protect the spawning stocks, minimize the possibility of recruitment failure and increase yield in the amberjack and cobia fisheries. The provisions pertaining to aquaculture serve to prevent cobia raised in an aquaculture facility from being placed into Virginia waters and to minimize the impact of cultured fish in the market place on the enforcement of other provisions of this chapter.

**4 VAC 20-510-12. DEFINITIONS.**

The following words and terms when used in this chapter shall have the following meanings unless the context clearly indicates otherwise.

“Recreational vessel” means any vessel, kayak, charter vessel, or headboat participating in the recreational cobia fishery.

**4VAC20-510-15. RECREATIONAL COBIA PERMIT AND MANDATORY REPORTING.**

A. It shall be unlawful for any person to possess or land any cobia harvested from a recreational vessel unless the captain or operator of that recreational vessel has obtained a Recreational Cobia Permit from the Marine Resources Commission. The captain or operator shall be responsible for reporting for all anglers on the recreational vessel and shall provide his MRC ID number; the date of harvest; the number of individuals on board; the mode of fishing; and the number of cobia kept or released.

B. It shall be unlawful for any person to possess or land any cobia harvested recreationally from shore, a pier, or any other manmade structure without first having obtained a Recreational Cobia Permit from the Marine Resources Commission. Any such permittee shall provide his MRC ID number; the date of harvest; the mode of fishing; and the number

**VIRGINIA MARINE RESOURCES COMMISSION****PAGE 2 OF 5****"PERTAINING TO AMBERJACK AND COBIA"****CHAPTER 4 VAC 20-510-10 ET SEQ.**

of cobia kept or released on that report to the Commission.

C. It shall be unlawful for any permittee to fail to report trips where cobia were caught, whether harvested, released, or possessed in accordance with this section, on forms provided by the commission within seven days after the trip occurred. It shall be unlawful for any permittee to fail to report trips where cobia were targeted but not successfully caught, by the 15<sup>th</sup> day after the close of any recreational cobia fishery season.

1. Any permittee who did not participate in the recreational cobia season shall notify the commission of their lack of participation by the 15<sup>th</sup> day after the close of the recreational cobia season on forms provided by the commission.
2. Any permittee who either fails to report the harvest of cobia or did not participate in any recreational cobia season and fails to report no activity shall be ineligible to receive a Recreational Cobia Permit in the following year.

**4VAC20-510-20. RECREATIONAL FISHERY POSSESSION LIMITS; SEASON CLOSURE; VESSEL ALLOWANCE; AND, PROHIBITION ON GAFFING.**

- A. It shall be unlawful for any person fishing recreationally to possess more than two amberjack or more than one cobia at any time. Any amberjack or cobia caught after the possession limit has been reached shall be returned to the water immediately. When fishing from any boat or vessel where the entire catch is held in a common hold or container, the possession limit shall be for the boat or vessel and shall be equal to the number of persons on board legally eligible to fish multiplied by two for amberjack or one for cobia, except there is a maximum vessel limit of three cobia per vessel per day. That vessel limit may only include one cobia greater than 50 inches in total length. The captain or operator of the boat or vessel shall be responsible for any boat or vessel possession limit.
- B. In 2017 it shall be unlawful for any person, fishing recreationally, to harvest or possess any cobia before June 1<sup>st</sup> or after September 15<sup>th</sup>.
- C. It shall be unlawful for any person fishing recreationally to gaff or attempt to gaff any cobia.

**4VAC20-510-25. COMMERCIAL FISHERY POSSESSION LIMITS AND SEASON.**

- A. It shall be unlawful for any person fishing commercially to possess more than two amberjack or more than two cobia at any time, except as described in 4VAC 20-510-

**VIRGINIA MARINE RESOURCES COMMISSION****PAGE 3 OF 5****"PERTAINING TO AMBERJACK AND COBIA"****CHAPTER 4 VAC 20-510-10 ET SEQ.**

33. Any amberjack or cobia caught after the possession limit has been reached shall be returned to the water immediately. When fishing from any boat or vessel where the entire catch is held in a common hold or container, the possession limit shall be for the boat or vessel and shall be equal to the number of persons on board legally eligible to fish multiplied by two. The captain or operator of the boat or vessel shall be responsible for any boat or vessel possession limit.
- B. In 2017 it shall be unlawful for any person, fishing commercially, to harvest or possess any cobia after September 30.

**4VAC20-510-30. MINIMUM SIZE LIMITS.**

- A. It shall be unlawful for any person to take, catch or have in possession any amberjack less than 32 inches in total length.
- B. It shall be unlawful for any person fishing commercially to take, harvest or possess any cobia less than 37 inches in total length.
- C. It shall be unlawful for any person to take, catch or have in possession any recreationally harvested cobia less than 40 inches in total length.
- D. Total length is measured in a straight line from tip of nose to tip of tail.

**4VAC20-510-33. EXCEPTIONS TO POSSESSION LIMITS AND MINIMUM SIZE LIMITS.**

- A. Nothing in 4VAC20-510-25 shall limit the possession of amberjack or cobia by licensed seafood buyers or wholesale and retail seafood establishments when operating in their capacity as buyer, wholesaler or retailer.
- B. Nothing in 4VAC20-510-25 and 4VAC20-510-30 shall limit the possession of cobia by an aquaculture facility that is permitted in accordance with the provisions of 4VAC20-510-35.
- C. Any person employed by a permitted cobia aquaculture facility for the purpose of harvesting cobia as broodstock for the aquaculture facility shall be exempt from the provisions of 4VAC20-510-20 and 4VAC20-510-30 provided that person possesses a scientific collection permit issued by the commissioner.
- D. The daily possession limit, for cobia, for any vessel operated by at least one legal

**VIRGINIA MARINE RESOURCES COMMISSION  
"PERTAINING TO AMBERJACK AND COBIA"  
CHAPTER 4 VAC 20-510-10 ET SEQ.**

**PAGE 4 OF 5**

commercial hook-and-line licensee shall be no more than 6 cobia, regardless of the number of crew on that vessel.

**4VAC20-510-35. AQUACULTURE OF COBIA; PERMIT REQUIRED.**

- A. Any person operating an aquaculture facility in which cobia that exceed the possession limit or are of sublegal size will be cultured, possessed, offered for sale or sold shall first obtain a permit from the commissioner for the facility. That permit shall exempt the facility from the possession requirements described in 4VAC20-510-20 and authorize the possession, culturing and sale of sublegal size cobia.
- B. The application for a cobia aquaculture permit shall list the name and address of the applicant, the type and location of the facility, and an estimate of production capacity. An aquaculture permit shall be valid for 10 years from the date of issue and may be renewed by the commissioner provided the permittee has complied with all of the provisions of this chapter. The issuance and continuation of any person's cobia aquaculture permit are contingent on that designated facility being open for inspection by the Marine Resources Commission for the purposes of determining compliance with this regulation. An aquaculture permit is not transferable.

**4VAC20-510-37. SALE, RECORDS, IMPORTATION, RELEASE.**

- A. All cobia produced by an aquaculture facility permitted under this section shall be packaged prior to sale with a printed label indicating the product is of aquaculture origin. When packaged and labeled according to these requirements, such fish may be transported and sold at retail or wholesale or for commercial distribution through normal channels of trade until reaching the consumer.
- B. Cobia that measure less than the lawful minimum size described in 4VAC20-510-30 B but are the product of a permitted aquaculture facility in another state may be imported into Virginia for the consumer market. Such fish shall be packaged and labeled in accordance with the provisions contained in subsection A of this section.
- C. Release of live fish. Under no circumstance shall any cobia produced by an aquaculture facility located within or outside the Commonwealth of Virginia be placed into the waters of the Commonwealth without first having notified the commissioner and having received written permission from the commissioner.

**4VAC20-510-40. PENALTY.**

VIRGINIA MARINE RESOURCES COMMISSION  
"PERTAINING TO AMBERJACK AND COBIA"  
CHAPTER 4 VAC 20-510-10 ET SEQ.

PAGE 5 OF 5

As set forth in §28.2-903 of the Code of Virginia, any person violating any provision of this chapter shall be guilty of a Class 3 misdemeanor and a second or subsequent violation of any provision of this chapter committed by the same person within 12 months of a prior violation is a Class 1 misdemeanor.

\* \* \* \* \*

This is to certify that the foregoing is a true and accurate copy of the chapter passed by the Marine Resources Commission, pursuant to authority vested in the Commission by §28.2-201 of the Code of Virginia, duly advertised according to statute, and recorded in the Commission's minute book, at meeting held in Newport News, Virginia on October 24, 2017.

COMMONWEALTH OF VIRGINIA  
MARINE RESOURCES COMMISSION

BY: John M. R. Bull  
John M. R. Bull  
Commissioner

Subscribed and sworn to before me this 27 day of October, 2017.

Jennifer G. Farmer  
Notary Public



## **Cobia Fishery Management Plan Implementation Plan – North Carolina**

The North Carolina Division of Marine Fisheries (NC DMF) solicited input from the public and the North Carolina Marine Fisheries Commission (NC MFC) advisory committees on potential season and/or vessel limit options for the 2018-2020 cobia seasons. Numerous management options were analyzed and presented to the NC MFC for their consideration. The NC DMF presents two options for consideration by the South Atlantic State/ Federal Fisheries Management Board at their February 2018 business meeting. Following is a description of each proposed management option and a description of the analysis used to estimate expected landings under different management scenarios. Selected and approved management measures will be implemented under the NC DMF Director's proclamation authority granted by North Carolina General Statutes (G.S. 113-170.4; 113-170.5; 113-182; 113-221.1; 143B-289.52) and NC MFC rules (15A NCAC 03H .0103, and 03M .0512) 48-hours after issuance. Currently, the recreational cobia fishery in North Carolina is closed until April 30, 2018 and the commercial fishery will re-open on January 1, 2018 (Proclamation FF-32-2017; attached).

### **4. Recreational Fishery Management Measures**

#### **A. Non-De Minimis States**

- I. A minimum size limit of 36 inches fork length or 40 inches total length (converted using combined sex length-length conversion function from SEDAR 28).*

Option 1 and Option 2 both propose adopting a 36-inch fork length minimum size limit for the cobia fishery in North Carolina. For each option, proposed regulatory language to be included in the proclamation will read as follows:

It is unlawful to possess cobia less than 36 inches fork length.

- II. A bag limit of 1 fish per person.*

Option 1 and Option 2 both propose adopting a bag limit of one fish per person for the cobia fishery in North Carolina. For each option, proposed regulatory language to be included in the proclamation will read as follows:

It is unlawful to possess more than one (1) cobia per person per day

- III. A daily vessel limit no greater than 6 fish per vessel.*

Option 1, recommended by the NC MFC, would allow vessel limits of four fish per vessel for for-hire vessels and two fish per vessel for private vessels. Proposed regulatory language to be included in the proclamation will read as follows:

*FOR-HIRE VESSEL (While engaged in a For-Hire Vessel operation)*

It is unlawful to possess more than four (4) cobia per vessel per day or one (1) cobia per person per day if fewer than four (4) people are on board.

*PRIVATE VESSEL (All vessels not engaged in a For-Hire Vessel operation)*

It is unlawful to possess more than two (2) cobia per vessel per day or one (1) cobia per person per day, if there is only one person on board.

Option 2 would allow vessel limits of three fish per vessel for for-hire vessels and a one fish per vessel limit for private vessels. Proposed regulatory language to be included in the proclamation will read as follows:

*FOR-HIRE VESSEL (While engaged in a For-Hire Vessel operation)*

It is unlawful to possess more than three (3) cobia per vessel per day or one (1) cobia per person per day if fewer than three (3) people are on board.

*PRIVATE VESSEL (All vessels not engaged in a For-Hire Vessel operation)*

It is unlawful to possess more than one (1) cobia per vessel per day.

- IV. *A fishing season that, in conjunction with previously defined measures, will achieve a harvest that is at or below a state's allocated recreational harvest target. State recreational harvest targets are shown in the following table. Note: Recreational management measures will be developed by the state, reviewed by the Technical Committee, and approved by the Management Board.*

<b>State</b>	<b>GA</b>	<b>SC</b>	<b>NC</b>	<b>VA</b>
<b>Harvest Target (pounds)</b>	58,311	74,885	236,313	244,292

A season for the cobia fishery in North Carolina is not proposed for either option. Stakeholder input was almost unanimous in the desire to maintain an open season throughout the year. The harvest measures needed to achieve North Carolina's Recreational Harvest Limit of 236,313 pounds are attained with the proposed vessel limit options.

Staff with the NC DMF analyzed various vessel limit options between the for-hire and private modes and presented these analyses to the public and the NC MFC for their input. The initial analysis relied on Marine Recreational Information Program (MRIP) intercepts (size, number of fish, and weight) and total catch estimated from the 2011-2015 fishing years. This period was selected because it represented the most recent five-year period of landings in the fishery with consistent regulations (33-inch fork length minimum size and two per person possession limit for all sectors). The percent reduction of harvest for each management change was then calculated by pooling all the available intercept data across the period into two week segments and then calculating reductions in number of fish and weight of fish harvested from the observed intercept values to the various vessel limit options. For size limit, the estimated

reduction of harvest was calculated and applied to the data before vessel limit and season reductions were calculated. This simulated the reduction in landings expected from increasing the size limit in the fishery from 33-inches fork length to 36-inches fork length. These values were then pooled across the weeks and subtracted from the total number or weight of harvested fish, by mode, to calculate the expected reduction for a given vessel limit. Average weights of fish were estimated directly from MRIP intercepts for the two-week period. After discussion among the Cobia Technical Committee, it was decided to use consistent average weight methods across all the states. Annual average weights of cobia from the Southeast Fisheries Science Center were then applied to the analysis at the annual level and the reduction percentages were re-calculated. Percent reductions were then converted to expected pounds of harvest by subtracting the percent reduction of landings from the 2011-2015 average of landings, by mode. These figures are presented in the table below for the two proposed management options (Table 1).

Table 1. Vessel limit options and associated expected landings (pounds) based on the 5-year average landings from 2011-2015. Analysis assumes a 36-inch fork length limit and a 1 fish/person bag limit for all modes

	For-hire	Private*	Total estimated landings
Option 1	4 fish/vessel 40,102 lbs	2 fish/vessel 216,435 lbs	256,537 lbs
Option 2	3 fish/vessel 35,540 lbs	1 fish/vessel 166,568 lbs	202,108 lbs

\*Private landings include man-made and shore based modes

Estimated landings for Option 1 exceed the RHL set for North Carolina by 20,244 pounds. The NC MFC cited input received from its standing advisory committees and considerable public comment concerning the uncertainty surrounding the MRIP catch estimates as justification for recommending management measures that exceed the RHL. Along with the management measures recommended by the NC MFC, they also instructed the NC DMF to develop a mandatory reporting program for the recreational cobia fishery in the state to help improve accuracy of catch estimates. Preliminary 2017 SEFSC harvest estimates through wave four was 202,965 pounds for North Carolina, 33,348 pounds under the RHL. North Carolina realized these landings with the same management measures proposed in Option 1 with the addition of a May 1 – August 31 season. During the 2011 – 2015 period, North Carolina harvested approximately 98 percent of its cobia by September 1 (Figure 1). Additionally, the NC MFC cited the under harvest in 2017 compared to the projected landings NC DMF staff presented to them before the season. Under the 2017 management measures adopted by the NC MFC, the NC DMF estimated 297,240 pounds of harvest for 2017. Preliminary MRIP harvest estimated through Wave four were 261,514 pounds, a difference of 35,726 pounds.

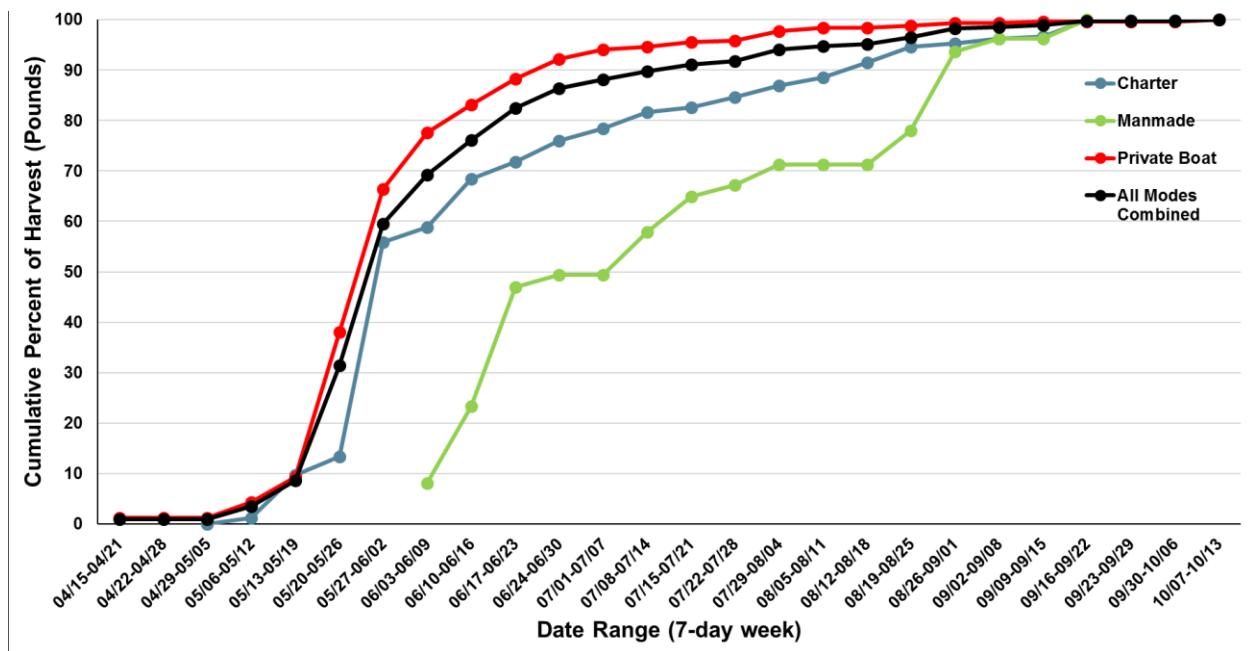


Figure 1. Cumulative percent of harvest, by mode, of cobia in North Carolina from the 2011 – 2015 period.

#### B. *De minimis States*

North Carolina does not request *de minimis* status.

#### 5. **Commercial Fishery Management Measures**

##### A. A minimum size limit of 33 inches fork length or 37 inches total length.

North Carolina Proposes implementing a 33-inch fork length minimum size for the commercial fishery. Proposed regulatory language to be included in the Director's proclamation will read as follows:

It is unlawful to possess cobia less than 33 inches fork length.

##### B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.

North Carolina proposes implementing a two fish per person commercial limit, not to exceed six fish per vessel. Proposed regulatory language to be included in the Director's proclamation will read as follows:

It is unlawful to possess more than two (2) cobia per person per day or six (6) per vessel per day, whichever is more restrictive.

FF-32-2017

**PROCLAMATION**

**RE: COBIA - COASTAL FISHING WATERS - RECREATIONAL AND COMMERCIAL**

*This proclamation supersedes proclamation FF-13-2017 dated April 10, 2017 and FF-31-2017 dated August 25, 2017. This proclamation closes the commercial fishery due to the federal annual catch limit being met. See the following NOAA Fishery Bulletin for more information: ([http://sero.nmfs.noaa.gov/fishery\\_bulletins/2017/047/FB17-034index.html](http://sero.nmfs.noaa.gov/fishery_bulletins/2017/047/FB17-034index.html)).*

The commercial season for cobia will re-open at 12:01 AM on January 1, 2018. This proclamation also maintains the recreational season closure for cobia through April 30, 2018.

Braxton C. Davis, Director, Division of Marine Fisheries, hereby announces that effective at 12:01 A.M., Tuesday, September 5, 2017, the following restrictions will apply to the cobia fishery *in Coastal Fishing Waters*:

**I. SUSPENSION OF N.C. MARINE FISHERIES COMMISSION RULE 15A NCAC 03M .0516**

N.C. Marine Fisheries Commission Rule 15A NCAC 03M. 0516 that reads as follows *is suspended in its entirety*:

- A. It is unlawful to possess cobia less than 33 inches fork length.
- B. It is unlawful to possess more than two (2) cobia per person per day.

**II. RECREATIONAL SEASON**

- A. **It is unlawful to possess Cobia. The fishery will remain closed through April 30, 2018.**

**III. COMMERCIAL SIZE AND HARVEST LIMIT**

- A. **It is unlawful to possess Cobia.**

**B. Effective at 12:01 A.M., Monday, January 1, 2018, the following restrictions will apply:**

- 1. It is unlawful to possess cobia less than 33 inches fork length.
- 2. It is unlawful to possess more than two (2) cobia per person per day or six (6) per vessel per day, whichever is more restrictive.

**IV. GENERAL INFORMATION**

A. This proclamation is issued under the authority of North Carolina G.S. 113-170.4; 113-170.5; 113-182; 113-221.1; 143B-289.52 and North Carolina Marine Fisheries Commission Rules 15A NCAC 03H .0103, and 03M .0512.

B. It is unlawful to violate the provisions of any proclamation issued by the Fisheries Director under his delegated authority pursuant to North Carolina Marine Fisheries Commission Rule 15A NCAC 03H .0103.

C. The intent of this proclamation is to manage the commercial fishery in Coastal Fishing Waters consistently with federal commercial management measures.

D. All cobia shall be immediately returned to the waters where taken, regardless of the condition of the fish.

E. Proclamation FF-31-2017 dated August 25, 2017 closed the recreational fishery through April 30, 2018 and implemented commercial provisions of Framework Amendment 4 to the federal Coastal Migratory Pelagics Fishery Management Plan to constrain coastwide landings to the commercial Annual Catch Limit established by NOAA Fisheries. It maintained a commercial minimum size limit of 33 inches fork length and instituted a commercial trip limit of two (2) fish per person per day or six (6) fish per vessel per day, whichever is more restrictive.

F. Contact the North Carolina Division of Marine Fisheries, P.O. Box 769, Morehead City, NC 28557 252-726-7021 or 800-682-2632 for more information or visit the division website at [www.ncmarinefisheries.net](http://www.ncmarinefisheries.net).

G. In accordance with North Carolina General Statute 113-221.1(c) all persons who may be affected by proclamations issued by the Fisheries Director are under a duty to keep themselves informed of current proclamations.

H. *This proclamation supersedes proclamation FF-13-2017 dated April 10, 2017 and FF-31-2017 dated August 25, 2017. This proclamation closes the commercial fishery due to the federal annual catch limit being met. See the following NOAA Fishery Bulletin for more information: ([http://sero.nmfs.noaa.gov/fishery\\_bulletins/2017/047/FB17-034index.html](http://sero.nmfs.noaa.gov/fishery_bulletins/2017/047/FB17-034index.html)).*

*The commercial season for cobia will re-open at 12:01 AM on January 1, 2018. This proclamation also maintains the recreational season closure for cobia through April 30, 2018.*



Braxton C. Davis, Director  
DIVISION OF MARINE FISHERIES

August 31, 2017  
12:52 P.M.  
FF-32-2017

# **South Carolina Fisheries Management Implementation Plan for Cobia**

Prepared under the Guidelines for the current Atlantic States Marine Fisheries Commission Interstate Fisheries Management Plan for Cobia (*Rachycentron canadum*).



Prepared By:

Christopher McDonough  
Office of Fisheries Management  
South Carolina Department of Natural Resources  
Charleston, South Carolina

## **1. Recreational Fishery Management Measures**

Pursuant to South Carolina Code of Laws 50-5-2730(A), *Unless otherwise provided by law, any regulations promulgated by the federal government under the Fishery Conservation and Management Act (PL 94-265) or the Atlantic Tuna Conservation Act (PL 94-70) which establishes seasons, fishing periods, gear restrictions, sales restrictions, or bag, catch, size, or possession limits on fish are declared to be the law of this State and apply statewide including in state waters.*

### **A. Non-*De Minimis* States**

- I. A minimum size limit of 36 inches fork length or 40 inches total length (converted using combined sex length-length conversion function from SEDAR 28).
  - Minimum size limit follows federal law under SC Code of Laws: 50-5-2730(A) in all state jurisdictional waters.
- II. A bag limit of 1 fish per person.
  - Daily bag limit follows federal law under SC Code of Laws: 50-5-2730(A) in all state jurisdictional waters.
- III. A daily vessel limit no greater than 6 fish per vessel.
  - SC Code of Laws: 50-5-2730(B-2) states: *cobia (Rachycentron canadum) located in the Southern Cobia Management Zone. Subject to the size limit established by federal regulation, possession of cobia caught in the Southern Cobia Management Zone is limited to one per person per day, and no more than three per boat per day, from June 1 to April 30.*
  - Vessel limit follows federal law in all other state waters outside the Southern Cobia Management Zone as per SC Code of Laws 50-5-2730(A).
- IV. A fishing season that, in conjunction with previously defined measures, will achieve a harvest that is at or below a state's allocated recreational harvest target. State recreational harvest targets are shown in the following table. Note: Recreational management measures will be developed by the state, reviewed by the Technical Committee, and approved by the Management Board.

State	GA	SC	NC	VA
Harvest Target (pounds)	58,311	74,885	236,313	244,292

- Under SC Code of Laws 50-5-2730(B-2): *It is unlawful to take and possess cobia in the Southern Cobia Management Zone from May 1 to May 31, and at any time federal regulations provide for the closure of the recreational cobia season in the waters of the South Atlantic Ocean.*

B. *De minimis* States

- I. Justification of *de minimis* status, shown by recreational harvests, in weight, that are less than 1% of the coastwide recreational landings for 2 of 3 years from 2014-2016.
  - Recreational harvest for South Carolina during 2014-2016 was greater than 1% of the coastwide landings for all three years, thus South Carolina does not qualify for *de minimis* status.
- II. Management measures that satisfy the *de minimis* management requirements of the FMP. Please include language that satisfies one of the following management methods:
  - a. A *de minimis* state may match the recreational regulations of an adjacent (or the nearest) non-*de minimis* state. Please list the state non-*de minimis* state being matched as well as regulatory language that matches that of the non-*de minimis* state.
  - b. A 1 fish per vessel per trip limit and a minimum size limit of 29 inches fork length or 32 inches total length.

## **2. Commercial Fishery Management Measures**

Cobia are designated as a Gamefish in South Carolina state jurisdictional waters. As a Gamefish, there is no commercial fishing for cobia in state waters under South Carolina Code of laws 50-5-1700(E) which states: *It is unlawful to sell, purchase, trade, or barter or attempt to sell, purchase, trade, or barter cobia taken from state waters.*

Cobia caught in federal waters may be landed and sold to SC Licensed Wholesale Seafood Dealers. Commercial fishers selling Cobia in South Carolina must be SC Licensed Commercial Fishermen and must follow all pertinent Federal Regulations.

A. A minimum size limit of 33 inches fork length or 37 inches total length.

- Applies only to Cobia caught in federal waters for commercial purposes by licensed commercial fishers.

B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.

- Applies only to Cobia caught in federal waters for commercial purposes by licensed and permitted commercial fishers.
- Personal and commercial boat limits for cobia caught in federal waters follow federal law per SC Code of Laws 50-5-2730(A).

**State of Georgia Cobia Implementation Plan**  
**As Required in ASMFC's Cobia Fishery Management Plan January 1, 2018**

**Introduction**

Cobia along the Atlantic Coast have been managed by the National Marine Fisheries Service (NMFS) through the federal Magnuson-Stevens Act since 1991 and by states that have chosen to regulate the species. However, until recently, there has been no cooperative interstate management of the species although nearly 80% of harvest occurs in state territorial waters. Atlantic Coast Cobia are separated into two federal management units based on genetic studies: Atlantic Migratory Group Cobia (Atlantic Cobia - Georgia to New York) and Gulf of Mexico Migratory Group Cobia (Florida to Texas). The annual catch limit for Atlantic Migratory Group Cobia is 670,000 pounds of which 620,000 pounds is allocated to recreational harvest and 50,000 pounds allocated to commercial harvest.

There has been a marked increase in estimated recreational harvest of Cobia within the state waters of North Carolina and Virginia. This resulted in the annual catch limit for Atlantic Cobia being exceeded by 947,000 pounds in 2015 and 715,000 pounds in 2016. On June 20, 2016, NMFS closed federal waters of the Atlantic Ocean to Atlantic Migratory Group Cobia harvest for the remainder of 2016 and again on January 24, 2017 for the duration of 2017. NMFS took this action to reduce the likelihood that the annual catch limit for Atlantic Cobia would be exceeded.

The closure of federal waters effectively denied access to Cobia in some states while others were unaffected since the fishery occurs in state waters. The lack of consistency in fishing regulations amongst states with Cobia fisheries and the ongoing risk of exceedance of the federal annual catch limit prompted federal fishery managers to request the Atlantic States Marine Fisheries Commission (ASMFC), develop an Atlantic Cobia management plan. The plan would require member states to regulate the harvest cobia in such a manner as to prevent harvest in excess of the annual catch limit.

The Commission's Interstate Fishery Management Plan for Atlantic Cobia was adopted on November 14, 2017. The plan stipulates that the 670,000 pounds ACL would be divided among the states as follows: Georgia - 58,311 pounds; South Carolina - 74,885 pounds; North Carolina - 236,316 pounds; and Virginia - 244,292 pounds. The plan requires each state to adopt fishing regulations that will result in the annual harvest being at or below the aforementioned numbers. Each state must have recreational fishing regulations that match or are more conservative than the following requirements: minimum size of 36 inches, fork length, a possession limit of one per fish per person, and a vessel limit not to exceed six fish. Each state must also propose a season to complement the size and possession regulations. The current commercial fishery management measures remain identical to the federal plan: minimum size of 33 inches, fork length, a possession limit of two fish per person, and a vessel limit of six fish. The federal annual catch limit of 50,000 pounds is allocated to the entire commercial fishery from Georgia through New York. The commercial Cobia fishery will close once the annual catch limit is reached.

## **Regulatory Process**

Based on sound principles of wildlife research and management, the Georgia Department of Natural Resources (GADNR) regulates the fishing of Cobia under the authority granted to it by the state legislature (O.C.G.A. 27-1-4 and 27-4-10). Board Rule 391-2-4-.04, Saltwater Finfishing (Rule) establishes the seasons, methods of fishing and disposition, size, creel and possession limits, and gear and landing specifications for certain finfish, including Cobia.

Currently there is no closed season on Cobia in Georgia. Recreational fishers are allowed a daily creel/possession limit of two (2) fish with a minimum size of 33 inches, fork length. There is no recreational season. Commercial regulations for Cobia are the same as the recreational fishery.

Changes to the Cobia fishery in Georgia were presented to the Board of Natural Resources in December 2017 with final approval set for January 2018. Assuming Board approval, the new regulations will be effective March 1, 2018.

### **1. Recreational Fishery Management Measures A.**

#### ***Non-De Minimis Status:***

- I. ***A minimum size limit of 36 inches fork length or 40 inches total length (converted using combined sex length-length conversion function from SEDAR 28).***

A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will increase the minimum size for cobia from 33 inches fork length to 36 inches fork length effective no later than March 1, 2018.

- II. ***A bag limit of 1 fish per person.***

A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will decrease the bag limit to one (1) cobia per person per day, effective no later than March 1, 2018.

- III. ***A daily vessel limit of no greater than 6 fish per vessel.***

A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will limit the daily vessel limit to no more than six (6) cobia per vessel, effective no later than March 1, 2018.

- IV. ***A fishing season that, in conjunction with previously defined measures, will achieve a harvest that is at or below a state's allocated recreational harvest target.***

***State recreational harvest targets are shown in the following table. Note:***

***Recreational management measures will be developed by the state, reviewed by the Technical Committee, and approved by the Management Board.***

State	GA	SC	NC	VA
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<b>Harvest Target (pounds)</b>	58,311	74,885	236,313	244,292
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A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will limit the cobia fishing season from March 1 through October 31, effective no later than March 1, 2018. The Commission's Georgia specific allocation of 58,311 pounds will be maintained through the measures described above and by closely monitoring catch data associated with the Marine Recreational Information Program (MRIP). MRIP intercepts for cobia are a rare occurrence in Georgia with annual PSEs routinely over 70%. Even so, a preliminary analysis suggests a 28% reduction in Georgia harvest (pounds) with solely a 36 inches minimum size. When combined with the one cobia per angler creel limit a 37% reduction in harvest is gained. There was no additional benefit to delaying the season opening until May 1, however a June 1 start date (with 36 inch minimum and 1 fish creel limit) would result in a 60% reduction in harvest – although the small sample sizes in Georgia make this very unreliable and would effectively eliminate most of the fishery for Georgia anglers.

Over the past ten years, harvest of Cobia was uncommon in Georgia during Wave 2 (March/April, < 8%) and peaks during Wave 3 (May/June – 79%). Wave 4 (July/August) represents nearly 12% of the annual harvest during that same period, with Waves 5 and 6 (September/October and November/December) representing < 0.3% of the annual harvest.

Cobia is a fishery of opportunity in Georgia rather than a targeted fishery. The State's position on wanting a season through October is to allow anglers the possibility of harvesting a cobia as it migrates southward. Although it is a rare occurrence, anglers have stated they are available occasionally during those early fall months. Our proposal for managing Georgia's allocation is to assess the state annual harvest using a three-year running average, and shorten the season the following year (year four) if the target quota is exceeded. The season in year four will be shortened appropriately to address any overage. This method, using MRIP harvest estimates (A + B1, in pounds), has only exceeded the 58,331 lbs target 3 of the past 8 years (20102017) (Table 1). The Department has some flexibility with seasons. The DNR Commissioner has the power to close all or any portion of the salt waters of the state to commercial and noncommercial fishing up to six months under O.C.G.A. 27-4-130 if deemed necessary for the protection of the resource.

Table 1. Georgia recreational harvest statistics indicating when the three year average exceeded the present state allocation of 58,331 lbs.

Georgia Recreational Cobia Harvest				
Year	Harvest (A+B1) lbs	PSE	3-yr Avg.	3-yr Avg. Exceeds Allocation
1999	5,192	54.6	5,192	N
2000	0	.	2,596	N
2001	10,074	100	5,089	N

2002	1,172	100	3,749	N
2003	342	100.5	3,863	N
2004	44,045	94.5	15,186	N
2005	774	100.7	15,054	N
2006	1,733	99.4	15,517	N
2007	46,729	42.8	16,412	N
2008	320,174	66.3	122,879	Y
2009	2,009	110.1	122,971	Y
2010	89,840	56.1	137,341	Y
2011	74,651	67	55,500	N
2012	97,766	57.6	87,419	Y
2013	25,183	56.3	65,867	Y
2014	19,079	71.5	47,343	N
2015	26,499	71.4	23,587	N
2016	0	.	15,193	N
2017 (Preliminary)	286	112.4	8,928	N
<b>State Allocation</b>	<b>58,331</b>			

Source: <https://www.st.nmfs.noaa.gov/st1/recreational/queries/index.html> (12/27/17)

#### B. *De minimis* States

- I. *Justification of de minimis status, shown by recreational harvests, in weight, that are less than 1% of the coastwide recreational landings for 2 of 3 years from 2014-2016.*
  
- II. *Management measures that satisfy the de minimis management requirements of the FMP. Please include language that satisfies one of the following management methods:*
  1. *A de minimis state may match the recreational regulations of an adjacent (or the nearest) non-de minimis state. Please list the state non-de minimis state being matched as well as regulatory language that matches that of the non-de minimis state.*
  
  2. *A 1 fish per vessel per trip limit and a minimum size limit of 29 inches fork length or 32 inches total length.*

Georgia does not request nor qualify for *de minimis* at this time

## **2. Commercial Fishery Management Measures**

### **A. A minimum size limit of 33 inches fork length or 37 inches total length.**

Georgia will implement the same regulations for commercial harvest as recreational harvest. A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will increase the minimum size for cobia from 33 inches fork length to 36 inches fork length effective no later than March 1, 2018.

### **B. A possession limit no greater than 2 fish per person and no greater than 6 fish per vessel.**

Georgia will implement the same regulations for commercial harvest as recreational harvest. A proposed amendment to Rule 391-2-4-.04 Saltwater Finfishing, will decrease the bag limit to one (1) cobia per person per day and a maximum of six (6) cobia per vessel, effective no later than March 1, 2018.

Catch will be monitored through mandatory trip ticket reporting by the 10<sup>th</sup> of each month.

These proposed amendments were presented to the Board of Natural Resources on December 6, 2017. The public comment period will close on January 8, 2018 with final Board approval of amended Rule 391-2-4-.04 on January 26, 2018. The amended rule will be effective no later than March 1, 2018.

**RULES  
OF**

**GEORGIA DEPARTMENT OF NATURAL RESOURCES  
COASTAL RESOURCES DIVISION**

**CHAPTER 391-2-4**

**SALTWATER FISHING REGULATIONS**

**TABLE OF CONTENTS**

391-2-4-.04 Saltwater Finfishing

**391-2-4-.04 Saltwater Finfishing.**

(1) **Purpose.** The purpose of these Rules is to implement the authority of the Board of Natural Resources to promulgate rules and regulations based on sound principles of wildlife research and management, establishing the seasons, methods of fishing, and disposition; size, possession, and creel limits; and gear and landing specifications for certain finfish.

(2) **Definitions.**

(a) "Daily creel limit" means the lawful amount of a species of finfish that a person may take in one day or possess at any one time, except at one's place of abode or at a commercial storage facility provided the Board has not prohibited sale of that species.

(a.1) "Landed" means to bring fish to shore in this state, regardless of the jurisdiction from which they were taken or harvested.

**Chapter 391-2-4**

**Saltwater Fishing Regulations**

(b) "Minimum size" means the species' specific size in length, specified as fork length, lower jaw fork length or total length, below which size it is unlawful to possess that finfish species.

(b.1) "Maximum size" means the species' specific size in length, specified as fork length, lower jaw fork length or total length, above which size it is unlawful to possess that finfish species.

(c) "Open Season" means that specified period of time during which one may take from any of the waters of this state certain finfish species.

(d) "Sharks" means all species of sharks other than those comprising the small shark composite as defined in subparagraph 2(e), hammerhead sharks as defined in subparagraph 2(g), and prohibited sharks as defined in subparagraph 2(h).

(e) "Small Shark Composite" means a group of sharks inclusive of Atlantic sharpnose shark (*Rhizoprionodon terraenovae*), bonnethead (*Sphyrna tiburo*), and spiny dogfish (*Squalus acanthias*).

(f) "Handline" means a mainline to which no more than two hooks are attached and which is retrieved by hand without the aid of mechanical devices.

(g) "Hammerhead Sharks" means a group of sharks inclusive of great hammerhead (*Sphyrna mokarran*), scalloped hammerhead (*Sphyrna lewini*) and smooth hammerhead (*Sphyrna zygaena*).

(h) "Prohibited Sharks" means a group of sharks inclusive of sand tiger (*Carcharias Taurus*), sandbar shark (*Carcharhinus plumbeus*), silky shark (*Carcharhinus falciformis*), bigeye sand

**Chapter 391-2-4**

**Saltwater Fishing Regulations**

tiger (*Odontaspis noronhai*), whale shark (*Rhincodon typus*), basking shark (*Cetorhinus maximus*), white shark (*Carcharodon carcharias*), dusky shark (*Carcharhinus obscurus*), bignose shark (*Carcharhinus altimus*), Galapagos shark (*Carcharhinus galapagensis*), night shark (*Carcharhinus signatus*), reef shark (*Carcharhinus perezii*), narrowtooth shark (*Carcharhinus brachyurus*), Caribbean sharpnose shark (*Rhizoprionodon porosus*), smalltail shark (*Carcharhinus porosus*), Atlantic angel shark (*Squatina dumeril*), longfin mako (*Isurus paucus*), bigeye thresher (*Alopias superciliosus*), sharpnose sevengill shark (*Heptranchias perlo*), bluntnose sixgill shark (*Hexanchus griseus*), and bigeye sixgill shark (*Hexanchus nakamurai*).

**(3) Seasons, Daily Creel and Possession Limits, Minimum and Maximum Size Limits.** The following species may be taken in accordance with the seasons, daily creel and possession limits, and minimum and maximum size limits set forth below, except as otherwise specifically provided herein:

SPECIES	SEASON	Daily Creel and Possession Limit	Minimum Size (inches)	Maximum Size (inches)
(a) Amberjack	All Year	1	28 FL	
(b) Atlantic croaker	All Year	25		
(c) Atlantic sturgeon	No Open Season has been established by the Board of Natural Resources.			
(d) Black drum	All Year	15	14 TL	
(e) Black sea bass	All Year	15	12 TL	
(f) Blue marlin	No Open Season has been established by the Board of Natural Resources.			
(g) Bluefish	All Year	15	10 TL	
(h) Cobia	All Year March 1 – October 31	21 per person not to exceed 6 per boat.	33-36 FL	
(i) Dolphin	All Year	10 per person not to exceed 60 per boat. on 20 FL hin per		
1. Headboats with a valid certificate of inspection	allowed 10 dolp	paying	passenger.	
(j) Flounder ( <i>Paralichthys spp.</i> )	All Year	15	12 TL	
(k) Gag grouper	All Year	2	24 TL	
(l) King mackerel	All Year	3	24 FL	
(m) Red Drum	All Year	5	14 TL	23 TL
(n) Red Porgy	All Year	3	14 TL	
(o) Red Snapper	All Year	2	20 TL	
(p) Sailfish	No Open Season has been established by the Board of Natural Resources.			

## Chapter 391-2-4

## Saltwater Fishing Regulations

(q) Prohibited Sharks	Unlawful to possess.			
(r) Sharks	All Year	1 per person or boat	54 FL	
(s) Sheepshead	All Year	15	10 TL	
(t) Small Shark Composite	All Year	1	30 FL	
(u) Spanish mackerel	All Year	15	12 FL ed	
1. A catch of Spanish weight of the total c	mackerel under the mini atch of Spanish macker	imum size limit is allow equal to five percent by el on board a trawler.		
(v) Spot	All Year	25		
(w) Spotted sea trout	All Year	15	14 TL	
(x) Tarpon	All Year	1	68 FL	
(y) Tripletail	All Year	2	18 TL	
(z) Weakfish	All Year	1	13 TL	
(aa) White marlin	No Open Season has been established by the Board of Natural Resources.			
(bb) American eel	All Year	25	9 TL	
(cc) Hammerhead Sharks	All Year	1 per person or boat	78 FL	

**(4) Restrictions on Sale.** It shall be unlawful for any person in this state to sell, purchase, or barter any of the following species or part thereof, except as otherwise specifically provided herein:

(a) No person operating as a dealer may buy or sell sharks, small shark composite species, and hammerhead sharks caught in state waters without first obtaining a federal Commercial Shark Dealer Permit and when state or federal quotas for species within those groups have been reached.

(b) Tarpon.

(c) From April 1 through April 30, no person may sell amberjack any fish managed under federal law and harvested from either Georgia waters or from the South Atlantic Exclusive Economic Zone except when the catch of such fish is allowed by applicable federal law. This prohibition on sale during April does not apply to amberjack fish that were harvested, landed ashore, and sold prior to April 1 in compliance with applicable federal law and were held in cold storage by a seafood dealer or

**Saltwater Fishing Regulations**

**Chapter 391-2-4**

processor. This prohibition also does not apply to a seafood dealer's purchase or sale

of amberjack fish harvested from waters another management area other than those of Georgia or the South Atlantic Exclusive Economic Zone, provided such fish is accompanied by documentation of legal harvest outside of Georgia waters or the South Atlantic .

(d) From March 1 through April 30, no person may sell gag grouper harvested from Georgia waters or from the South Atlantic Exclusive Economic Zone. The prohibition on sale from March 1 through April 30 does not apply to gag grouper that were harvested, landed ashore, and sold prior to March 1 and were held in cold storage by a dealer or processor. This prohibition also does not apply to a dealer's purchase or sale of gag grouper harvested from another management area other than Georgia or the South Atlantic Exclusive Economic Zone, provided such fish is accompanied by documentation of harvest outside of Georgia

waters or the South Atlantic.

(e) From January 1 through April 30, no person may sell red porgy harvested from Georgia waters or from the South Atlantic Exclusive Economic Zone. The prohibition on sale from January 1 through April 30 does not apply to red porgy that were harvested, landed ashore, and sold prior to January 1 and were held in cold storage by a dealer or processor. This prohibition also does not apply to a dealer's purchase or sale of red porgy harvested from another management area other than Georgia or the South Atlantic Exclusive Economic Zone, provided such fish is accompanied by documentation of harvest outside of Georgia waters or the South Atlantic.

## Saltwater Fishing Regulations

## Chapter 391-2-4

### **(5) Possession and Landing Specifications.**

(a) All fish subject to restrictions specified in this Rule may be possessed in state waters or landed only with head and fins intact, except that when landed for commercial purposes, all sharks, small shark composite species, and hammerhead sharks may have the heads removed but fins and tail must remain naturally attached.

(b) It shall be unlawful to transfer at sea in State waters from a fishing vessel to any other vessel or person any fish caught which are subject to the restrictions specified in this Rule.

(c) Except as otherwise provided by law, it shall be unlawful to fish for sharks, small shark composite species, or hammerhead sharks for recreational purposes with any gear other than rod and reel or handline as defined in subparagraph (2)(f) above.

(d) Except as otherwise provided by law, trawlers fishing for shrimp for human consumption pursuant to Code Section 27-4-133 shall be exempt from the creel and possession limits for spot and Atlantic croaker.

### **§ 27-1-4. Powers and duties of board generally**

The board shall have the following powers and duties relative to this title:

- (1) Establishment of the general policies to be followed by the department under this title;
- (2) Promulgation of all rules and regulations necessary for the administration of this title including, but not limited to, rules and regulations to regulate the times, places, numbers, species, sizes, manner, methods, ways, means, and devices of killing, taking, capturing, transporting, storing, selling, using, and consuming wildlife and to carry out this title, and rules and regulations requiring daily, season, or annual use permits for the privilege of hunting and fishing in designated streams, lakes, or game management areas; and
- (3) Promulgation of rules and regulations to protect wildlife, the public, and the natural resources of this state in the event of fire, flood, disease, pollution, or other emergency situation without complying with Chapter 13 of Title 50, the "Georgia

Administrative Procedure Act." Such rules and regulations shall have the force and effect of law upon promulgation by the board.

### **§ 27-4-10. Creel and possession limits; size restrictions**

(a) It shall be unlawful to take in one day or to possess at any one time, except at a commercial storage facility or at one's place of abode, more than the creel and possession limits established by the board for that fish species; provided, however, that it shall be illegal to possess more than a total of 50 individuals of all fresh water species named in this Code section. It shall be unlawful to take from the waters of this state or to possess any fish species larger or smaller or in numbers greater than the limits established by the board in accordance with this Code section. The board shall establish creel and possession limits which shall be no greater than the following limits and shall establish sizes of fish species within the following ranges which may not be taken:

Species	Ranges of Sizes Within Which Fish May Not Be Taken	Maximum Daily Creel And Possession Limit
(1) Largemouth bass	0 -- 24 inches	10
(2) Smallmouth bass	0 -- 18 inches	10
(3) Shoal bass	0 -- 18 inches	10
(4) Suwannee bass	0 -- 18 inches	10
(5) Spotted bass or Kentucky bass	0 -- 18 inches	10
(6) Redeye bass or Coosa bass	0 -- 12 inches	10
(7) Mountain trout	0 -- 24 inches	8
(8) White bass	0 -- 36 inches	15
(9) Striped bass	0 -- 36 inches	15
(10) Striped white bass hybrids	0 -- 36 inches	15
(11) Any one or combination of the species of bream or sunfish	0 -- 10 inches	50
(12) Walleye	0 -- 24 inches	15
(13) Sauger	0 -- 24 inches	15
(14) Chain pickerel	0 -- 24 inches	15
(15) Grass pickerel	0 -- 12 inches	15
(16) Redfin pickerel	0 -- 12 inches	15
(17) Black crappie	0 -- 14 inches	30
(18) White crappie	0 -- 14 inches	30
(19) American shad	0 -- 30 inches	8
(20) Hickory shad	0 -- 24 inches	8
(21) Amberjack	0 -- 50 inches	5
(22) Atlantic croaker	0 -- 10 inches	25
(23) Atlantic sturgeon	0 -- 86 inches	1
(24) Black drum	0 -- 36 inches	15
(25) Black sea bass	0 -- 15 inches	15
(26) Blue marlin		3
(27) Bluefish	0 -- 20 inches	15
(28) Cobia	0 -- 40 inches	5
(29) Dolphin	0 -- 24 inches	15
(30) Flounder ( <i>Paralichthys</i> spp.)	0 -- 15 inches	15
(31) Gag grouper	0 -- 25 inches	5
(32) King mackerel	0 -- 36 inches	5
(33) Red drum	0 -- 36 inches	5
(34) Red porgy	0 -- 20 inches	10
(35) Red snapper	0 -- 25 inches	5

(36) Sailfish		3
(37) Sand tiger shark	0 -- 140 inches	1
(38) Sharks	0 -- 120 inches	2
(39) Sheepshead	0 -- 20 inches	15
(40) Small sharks composite (Atlantic sharpnose, bonnethead, and spiny dogfish)	0 -- 54 inches	4
(41) Spanish mackerel	0 -- 20 inches	20
(42) Spot	0 -- 10 inches	25
(43) Spotted sea trout	0 -- 25 inches	15
(44) Tarpon	0 -- 90 inches	1
(45) Tripletail	0 -- 25 inches	5
(46) Weakfish	0 -- 15 inches	15
(47) White marlin		3

**(b)** In accordance with sound principles of wildlife research and management, the board shall have the authority to promulgate rules and regulations establishing size limits, open seasons, creel and possession limits, and possession and landing specifications on a state-wide, regional, or local basis in accordance with this Code section. The board is further authorized to designate certain areas as catch and release fishing areas and to promulgate rules and regulations necessary for the management of such areas for catch and release fishing.

**O.C.G.A. 27-4-130. Authority to close salt waters; notice; regulations prohibiting sale of seafood**

- (a)** The commissioner shall have the power to close all or any portion of the salt waters of this state to commercial and noncommercial fishing by species for a period not to exceed six months within a calendar year. Any determination to close the salt waters pursuant to this subsection or to reopen such waters shall be made in accordance with current, sound principles of wildlife research and management.
- (b)** Nothing in this Code section shall prohibit a person from landing in this state any fish or seafood taken in federal waters pursuant to a valid commercial federal permit.
- (c)** For the purposes of enforcing this article, the department is authorized to zone the salt waters of this state.
- (d)** Public notice of the opening or closing of salt waters as provided in this article shall be given by posting a notice of such opening or closing at the courthouse in each coastal county and by such other means as may appear feasible to inform interested persons of the opening or closing. Such notices shall be posted at least 24 hours prior to any enforcement action taken pursuant to this Code section.
- (e)** In accordance with current, sound principles of wildlife research and management, the board is authorized to promulgate rules and regulations to prohibit the sale of any or all seafood in this state.



# Atlantic States Marine Fisheries Commission

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## MEMORANDUM

January 29, 2018

**To:** South Atlantic State/Federal Fisheries Management Board  
**From:** Cobia Technical Committee  
**Subject:** Cobia TC Review of FMP Implementation Plans

At their October 2017 meeting, the South Atlantic State/Federal Fisheries Management Board (Board) took final action to approve the Interstate Fishery Management Plan (FMP) for Atlantic Migratory Group Cobia. In January 2018, the Cobia Technical Committee (TC) met via conference call to review state-submitted plans for implementing the FMP. State-submitted implementation plans were included as Briefing Materials for the February 2018 Board meeting.

Brief summaries of state implementation plans, as well as comments and recommendations from the TC for each plan are below. All states are required to implement the following commercial measures: a minimum size limit of 33 inches fork length or 37 inches total length, a possession limit of no more than 2 fish per person, and a vessel limit of no more than 6 fish per vessel. All states are required to implement the following recreational regulations: a minimum size limit of 36 inches fork length or 40 inches total length, a bag limit of 1 fish per person, and a daily vessel limit of no more than 6 fish per vessel, and/or a season that, combined with other regulations, will achieve a harvest at or below the state's recreational harvest target (see Table 1) allocated from the coastwide recreational harvest limit (RHL). Upon Board approval, jurisdictions must implement the FMP regulations by April 1, 2018.

**Table 1.** Recreational harvest targets for non-*de minimis* states.

State	GA	SC	NC	VA
Harvest Target (pounds)	58,311	74,885	236,313	244,292

A state or jurisdiction may apply for *de minimis* status for their recreational fishery if their recreational landings, in weight, are less than 1% of the coastwide recreational landings for 2 of 3 years from 2014-2016. *De minimis* states may choose to match the recreational regulations of the nearest non-*de minimis* state. *De minimis* states that do not choose to match the recreational regulations of another state are required to implement the following recreational regulations: no more than 1 fish per vessel per trip and a minimum size limit of 29 inches fork length or 32 inches total length.

M18-17

## **Technical Committee Review and Recommendations**

All states submitted regulatory language that adhered to the coastwide commercial requirements of the FMP (minimum size limit, possession limit, vessel limit). Any deviations from the required regulations described above were more conservative and are noted in the descriptions below. All non-*de minimis* states (GA-VA) submitted regulatory language that adhered to the coastwide recreational requirements of the FMP (minimum size, bag limit). Any deviations from the required regulations described above were more conservative and are noted in the descriptions below. The following descriptions of state implementation plans include whether states qualify for *de minimis*, proposed recreational seasons or vessel limits, comments on whether any measures deviated from those described in the FMP (also described above), and the TC's recommendation for approval. If multiple sets of regulations are proposed, the recommendation for each is listed respectively.

### **New Jersey**

*De minimis*: Yes

Proposed Recreational Season/Vessel Limit: Match Virginia

Notes/TC Comments: None

TC Recommendation: **Approve**

### **Delaware**

*De minimis*: Yes

Proposed Recreational Season/Vessel Limit: Two options proposed

1. Season: None; Vessel limit: 1 fish
2. Match Virginia

Notes/TC Comments: None

TC Recommendation:

1. **Approve**
2. **Approve**

### **Maryland**

*De minimis*: Yes

Proposed Recreational Season/Vessel Limit: Match Virginia

TC Comments: None

TC Recommendation: **Approve**

## Potomac River Fisheries Commission

*De minimis:* Yes

Proposed Recreational Season/Vessel Limit: Two options proposed

1. Season: None; Vessel limit: 1 fish
2. Match Virginia

TC Comments: No recreational landings data to justify *de minimis* because landings would be reported as Maryland or Virginia.

TC Recommendation:

1. **Approve**
2. **Approve**

## Virginia

*De minimis:* No

Proposed Recreational Season/Vessel Limit: Seven options proposed

1. Season: May 15-Sept. 15; Vessel Limit: 3 fish
2. Season: May 15-Aug. 31; Vessel Limit: 3 fish
3. Season: June 1-Sept. 30; Vessel Limit: 3 fish
4. Season: June 1-Sept. 15; Vessel Limit: 3 fish
5. Season: May 15-Aug. 31; Vessel Limit: 4 fish
6. Season: June 1-Sept. 30; Vessel Limit: 4 fish
7. Season: June 1-Sept. 15; Vessel Limit: 4 fish

TC Comments:

The Virginia Marine Resources Commission (VMRC) does not yet have a preferred option because it would first like to solicit public comment on which vessel limit and elements of the recreational season are most important to stakeholders. They have proposed and predicted landings for several management options, summarized above and outline in their proposed implementation plan. Table 1 from the Virginia implementation plan shows these options with predicted landings using average weights from the Southeast Fisheries Science Center (SEFSC) and VMRC's Marine Sportfish Collection Project.

The TC notes that three of these options, denoted above as options 1, 2, and 5, exceed Virginia's harvest target (244,292 lbs) when predicted landings are estimated using average weights from the SEFSC. None of the proposed options exceed the target when predicted landings are estimated using average weights from VMRC. **The TC recommends that options denoted above as 3, 4, 6, and 7 be approved for management use as predicted landings using either average weight method would achieve the harvest target.**

Due to lack of sufficient sample sizes, the SEFSC average weight estimate for Virginia had to be derived by pooling samples across the entire 5 years, leading to one average weight estimate of 34.04 pounds for all 5 years. The VMRC Sportfish Collection Project collects length samples as frozen carcasses donated by recreational anglers. Annual average lengths were calculated for 2011-2015 and converted to average weights, using the length-weight conversion factor from Southeast Data, Assessment, and Review (SEDAR) 28, to provide annual average weight estimates. These data are summarized in Table 2 of the Virginia implementation plan.

Due to an inadequate number of samples for annual average weights to be estimated through SEFSC methods and discrepancies between the SEFSC average weight and those estimated based on samples from the VMRC Sportfish Collection Project, VMRC has contacted the National Oceanic and Atmospheric Administration Southeast Regional Office (SERO) to request that VMRC length and weight data be considered for incorporation in future cobia landings projections for Virginia. NOAA would evaluate the methods and resultant average weights to determine whether VMRC data are representative of cobia caught in the state.

Given the potentially great difference in landings predictions depending on which average weight method is used and the much greater number of samples that are incorporated into the VMRC average weight estimates, **the TC recommends that options 1, 2, and 5 be approved for management use, conditional upon approval for their use in federal landings projections by the SERO**. If the SERO does not determine that VMRC methods and average weights are usable prior to the FMP implementation date of April 1, 2018, the only options that would be recommended for management in 2018 would be options 3, 4, 6, and 7.

The TC also notes that VMRC has proposed two methods for implementing the two fish per person commercial possession limit, particularly with respect to the commercial hook-and-line fishery, which currently operates under an exemption that allows up to 6 cobia per vessel, regardless of how many crew members are on board. VMRC indicates in their plan that they will implement either a 2-per-person possession limit or 2-per-commercial-licensee possession limit for hook-and-line fishing, either of which would satisfy the requirements of the FMP. Thus, **the TC recommends approval of all proposed commercial options**.

TC Recommendation:

- Recreational Season/Vessel Limit:
  1. **Approve, conditional**
  2. **Approve, conditional**
  3. **Approve**
  4. **Approve**
  5. **Approve, conditional**
  6. **Approve**
  7. **Approve**
- Commercial: **Approve all proposed commercial options**

## North Carolina

*De minimis:* No

Proposed Measures: Two options proposed

1. Season: None; Vessel Limits: For-hire: 4 fish, Private: 2 fish
2. Season: None; Vessel Limits: For-hire: 3 fish, Private: 1 fish

TC Comments:

North Carolina has proposed two recreational season and vessel limit options. Using the above numerical denotations, option 1 is predicted to exceed North Carolina's harvest target by 20,244 pounds. Option 2 is predicted to land 34,205 pounds less than the harvest target.

Justification for the proposed option 1 is included in North Carolina's proposed implementation plan. Briefly, this justification cites uncertainty surrounding landings estimates from the Marine Recreational Information Program (MRIP) and North Carolina's 2017 harvest, which was less than the harvest target through wave four, after which landings are typically minimal (2% or less of the annual total).

Despite the justification provided for option 1, which exceeds North Carolina's harvest target, the TC notes that recreational landings estimates and management decisions based on recreational landings under the Interstate FMP will be made using numbers from MRIP and average weights from the SEFSC, in accordance with the complementary nature of the Interstate FMP with the South Atlantic Fishery Management Council's (SAFMC) Coastal Migratory Pelagics (CMP) FMP. Therefore, **the TC recommends that the Board not approve North Carolina's proposed option 1 for management use because this option is not expected to achieve the state's harvest target. The TC recommends that option 2 be approved for management use, because this option is expected to achieve the state's harvest target.**

TC Recommendation:

1. **Do not approve**
2. **Approve**

## South Carolina

*De minimis:* No

Proposed Measures: Season: None, but will close when federal waters close; Vessel Limit: 3 fish from June 1-April 30 within the Southern Cobia Management Zone

TC Comments:

South Carolina intends to match federal regulations for determining its recreational season for cobia. In addition to federal availability of the fishery, South Carolina has a Southern cobia management zone in state waters (area south of Jeremy Inlet, SC to the SC/GA border) that places a 1 fish per person per day limit and a 3 fish/daily boat limit as well as restricting recreational harvest from May 1-May 31 within the Southern Cobia Management Zone.

While no specific analyses predicting landings under the proposed regulatory measures were provided, based on knowledge of recent catch histories and likely reductions due to proposed measures, **the TC does not expect the proposed measures to exceed South Carolina's recreational harvest target.**

TC Recommendation: **Approve**

Georgia

*De minimis*: No

Proposed Measures: Season: March 1-October 31; Vessel Limit: 6 fish

TC Comments:

In addition to the proposed recreational season, the Department of Natural Resources (DNR) Commissioner has the power to close all or any portion of state water for up to six months if deemed necessary for the protection of the resource. The TC noted that if Georgia is using MRIP to project state landings, the time lag of data entry and release may limit how quickly such a closure could occur.

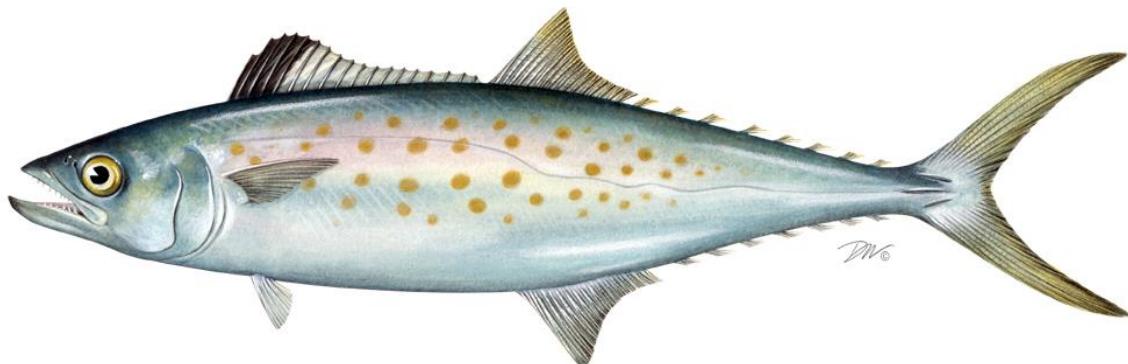
While no specific analyses predicting landings under the proposed regulatory measures were provided, based on knowledge of recent catch histories and likely reductions due to proposed measures, **the TC does not expect the proposed measures to exceed Georgia's recreational harvest target.**

TC Recommendation: **Approve**

2017 REVIEW OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
FISHERY MANAGEMENT PLAN FOR

**SPANISH MACKEREL**  
**(*Scomberomorus maculatus*)**

2016 FISHING YEAR



Prepared by the  
**Spanish Mackerel Plan Review Team**

Mike Schmidtke, Atlantic States Marine Fisheries Commission, Chair  
Randy Gregory, North Carolina Division of Marine Fisheries  
Dustin Addis, Florida Fish and Wildlife Conservation Commission  
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## **Table of Contents**

I.	Status of the Plan .....	3
II.	Status of the Stocks.....	4
III.	Status of the Fishery .....	5
IV.	Status of Assessment Advice .....	5
V.	Status of Research and Monitoring .....	6
VI.	Status of Management Measures.....	6
VII.	Implementation of FMP Compliance Requirements for 2015 .....	9
VIII.	Recommendations of the Plan Review Team .....	10
IX.	References .....	11
X.	Figures.....	13
XI.	Tables .....	14

## I. Status of the Plan

<u>Date of FMP Approval:</u>	Original FMP – November 1990
<u>Amendments:</u>	Omnibus Amendment to Spanish Mackerel, Spot, and Spotted Seatrout (Amendment 2)- August 2011
	Addendum I- August 2013
<u>Management Area:</u>	The Atlantic coast distribution of the resource from New York through the east coast of Florida
<u>Active Boards/Committees:</u>	South Atlantic State/Federal Fisheries Management Board; Spanish Mackerel Plan Review Team; South Atlantic Species Advisory Panel

The Fishery Management Plan (FMP) for Coastal Migratory Pelagic Resources (1983 and subsequent amendments) and the Interstate Fishery Management Plan for Spanish Mackerel (1990) manage Atlantic group Spanish mackerel in federal and state Atlantic waters from New York through the east coast of Florida. All states in that range, excluding Pennsylvania, have a declared interest in the Interstate FMP for Spanish mackerel. The South Atlantic State/Federal Fisheries Management Board serves to manage Spanish mackerel for the Commission. The Interstate FMP for Spanish mackerel is a flexible document intended to track the federal FMP; thus, the South Atlantic Fishery Management Council (SAFMC) has the lead on Atlantic group Spanish mackerel management.

The SAFMC manages Atlantic group Spanish mackerel based on guidance from its Scientific and Statistical Committee (SSC). The SAFMC determines needed adjustments to regulatory measures, including allowable catch, bag limits, size limits, and trip limits. The SAFMC deliberations are assisted by a Mackerel Committee that includes representatives from the Mid-Atlantic Fishery Management Council, and an Advisory Panel with South Atlantic and Mid-Atlantic industry representation. Since the Coastal Migratory Pelagic Resources FMP is a joint plan with the Gulf of Mexico Fishery Management Council (GMFMC), any amendments to this FMP must be approved by both Councils.

The SAFMC and GMFMC approved Amendment 18 to the Coastal Migratory Pelagic Resources FMP in December 2011 which established a new Allowable Biological Catch (ABC) based on the SSC recommendation of using median landings of the last 10 years (2001-2011). With this change, the ABC was set equal to the Annual Catch Limit (ACL) and Optimum Yield (OY) [ABC=ACL=OY] at approximately 5.29 million lbs. With this the commercial ACL was 3.13 million lbs and the recreational ACL was 2.56 million lbs.

Under the federal FMP, the 2015-2016 fishing year ran from March 1, 2015 to February 28, 2016. The 2016-2017 fishing year began on March 1<sup>st</sup>, 2016. The federal FMP divides the commercial fishery into a quota system between the Atlantic and Gulf migratory groups. Within the Atlantic migratory group, there are two zones- the Northern (consisting of the states from New York

through North Carolina) and the Southern (South Carolina to Florida). For the Atlantic migratory group, the 2013/2014 year, the full quota was 3.13 million pounds and the adjusted quota was 2.88 million pounds. The adjusted quota is used to determine trip limit reductions. For the 2015/2016 fishing season, the full quota was increased to 3.33 million pounds following CMP Framework Amendment 1 (See *Section VI*).

The federal commercial trip limit was a year-round 3,500 pound daily possession/landings limit for the states from New York through Georgia, with Florida's commercial trip limit varying depending on the percent of quota remaining. Following the implementation of Amendment 20B and CMP Framework Amendment 2, the federal trip limit for the Southern zone (SC through FL) decreases as quota is caught. When 75% of the "adjusted" Southern Zone quota<sup>1</sup> (1,812,998 lbs ww) is caught, the trip limit is reduced from 3,500 lbs to 1,500 lbs. When 100% of the adjusted Southern Zone quota (2,417,330 lbs ww) is caught, the commercial trip limit is further reduced to 500 lbs. When 100% of the Southern Zone quota is met, harvest is prohibited for the remainder of the fishing year. In both the Northern and Southern zones, the recreational bag limit is set at 15 fish. The minimum size limit for both fisheries is 12" fork length or 14" total length.

The goals of the interstate FMP are to complement federal management in state waters, to conserve the Atlantic group Spanish mackerel resource throughout its range, and to achieve compatible management among the states that harvest Spanish mackerel. In accordance with the 2011 Omnibus Amendment, the updated FMP's objectives are to: (1.) Manage the Spanish mackerel fishery by restricting fishing mortality to rates below the threshold fishing mortality rates to provide adequate spawning potential to sustain long-term abundance of the Spanish mackerel populations. (2.) Manage the Spanish mackerel stock to maintain the spawning stock biomass above the target biomass levels. (3.) Minimize endangered species bycatch in the Spanish mackerel fishery. (4.) Provide a flexible management system that coordinates management activities between state and federal waters to promote complementary regulations throughout Spanish mackerel's range which minimizes regulatory delay while retaining substantial ASMFC, Council, and public input into management decisions; and which can adapt to changes in resource abundance, new scientific information and changes in fishing patterns among user groups or by area. (5.) Develop research priorities that will further refine the Spanish mackerel management program to maximize the biological, social, and economic benefits derived from the Spanish mackerel population. See Table 1 for state Spanish mackerel regulations in 2016.

## **II. Status of the Stocks**

The resource is not overfished, nor experiencing overfishing (SEDAR 2012). The SEDAR 28 Stock Assessment Report estimates current stock biomass at  $SSB_{2011}/MSST=2.29$ , and current fishing level (exploitation rate) at  $F_{2009-2011}/F_{MSY}=0.526$ , with  $F_{2011}/F_{MSY}=0.521$ . The overfished ratio ( $B/B_{MSY}$ ) shows that high fishing mortality caused a decline in biomass, though biomass has increased in recent years and remains above  $B_{MSY}$  (Figure 1). The overfishing ratio ( $F/F_{MSY}$ ) shows that fishing mortality increased from the late 1970s through 1994 but has since declined (Figure 2).

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<sup>1</sup> The adjusted quota is the Southern Zone quota minus 250,000 lbs.

Fishery-dependent data also indicate increasing biomass, excepting the decline seen over the last four years. The current fishing mortality rate does not seem to be inhibiting stock growth.

### **III. Status of the Fishery**

Spanish mackerel are an important recreational and commercial fishery in South Atlantic waters, with limited and sporadic recreational landings north of Maryland (Tables 2 and 4). Trip limits implemented in state and federal waters continue to prevent premature closure of the commercial fishery. Total landings of Spanish mackerel in 2016 are estimated at 4.4 million pounds (compared to the 6.063 million pound ACL). The commercial fishery harvested approximately 70% of the total, and the recreational fishery about 30%.

From 1950 to 2016, commercial landings of Atlantic coast Spanish mackerel have ranged between 1.8 and 11.1 million pounds, although only 4 years in that timespan have exceeded 6 million pounds. Since 1981, total landings have averaged 3.6 million pounds. Coastwide commercial landings have generally been below 4 million pounds since 1995 (exception of 2010 and 2011; landings of 4.52 and 4.35 million pounds, respectively); this coincided with the entanglement net ban in Florida. Gill nets were the dominant commercial gear in Florida prior to the ban. After the ban was instituted, the use of cast nets increased. The 2016 commercial landings were 3.10 million pounds (Figure 3), of which 2.46 million pounds (79% of coastwide commercial harvest) were landed in Florida and 601,615 pounds (19%) were landed in North Carolina (Table 2).

Recreational anglers harvested 957,282 Spanish mackerel (1.3 million pounds) in 2016, an increase from the 627,632 fish caught in 2015 (Tables 3 and 4). The number of recreationally harvested fish appears to show a cyclical trend, with low harvests in the early to mid-80s and mid to late 90s, interspersed with higher harvests (Figure 4). Florida and North Carolina have historically accounted for the majority of recreational landings in both number and weight. In 2016, Florida harvested 38% and North Carolina harvested 44% of recreational fish. The number of recreational releases of Spanish mackerel has generally increased over time, reaching a peak of over one million fish in 2008 (Table 5, Figure 4). Recreational releases in 2016 were 413,220 fish, slightly increased from 406,561 fish in 2015.

### **IV. Status of Assessment Advice**

The most recent stock assessment was completed in 2012 through the Southeast Data, Assessment, and Review (SEDAR) process (SEDAR, 2012). The input data (through 2011) were applied to two assessment models, with the primary model being a statistical catch at age model called the Beaufort Assessment Model (BAM); while a secondary surplus-production model (ASPIC) provided a comparison of model results. The Review Panel concluded that the statistical catch at age model was the most appropriate model to characterize the stock status for management purposes.

The SSC reviewed the assessment during its December 2012 meeting and accepted the SEDAR 28 Spanish mackerel stock assessment as best available science. The SSC concurred with the Review Panel's conclusion that the stock is not experiencing overfishing and the stock is not overfished.

## **V. Status of Research and Monitoring**

The National Marine Fisheries Service (NMFS) Southeast Fisheries Science Center (SEFSC) continues to monitor length and weight at age and size frequencies, fishing mortality, and migration; collect age data and catch per unit effort by area, season, fishery, and gear; monitor shrimp trawl bycatch; investigate methods to predict year class strength; calculate estimates of recruitment, and develop conservation gear to reduce bycatch. The NMFS is also collecting discard data through a bycatch logbook in the mackerel and snapper-grouper fisheries. The Gulf and South Atlantic Fisheries Development Foundation and several states (North Carolina, South Carolina, Georgia, and Florida) have evaluated finfish bycatch in the southeastern shrimp trawl fishery, including bycatch of Spanish mackerel. The South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP) collects Spanish mackerel data in its coastal trawl survey from Cape Hatteras to Cape Canaveral. Additionally, the Northeast Area Monitoring and Assessment Program (NEAMAP) began regular spring and fall surveys between Martha's Vineyard and Cape Hatteras in the fall of 2007.

Abundance trends continue to be monitored primarily through fishery-dependent sources. The states and the SEFSC monitor catch data through the cooperative commercial statistics collection program and the recreational fisheries survey. Commercial trip reports are tallied more frequently in the winter and early spring by the state of Florida and NMFS as the commercial quota is approached.

North Carolina also conducts fishery independent monitoring. Three fishery independent gill net surveys were initiated by the North Carolina Division of Marine Fisheries in May of 2001, 2003 and 2008, respectively. These surveys utilize a stratified random sampling scheme designed to characterize the size and age distribution for key estuarine species in Atlantic Ocean and Pamlico Sound as well as the Pamlico, Pungo, Neuse, Cape Fear and New rivers. The overall Spanish mackerel CPUE from these surveys was extremely low and therefore lacks the desired precision and confidence needed for the data to be used for management purposes.

## **VI. Status of Management Measures**

### *2008 Framework Adjustment (Federal)*

In February 2008, NOAA Fisheries finalized a framework adjustment to change the beginning date for trip limits in the Atlantic Spanish mackerel fishery off the east coast of Florida. The 3,500 pound trip limit begins March 1 each year to correspond with the beginning of the fishing year (as changed in Amendment 15).

### *Omnibus Amendment (Interstate)*

In August 2011, the Management Board approved an amendment to the Spanish Mackerel FMP to address three issues: compliance measures, consistency with federal management in the exclusive economic zone, and alignment with Commission standards. Through the Omnibus Amendment, the following fisheries management measures are required for states within the management unit range;

#### Recreational Fishery

- 12" Fork Length (FL) or 14" Total Length (TL) minimum size limit

- 15 fish creel limit
- Must be landed with head and fins intact
- Calendar year season
- Prohibited gear: Drift gill nets prohibited south of Cape Lookout, NC
- Decrease in the recreational quota the following year via reduced bag limits if the Total Annual Catch Limit (ACL) is exceeded and stock is overfished.

#### Commercial Fishery

- Prohibited: purse seines; drift gill nets south of Cape Lookout, NC
- 12" FL or 14" TL minimum size limit
- March 1 – end of February season
- Trip limits (per vessel, per day)
  - NY-GA: 3500 lbs
  - FL: 3500 lbs, 3/1-11/30;
  - 3500 lbs Mon-Fri & 1500 lbs Sat-Sun, 12/1 until 75% adjusted quota taken;
  - 1500 lbs, when 75% adjusted quota taken until 100% adjusted quotas taken;
  - 500 lbs after 100% of adjusted quotas taken (the adjusted quota compensates for estimated catches of 500 lbs per vessel per day to the end of the season)
- Commercial quotas decreased the following year if Total ACL is exceeded and stock is overfished

#### *Amendment 18 (Federal)*

In August 2011, the Gulf of Mexico and South Atlantic, Fishery Management Councils approved Amendment 18 to the joint FMP for Coastal Migratory Pelagics. The primary action under consideration established Annual Catch Limits (ACLs) and Accountability Measures (AMs) for the cobia, king mackerel, and Spanish mackerel. The amendment designates ACLs and Annual Catch Targets (ACTs) for each of the two migratory groups of Spanish mackerel (Atlantic and Gulf). For the Atlantic migratory group, the commercial sector ACL is set equivalent to the commercial sector quota of 3.13 million pounds. The AM for the commercial sector is that the commercial sector will close when the commercial quota is reached or projected to be reached. In addition, current trip limit adjustments will remain in place. When the commercial sector closes, harvest and possession of Spanish mackerel would be prohibited for persons aboard a vessel for which a commercial permit for Spanish mackerel has been issued.

For the recreational sector, the ACT is set to 2.32 million pounds, while the ACL is set at 2.56 million pounds. Regarding the AM, if the stock ACL is exceeded in any year, the bag limit will be reduced the next fishing year by the amount necessary to ensure recreational landings achieve the recreational ACT, but do not exceed the recreational ACL in the following fishing year. A payback will be assessed if the Atlantic migratory group Spanish mackerel is determined to be overfished and the stock ACL is exceeded. The payback will include a reduction in the sector ACL for the following year by the amount of the overage by that sector in the prior fishing year.

#### *Addendum I*

In August 2013, the Commission's South Atlantic State-Federal Fisheries Management Board approved Addendum I to the Omnibus Amendment for Spanish mackerel, Spot, and Spotted Seatrout.

Addendum I to the Omnibus Amendment establishes a pilot program that would allow states to reduce the Spanish mackerel minimum size limit for the commercial pound net fishery to 11 ½ inches during the summer months of July through September for the 2013 and 2014 fishing years only. The measure is intended to reduce waste of these shorter fish, which are discarded dead in the summer months, by converting them to landed fish that will be counted against the quota.

The Addendum responds to reports about the increased incidence of Spanish mackerel ¼ to ½ inch short of the 12 inch fork length minimum size limit in pound nets during the summer months. While the fish are alive in the pound, once the net is hauled and bailing commences, they die before being released. This may be due to a combination of temperature, stress and crowding. While individual fishermen have experimented with different wall or panel mesh sizes depending on the target species, there is no consistent use of cull panels. Those who have used cull panels have noted the difficulty and lack of success in being able to release the undersized fish quickly enough to prevent dead discards during this time of year.

The measures in Addendum I only applied for the 2013 and 2014 fishing seasons. In August 2015, the South Atlantic Board formally extended the provisions of Addendum I for the 2015 and 2016 fishing seasons. Reports by North Carolina, the only state to reduce their minimum size, will be reviewed annually.

#### *Amendment 20A (Federal)*

Effective July 2014, this Amendment addresses the sale of bag limit caught Spanish mackerel. The amendment arose from concerns that the recreational sales of bag limit caught fish, which are counted toward commercial quotas, are contributing to early closures of the commercial sector. In addition potential double counting of these fish could be causing erroneous landings estimates. In response, the Amendment prohibits bag limit sales with the exception of recreationally caught fish from state permitted tournaments in the South Atlantic region. This amendment also included an action to remove income requirements for federal CMP permits.

#### *South Atlantic CMP Framework Action (Federal)*

Effective December 2014, this action allows Spanish mackerel, harvested with gillnet gear in the South Atlantic in excess of the trip limit, to be transferred to another federally permitted vessel that has not yet harvested the trip limit. The Framework stipulates that the transfer can only occur if: 1) allowable gillnet gear was used to harvest Spanish mackerel; 2) the transfer takes place in federal waters between vessels with valid commercial permits; 3) the receiving vessel does not have more than 3 gillnets aboard after the transfer; 4) all fish remain entangled in the meshes of the net until the transfer; 5) the quantity of the fish transferred does not exceed the daily trip limit; and 6) there is only one transfer per vessel per day.

#### *CMP Framework Amendment 1 (Federal)*

This Framework Amendment, effective December 2014, increases the Atlantic Spanish mackerel ACL to 6.063 million pounds. The modification to the ACL followed the 2013 stock assessment

which concluded that the stock is not overfished and overfishing is not occurring. The Amendment divides the ACL between the commercial sector (3.33 million pounds) and the recreational sector (2.727 million pounds).

*Amendment 20B (Federal)*

Effective March 2015, this Amendment separates commercial quotas of Atlantic Spanish mackerel between a Northern zone (north of NC/SC line) and a Southern zone (South of NC/SC line). The Amendment rose from concerns that the commercial quota could be filled by fishermen in one state before fish are available to fishermen in another state. In order to prevent this from happening, a zone is closed when its respective quota is met. Quota for each zones was based on landings from 2002/2003-2011/2012.

*CMP Framework Amendment 2 (Federal)*

Implemented July 2015, this Amendment modifies the commercial trip limit system in the Southern zone. The rule establishes a trip limit of 3,500 lbs for Spanish mackerel in Federal waters offshore of South Carolina, Georgia, and Florida. When 75% of the adjusted southern zone commercial quota is caught, the commercial trip limit is reduced to 1,500 lbs. When 100% of the adjusted southern zone commercial quota is met, the commercial trip limit is further reduced to 500 lbs. This limit remains until the end of the year or the quota is met.

## **VII. Implementation of FMP Compliance Requirements for 2016**

All states must implement the requirements specified in section 5 (5.1 Mandatory Compliance Elements for States; 5.1.1 Mandatory Elements of State Programs; 5.1.1.1 Regulatory Requirements). The PRT finds all states in compliance.

***De Minimis Requests***

A state qualifies for *de minimis* status if its previous three-year average combined commercial and recreational catch is less than 1% of the previous three-year average coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, as none are included in the plan.

The states of New Jersey, Delaware, and Georgia request *de minimis* status. The PRT notes that all three states meet the requirements of *de minimis*.

**Regulation Changes**

No state regulatory changes were reported for 2016. In 2017, Framework Amendment 5 to the Fishery Management Plan for Coastal Migratory Pelagics in the Gulf of Mexico and Atlantic Regions was approved by the SAFMC and GMFMC. This Framework Amendment allows commercially permitted vessels to operate as private recreational vessels when the commercial season is closed for Spanish or king mackerel.

## **VIII. Recommendations of the Plan Review Team**

### Research and Monitoring Recommendations

#### *High Priority*

- Length, sex, age, and CPUE data are needed for improved stock assessment accuracy. Simulations on CPUE trends should be explored and impacts on VPA and assessment results determined. Data collection is needed for all states, particularly from Virginia north.
- Evaluation of weight and especially length at age of Spanish mackerel.
- Development of fishery-independent methods to monitor stock size of Atlantic Spanish mackerel (consider aerial surveys used in south Florida waters).
- More timely reporting of mid-Atlantic catches for quota monitoring.
- Provide better estimates of recruitment, natural mortality rates, fishing mortality rates, and standing stock. Specific information should include an estimate of total amount caught and distribution of catch by area, season, and type of gear.
- Develop methodology for predicting year class strength and determination of the relationship between larval abundance and subsequent year class strength.
- Commission and member states should support and provide the identified data & input needed to improve the SAFMC's SEDAR process.
- The full implementation of ecosystem-based management and the implementation of monitoring/research efforts needed to support ecosystem-based management needs should be conducted.

#### *Medium Priority*

- Yield per recruit analyses should be conducted relative to alternative selective fishing patterns.
- Determine the bycatch of Spanish mackerel in the directed shrimp fishery in Atlantic Coastal waters (partially met: Branstritter, 1997; Ottley et al., 1998; Gaddis et al., 2001; Page et al., 2004).
- Evaluate potential bias of the lack of appropriate stratification of the data used to generate age-length keys for Atlantic and Gulf Spanish mackerel.
- Evaluate CPUE indices related to standardization methods and management history, with emphasis on greater temporal and spatial resolution in estimates of CPUE.
- Consideration of MRFSS add-ons or other mechanisms for collection of socioeconomic data for recreational and commercial fisheries.
- Determine normal Spanish mackerel migration routes and changes therein, as well as the climatic or other factors responsible for changes in the environmental and habitat conditions which may affect the habitat and availability of stocks.
- Determine the relationship, if any, between migration of prey species (i.e., engraulids, clupeids, carangids), and migration patterns of the Spanish mackerel stock.

#### *Low Priority*

- Final identification of Spanish mackerel stocks through multiple research techniques.
- Complete research on the application of assessment and management models relative to dynamic species such as Spanish mackerel.
- Delineation of spawning areas and areas of larval abundance through temporal and spatial sampling.

## **IX. References**

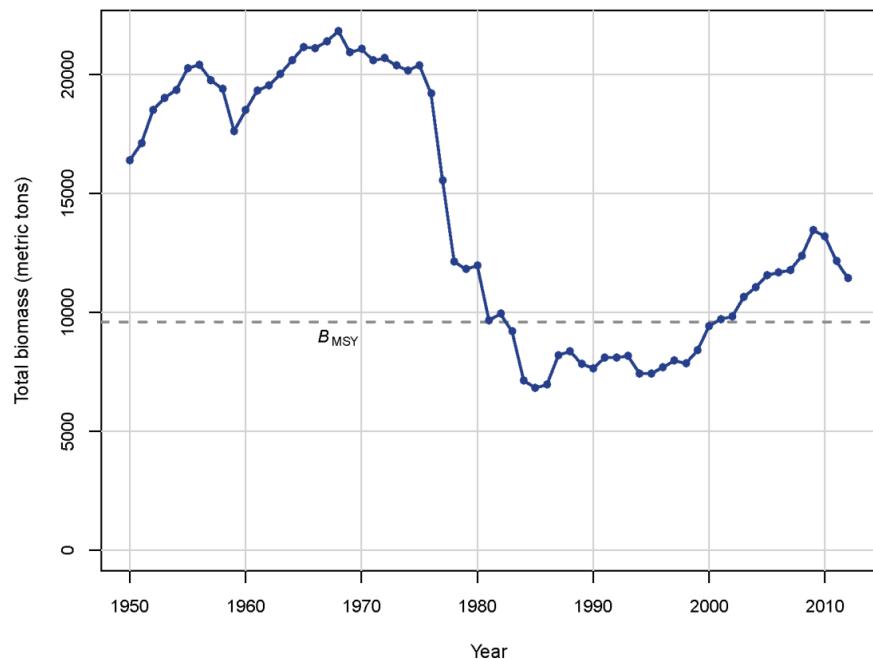
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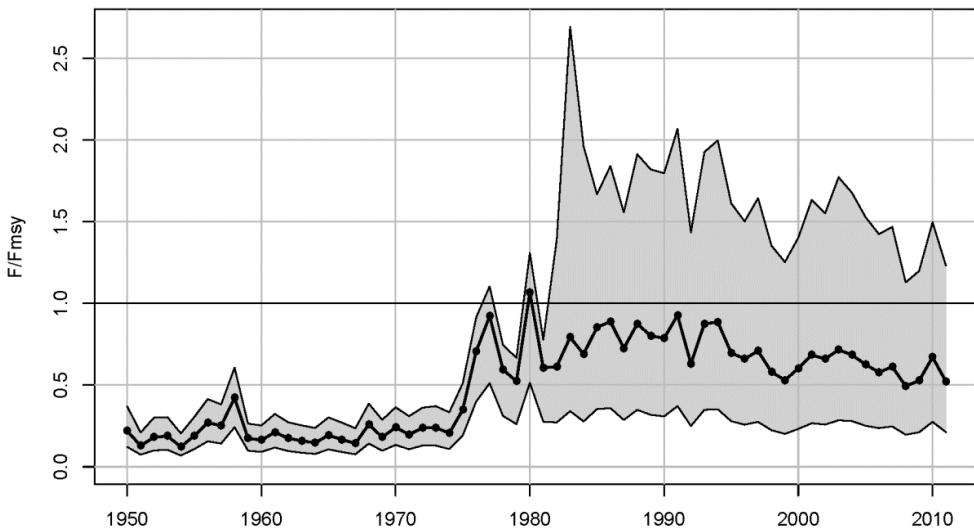
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## X. Figures

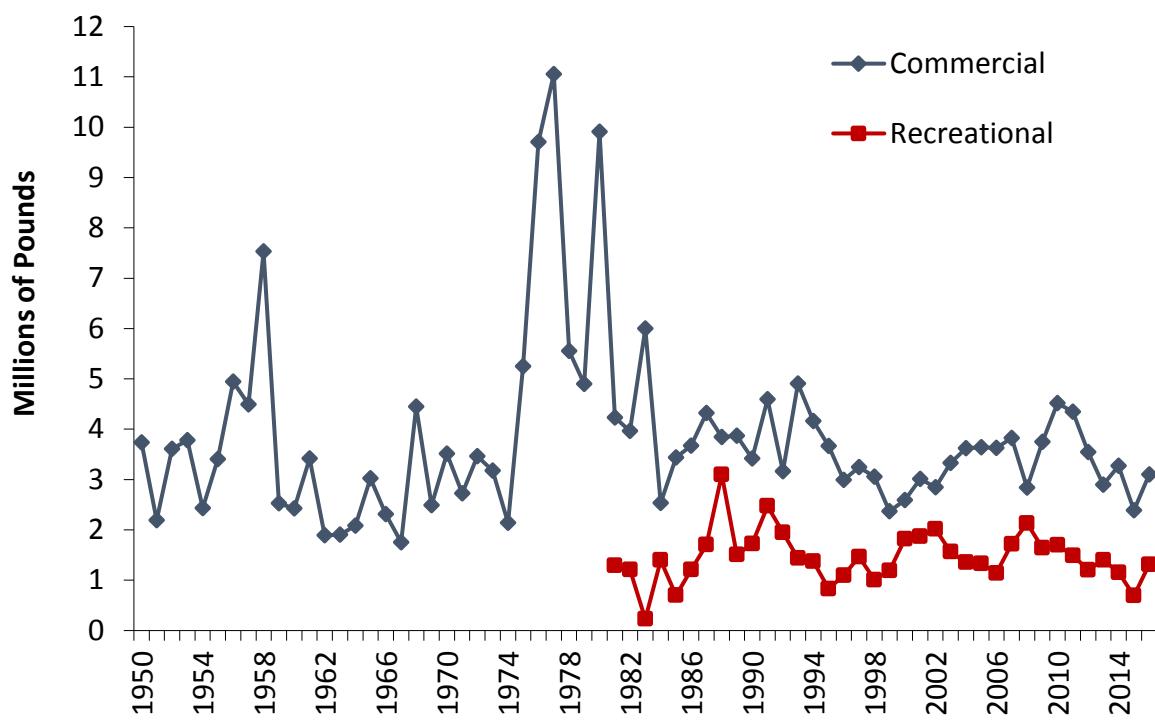
**Figure 1. Estimated total biomass (metric tons) at start of year. Horizontal dashed line indicates  $B_{MSY}$  (SEDAR, 2012).**



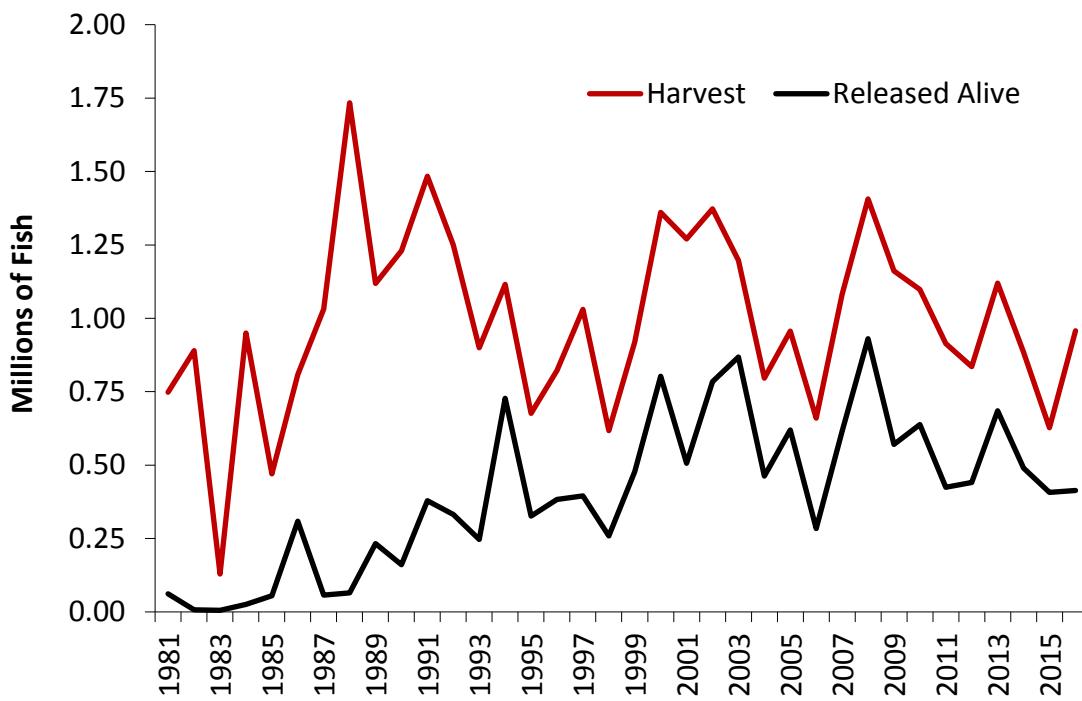
**Figure 2. Estimated time series of Atlantic group Spanish mackerel fishing mortality rate ( $F$ ) relative to  $F_{MSY}$  benchmark.** Solid line indicates estimates from base run of the Beaufort Assessment Model; gray error bands indicate 5<sup>th</sup> and 95<sup>th</sup> percentiles of the Monte Carlo Bootstrap analysis trials (SEDAR, 2012).



**Figure 3. Commercial and recreational harvest (pounds) of Spanish mackerel, 1950-2016.**  
 (Recreational data available from 1981-present only; see Tables 2 and 4 for values and sources)



**Figure 4. Recreational harvest and releases (numbers of fish) of Spanish mackerel, 1981-2016.**  
 (See Tables 3 and 5 for values and sources)



## XI. Tables

**Table 1. Summary of state regulations for Spanish mackerel in 2016.**

Notes: A commercial license is required to sell Spanish mackerel in all states; other general gear restrictions apply to the harvest of Spanish mackerel. Purse seines and drift gill nets are prohibited south of Cape Lookout, NC.

<b>State</b>	<b>Recreational</b>	<b>Commercial</b>
<b>NY</b>	14" TL, 15 fish	14" TL. 3,500 lb trip limit.
<b>NJ</b>	14" TL, 10 fish	14" TL. 3,500 lb trip limit.
<b>DE</b>	14" TL, 15 fish	14" TL. 3,500 lb trip limit.
<b>MD</b>	14" TL, 15 fish	14" TL. 3,500 lb trip limit. March-Feb.
<b>PRFC</b>	14" TL, 15 fish	14" TL. Closure if/when MD and VA fisheries close.
<b>VA</b>	14" TL, 15 fish	14" TL. 3,500 lb trip limit. Closure if/when federal waters close.
<b>NC</b>	12" FL, 15 fish	12" FL; 11.5" FL in pound net fishery July 4 <sup>th</sup> – Sept 30 <sup>th</sup> , 2016. 3,500 lb trip limit for combined Spanish and king mackerel landings.
<b>SC</b>	12" FL, 15 fish	12" FL. 15 fish. 3,500 lb trip limit. March-Feb. Closure if/when federal waters close.
<b>GA</b>	12" FL, 15 fish	12" FL. 3,500 lb trip limit.
<b>FL</b>	12" FL or 14" TL, 15 fish. Cast nets less than 14' and beach or haul seines within 2" stretched mesh allowed	12" FL or 14" TL. Trip limits: April 1 until Nov. 30 - 3500 lb; Dec. 1 until 75% of adjusted quota reached – 3500 lb Mon-Fri. & 1500 lb Sat-Sun; >75% adjusted quota until quota filled -1500 lb; > 100% of adjusted quota - 500 lb. Restricted Species Endorsement Required Allowed gear: beach or haul seine, cast net, hook and line, or spearing.

**Table 2. Commercial landings (pounds, calendar year) of Spanish mackerel by state, 1997-2016.** (Source: ACCSP for 2015 and earlier for all jurisdictions, except PRFC; annual compliance reports for 2016 and for all PRFC years. Starred values are confidential. Total values adhere to the ACCSP rule of 3, i.e. totals are reflective of the true total if 0 or at least 3 states' data are confidential in a given year. Otherwise, they are sums of non-confidential data. Data dating back to 1950 are available upon request to ACCSP.)

Year	NY	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL	Total
<b>1997</b>	31,107	12,122		*	557	164,113	766,958	66	*	2,269,289	3,244,212
<b>1998</b>	37,238	13,242		*	2,513	118,854	372,415	160	*	2,498,458	3,042,880
<b>1999</b>	47,831	17,144		*	31,945	222,113	459,100		*	1,566,706	2,344,839
<b>2000</b>	35,825	11,757		*	46,972	*	659,726	192	*	1,675,458	2,578,262
<b>2001</b>	13,851	9,401	*	*	25,970	152,833	653,673		*	2,115,774	2,990,224
<b>2002</b>	18,741	11,196		20,232	14,922	87,988	698,448	9	*	1,994,195	2,845,732
<b>2003</b>	18,339	5,432		4,684	21,267	*	456,784	214	*	2,739,176	3,245,896
<b>2004</b>	16,921	3,060		4,797	917	66,146	456,242		*	3,065,324	3,613,407
<b>2005</b>	5,197	2,074	*	7,539	2,725	41,065	446,001		*	3,132,626	3,637,227
<b>2006</b>	*	*	*	230	2,019	*	470,662	*		3,141,531	3,628,686
<b>2007</b>	7,240	2,075		3,297	4,915	53,607	487,879	*	*	3,263,245	3,822,259
<b>2008</b>	2,512	1,210	*	6,912	3,253	150,547	415,405		*	2,262,504	2,842,342
<b>2009</b>	3,463	3,324	*	*	494	137,573	961,811			2,629,343	3,736,009
<b>2010</b>	3,712	829		4,939	68	47,373	911,866	*		3,551,357	4,520,144
<b>2011</b>	1,147	305		5,088	675	35,601	871,217			3,432,932	4,346,965
<b>2012</b>	2,293	2,806		3,634	270	18,047	916,439			2,596,917	3,540,407
<b>2013</b>	4,467	265		2,395	302	7,602	620,752			2,265,390	2,901,172
<b>2014</b>	2,550	292		1,632	12	7,859	673,974	*		2,585,281	3,271,599
<b>2015</b>	1,357	2,746		2,222	6	14,493	561,407	28		1,807,967	2,390,227
<b>2016</b>	813	1,997	0	16,205	548	33,242	601,615	133		2,461,334	3,101,783

## 2017 REVIEW OF THE ASMFC SPANISH MACKEREL FMP

**Table 3. Recreational harvest (numbers) of Spanish mackerel by state, state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
<b>1997</b>			0		68,517	585,765	101,067	28,396	246,885	1,030,630
<b>1998</b>		4,046	186	3,633	33,140	239,052	65,584	28,002	244,235	617,878
<b>1999</b>	0	1,335	226	1,220	75,972	476,019	27,477	9,007	327,621	918,877
<b>2000</b>	4,453	923	0	15,219	71,249	671,353	28,283	20,545	547,315	1,359,340
<b>2001</b>	802	0	0	8,025	29,590	400,706	43,501	11,013	774,065	1,267,702
<b>2002</b>				0	17,433	401,982	24,235	1,927	926,600	1,372,177
<b>2003</b>				6,975	17,063	349,170	24,879	11,235	784,385	1,193,707
<b>2004</b>		813		4,180	28,301	326,781	56,524	7,412	368,998	793,009
<b>2005</b>				14,348	10,573	335,760	70,124	12,852	512,607	956,264
<b>2006</b>		1,079		4,408	40	306,274	23,529	1,555	322,789	659,674
<b>2007</b>				20,049	16	495,476	94,636	15,539	455,689	1,081,405
<b>2008</b>		344		7,515	83,903	744,139	52,725	14,682	503,398	1,406,706
<b>2009</b>		215		19,901	16,451	677,787	73,611	4,476	368,615	1,161,056
<b>2010</b>				5,580	20,524	483,956	70,351	4,955	512,295	1,097,661
<b>2011</b>				10,554	35,054	367,086	87,109	7,486	406,068	913,357
<b>2012</b>				2,962	11,847	491,238	80,204	2,119	246,866	835,236
<b>2013</b>			31	2,905	61,260	497,329	22,414	1,299	534,042	1,119,280
<b>2014</b>				5,494	15,776	398,398	80,935	1,903	381,839	884,345
<b>2015</b>				11,366	12,072	388,157	133,446	527	82,064	627,632
<b>2016</b>			9	11,465	75,068	424,341	78,100	1,510	366,789	957,282

## 2017 REVIEW OF THE ASMFC SPANISH MACKEREL FMP

**Table 4. Recreational harvest (pounds) of Spanish mackerel by state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

<b>Year</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>FL</b>	<b>Total</b>
<b>1997</b>					22,234	862,497	143,297	37,877	400,148	1,466,053
<b>1998</b>		9,190	380	5,724	57,467	305,631	106,208	112,563	408,871	1,006,034
<b>1999</b>		2,207	240	1,715	79,602	469,259	44,915	10,030	578,124	1,186,092
<b>2000</b>	10,799	1,119		20,642	83,297	671,615	30,542	47,136	946,396	1,811,546
<b>2001</b>	1,168			14,526	42,047	499,828	46,945	23,055	1,232,506	1,860,075
<b>2002</b>					12,163	475,741	47,057	4,796	1,475,233	2,014,990
<b>2003</b>				9,761	22,030	446,052	29,108	34,854	1,021,204	1,563,009
<b>2004</b>		2,150		7,534	38,606	493,666	73,795	7,819	730,736	1,354,306
<b>2005</b>				26,281	14,459	294,537	101,618	17,910	873,527	1,328,332
<b>2006</b>		2,022		9,327	57	509,357	41,945	2,197	576,979	1,141,884
<b>2007</b>				39,708	25	699,809	97,677	34,667	847,028	1,718,914
<b>2008</b>		513		11,558	113,127	968,108	84,244	36,154	919,711	2,133,415
<b>2009</b>		302		37,284	22,131	824,225	96,827	6,909	651,494	1,639,172
<b>2010</b>				11,383	27,503	565,830	103,956	5,383	983,764	1,697,819
<b>2011</b>				22,630	41,325	470,541	73,605	9,439	873,222	1,490,762
<b>2012</b>				5,223	17,806	665,201	98,316	4,536	411,935	1,203,017
<b>2013</b>			43	6,949	68,165	625,035	50,865	2,158	646,996	1,400,211
<b>2014</b>				12,440	17,597	449,709	126,345	2,356	544,791	1,153,238
<b>2015</b>				16,820	10,746	431,082	108,423	1,879	124,199	693,149
<b>2016</b>			8	18,995	71,869	411,353	74,475	2,853	732,652	1,312,205

## 2017 REVIEW OF THE ASMFC SPANISH MACKEREL FMP

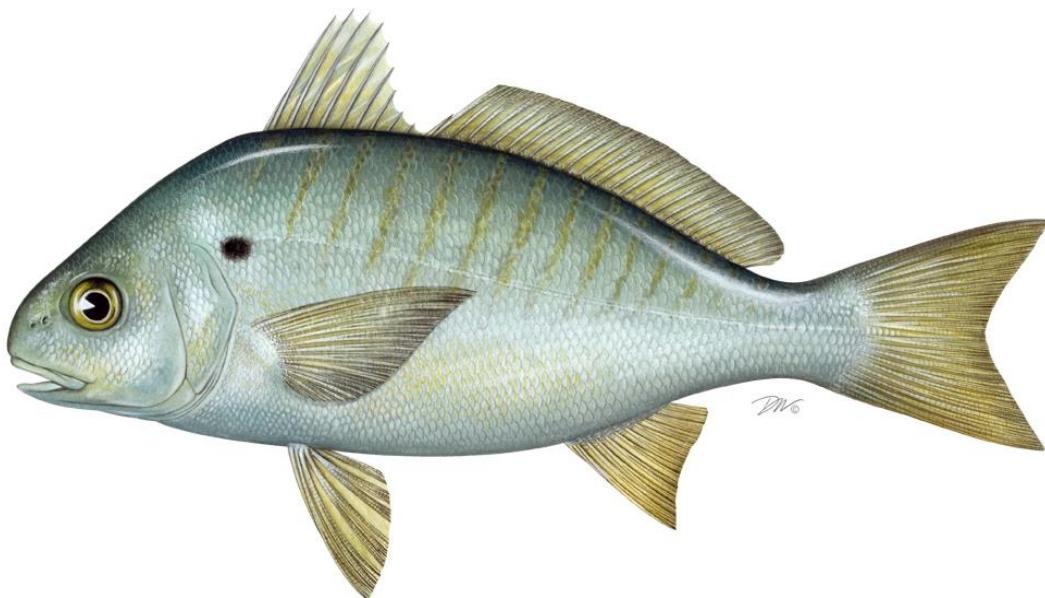
**Table 5. Recreational releases (numbers) of Spanish mackerel by state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

<b>Year</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>FL</b>	<b>Total</b>
<b>1997</b>			338		22,658	140,704	62,356	0	168,815	394,871
<b>1998</b>		0	0	1,075	49,429	80,700	32,087	7,351	87,804	258,446
<b>1999</b>	1,415	2,670	0	0	36,276	205,870	46,400	495	185,106	478,232
<b>2000</b>	0	0	608	1,656	82,227	300,384	47,273	16,479	353,042	801,669
<b>2001</b>	1,657	4,907	825	7,265	30,158	160,591	9,711	3,188	285,738	504,040
<b>2002</b>				4,449	9,923	196,967	9,206	8,641	554,743	783,929
<b>2003</b>				6,994	20,539	164,787	223,116	6,501	445,965	867,902
<b>2004</b>		0		386	14,456	149,542	84,747	2,900	207,784	459,815
<b>2005</b>				2,169	0	180,326	184,637	4,056	248,636	619,824
<b>2006</b>		0		564	8,504	96,413	27,640	9,236	140,986	283,343
<b>2007</b>				8,461	279	257,841	96,779	54,044	197,529	614,933
<b>2008</b>		0		6,951	37,850	449,095	67,686	5,300	363,542	930,424
<b>2009</b>		26,741		3,630	20,980	313,030	55,600	982	149,825	570,788
<b>2010</b>				0	33,103	294,350	28,200	65	282,252	637,970
<b>2011</b>				0	28,526	170,926	67,144	10,131	147,399	424,126
<b>2012</b>				0	17,150	234,905	98,371	1,724	88,592	440,742
<b>2013</b>			94	0	5,583	289,216	24,862	0	365,107	684,862
<b>2014</b>				881	3,450	240,731	36,082	851	208,266	490,261
<b>2015</b>				357	4,224	216,011	99,530	466	85,973	406,561
<b>2016</b>			213	0	14,072	187,878	69,882	137	141,038	413,220

2017 REVIEW OF THE  
ATLANTIC STATES MARINE FISHERIES COMMISSION  
FISHERY MANAGEMENT PLAN FOR

**SPOT**  
*(Leiostomus xanthurus)*

2016 FISHING YEAR



**The Spot Plan Review Team**

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## **Table of Contents**

I.	Status of the Fishery Management Plan .....	1
II.	Status of the Stock.....	2
III.	Status of the Fishery.....	2
IV.	Status of Assessment Advice .....	3
V.	Status of Research and Monitoring.....	4
VI.	Status of Management Measures and Issues .....	7
VII.	Implementation of FMP Compliance Requirements for 2015 .....	8
VIII.	Recommendations of the Plan Review Team .....	9
X.	Figures .....	12
XI.	Tables .....	1

## I. Status of the Fishery Management Plan

Date of FMP Approval: October 1987; Omnibus Amendment August 2011

Management Area: The Atlantic coast distribution of the resource from Delaware through Florida

Active Boards/Committees: South Atlantic State/Federal Fisheries Management Board; Spot Plan Review Team; South Atlantic Species Advisory Panel; Omnibus Amendment Plan Development Team

The Fishery Management Plan (FMP) for Spot was adopted in 1987 and includes the states from Delaware through Florida (ASMFC 1987). In reviewing the early plans created under the Interstate Fisheries Management Plan process, the ASMFC found the Spot FMP to be in need of evaluation and possible revision. A Wallop-Breaux grant from the U.S. Fish and Wildlife Service was provided to conduct a comprehensive data collection workshop for spot. The October 1993 workshop at the Virginia Institute of Marine Science was attended by university and state agency representatives from six states. Presentations on fishery-dependent and fishery-independent data, population dynamics, and bycatch reduction devices were made and discussed. All state reports and a set of recommendations were included in the workshop report (Kline and Speir 1993).

Subsequent to the workshop and independent of it, the South Atlantic State/Federal Fisheries Management Board (Management Board) reviewed the status of several plans in order to define the compliance issues to be enforced under the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The Management Board found recommendations in the plan to be vague and perhaps no longer valid, and recommended that an amendment be prepared to the Spot FMP to define the management measures necessary to achieve the goals of the FMP. In their final schedule for compliance under the ACFCMA, the ISFMP Policy Board adopted the finding that the FMP does not contain any management measures that states are required to implement. In August 2009, the Management Board expanded the initiated amendment to the Spanish Mackerel FMP to include Spot and Spotted Seatrout, creating the Omnibus Amendment for Spot, Spotted Seatrout and Spanish Mackerel. The goal of the Omnibus Amendment was to update all three plans with requirements specified under the Atlantic Coastal Fisheries Cooperative Management Act (1993) and the Interstate Fishery Management Program Charter (1995). In August 2011, the Management Board approved the Omnibus Amendment for Spot, Spotted Seatrout, and Spanish Mackerel. This Amendment did not set specific management measures for Spot but it did align management of the species with the requirements of ACFCMA.

In August 2014, the Board approved Addendum I to the Omnibus Amendment. The Addendum establishes use of a Traffic Light Analysis (TLA) to evaluate fisheries trends and develop state-specified management actions (e.g., bag limits, size restrictions, time and area closures, and gear restrictions) when harvest and abundance thresholds are exceeded for two consecutive years.

## **II. Status of the Stock**

A benchmark stock assessment for spot was completed in 2017 but was not recommended for management use by the Peer Review Panel. Therefore, stock status is unknown. The stock is monitored annually using the Traffic Light Analysis, described below.

### *Traffic Light Approach*

As part of the requirements under the 2011 Omnibus Amendment, for years in-between benchmark stock assessments, the Spot PRT was tasked with conducting annual monitoring analysis. These trigger exercises compared five data sources to the 10<sup>th</sup> percentile of the data sets' time series. If two terminal values of the five data sources (at least one of which must be fishery independent) fell below the 10<sup>th</sup> percentile, the Management Board would be prompted to consider management action.

In August 2014, the Board approved Addendum I to the Omnibus Amendment. The Addendum established the Traffic Light Approach (TLA) as the new precautionary management framework to evaluate fishery trends and develop management actions. The TLA framework replaces the management trigger stipulated in the Omnibus Amendment after concern that the triggers were limited in their ability to illustrate long-term declines or increases in stock abundance. In contrast, the TLA is a statistically-robust way to incorporate multiple data sources (both fishery-independent and -dependent) into a single, easily understood metric for management advice. It is an effective method to illustrate long-term trends in the fishery.

The TLA was originally developed as a management tool for data poor fisheries. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of population indicators. When a population characteristic improves, the proportion of green in the given year increases. Harvest and abundances thresholds of 30% and 60% red were established in Addendum I, representing moderate and significant concern for the fishery. If thresholds for both population characteristics achieve or exceed a threshold for a two year period, then management action is enacted.

Analysis of the composite harvest index showed a general decline beginning in 2005 (Figure 1). This decline was driven mostly by the decline in commercial landings rather than the recreational harvest. The composite harvest index tripped in 2015-2016 with a 2-year red proportion greater than 30%.

The TLA composite abundance index for adult spot (NMFS and SEAMAP surveys) was run using the 1989-2016 time period since that was when the two surveys overlapped (Figure 1). The TLA composite characteristic did not trigger in 2016 and has not tripped in a single year since 2007.

The TLA composite characteristic indices tripped for juvenile spot index (60% threshold) but not for the adult composite characteristic index. The harvest composite characteristic also triggered at the 30% threshold in 2016 due to declines in both commercial and recreational harvest. Because the harvest index and adult composite index did not both trip for 2015-2016, management action is not triggered by the TLA. With the benchmark stock assessment now complete, further refinement of the TLA for spot is under consideration. The PRT and Atlantic

Croaker TC have submitted several adjustments to the TLA for Board consideration, which include incorporation of additional indices and alterations to the TLA metrics and triggering mechanism.

### **III. Status of the Fishery**

Total landings of spot from NY to FL in 2016 are estimated at 1.39 million pounds, a decrease of approximately 3 million pounds from 2015 and roughly 4.6 million pounds less than the average of the last 10 years (Tables 1 and 3). The recreational fishery harvested more than the commercial fishery (54% and 46% respectively, by pounds). Although, historical commercial harvests were larger than recreational harvests, over the last 10 years proportions of commercial and recreational harvests have been more even (57% and 43% respectively, by pounds).

Commercial spot landings have ranged between 632,000 and 14.52 million pounds from 1950-2016 (Figure 2), with 2016 landings (632,790 pounds) being the lowest commercial harvest on record. Coastwide, gill nets were used to capture 59% of commercially harvested spot (Table 2). Virginia landed approximately 45% of the commercial harvest (by pounds) in 2016, followed by North Carolina with 37% of the harvest. Spot are a major component of Atlantic coast scrap landings (NCDMF 2001). A scrap fishery is one in which fish species that are unmarketable as food, due to size or palatability, are sold unsorted, usually as bait. The largest bycatch component for spot comes from the South Atlantic shrimp trawl fishery.

The recreational harvest of spot along the Atlantic coast from 1981 to 2016 has varied between 2.8 and 20.1 million fish (or 753,000 and 6.9 million pounds; Tables 3 and 4). There was an increasing trend in the recreational harvest from a low in 1999 of 3.6 million fish to 15.7 million fish in 2007. Since then, harvest has generally declined, with a 2016 harvest of 2.8 million fish (753,353 pounds), down 3.4 million fish (1.5 million pounds) from 2015 and the lowest recreational harvest on record by both numbers of fish and pounds (Figure 3). Anglers in Virginia were responsible for 38% of the total number of fish harvested in 2016, followed by anglers in South Carolina (25%) and North Carolina (18%). Many anglers are known to catch spot to use as bait, as well as for other recreational purposes. The estimated number of spot released annually by recreational anglers has varied between 1.9 and 11.2 million fish, with 2016 releases estimated at 1.9 million fish, the second lowest year on record (Figure 3).

### **IV. Status of Assessment Advice**

A benchmark stock assessment for spot was completed in 2017 but was not recommended by the Peer Review Panel for management use due to uncertainty in biomass estimates due to conflicting signals among abundance indices and catch time series, as well as sensitivity of model results to assumptions and model inputs. The Review Panel recommended continued annual monitoring of spot through the TLA, with incorporation of shrimp trawl discard estimates, and another benchmark assessment in 5 years.

## V. Status of Research and Monitoring

Catch and effort data are collected by the commercial and recreational statistics programs conducted by the states and the National Marine Fisheries Service (NMFS). Biological characterization data from fishery landings are also available from several states. Specifically, age data are now available from Maryland, Virginia, North Carolina, and South Carolina. Recruitment indices are available from surveys in Delaware, Maryland, Virginia, North Carolina, and South Carolina. Adult or aggregate (mix of juvenile and older spot) relative abundance indices are available from New Jersey, Delaware, North Carolina, South Carolina, Georgia, and SEAMAP (covering North Carolina through Florida). These surveys, in addition to the Northeast Fisheries Science Center Bottom Trawl Survey, the Northeast Area Monitoring and Assessment Program (NEAMAP), the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP), and the Chesapeake Bay Fishery-Independent Multispecies Survey (CHESFIMS), collect a variety of biological data elements.

*Below is a description of the fishery dependent sampling conducted by states.*

Maryland: Maryland conducts an onboard commercial pound net survey on the Potomac River and the Chesapeake Bay, sampling once per week from May through September and collecting length and age data.

Virginia: Virginia's Marine Resources Commission collects biological data from Virginia's commercial and recreational fisheries, with total length, weight, sex, and age measured whenever possible. The fish are aged by examining otoliths, which is done by Old Dominion University's Center for Quantitative Fisheries Ecology.

North Carolina: Commercial fishing activity is monitored through fishery-dependent sampling conducted under Title III of the Interjurisdictional Fisheries Act and has been ongoing since 1982. Data collected in this program allows the size distribution of spot to be characterized by gear/fishery. Further sub-sampling is conducted to procure samples for age determination (whole otoliths), sex ratio, reproductive condition, and weight.

South Carolina: South Carolina's Spot fishery is generally recreational in nature. Fishery dependent data related to Spot has been available primarily through the SCDNR State Finfish Survey (SFS), the National Marine Fisheries Service's Marine Recreational Information Program (MRIP), and a SCDNR managed mandatory trip reporting system for licensed charterboat operators. Beginning in 2013, the SCDNR took over the MRIP data collection in South Carolina. Since the data previously coming from the SC-SFS is now incorporated into the MRIP data set they will not be reported separately. The one exception to this occurs during wave 1 (Jan-Feb) sampling. The MRIP survey had not sampled during this wave in the past and so the SC-SFS will still be used to cover this time period.

Georgia: The Marine Sportfish Carcass Recovery Project, a partnership with recreational anglers along the Georgia coast, was used to collect biological data from finfish. In 2016, a total of 3,555 fish carcasses were donated through this program. Spot are not on the list of requested species and none were donated in 2016.

*Below is a description of fishery independent sampling conducted by states.*

New Jersey: The New Jersey Bureau of Marine Fisheries conducts an Ocean Trawl Survey, Delaware River Seine Survey, and Delaware Bay Trawl Survey. Respective indices of abundance (GM) for the three surveys in 2016 were: 0.12, 0.00, and 0.05 (2014 values were: 0.63, 0.02, and 0.19, respectively).

Delaware: Annual relative abundance estimates (number/nautical mile) of spot in Delaware are monitored through the Division's adult ground fish bottom trawl survey. The relative abundance of spot increased to 3.97 (#/nm). The Division monitors juvenile fish abundance through a 16-ft bottom trawl survey which has been conducted annually since 1980. Separate spot young of the year (YOY) indices are generated for the Delaware Estuary (Bay and River) and Delaware's "Inland Bays" (Indian River and Rehoboth Bays). YOY spot recruitment, 0.44 per tow (geometric mean), increased in 2016 relative to 2015 for the Delaware Estuary and was below the time series mean and median. The Inland Bays YOY index decreased to 1.77 per tow, and remained below the time series mean in 2016.

Maryland: Maryland conducted an onboard commercial pound net survey on the Potomac River and the Chesapeake Bay, sampling once per week from May 24, 2016 through September 7, 2016. Spot mean length from onboard sampling decrease in 2016 to 175 mm total length (TL). Seventy percent of spot encountered in the onboard pound net survey were between 170 and 209 mm TL, and the length frequency distribution remained truncated relative to the distributions of the early to mid-2000s. In 2016, 57% of sampled fish were age zero and 43% were age one, with no age two plus fish being sampled (111 ages and 137 lengths). 2016 was the first year that age one spot did not account for a majority of the age distribution, and only the second year no age two plus spot were sampled.

Finfish collected by Maryland's Chesapeake Bay Blue Crab Trawl Survey have been enumerated since 1980, (Davis et al.1995). Spot juvenile trawl index values from 1989-2016 were quite variable. The 2010 GM value of 104.5 spot per tow was the highest value of the time series, the 2011 value declined to the second lowest of the 27 year time series, and the 2012 value increased to nearly the time series mean. The index values declined since 2012 to the time series low in 2015 (0.29 fish per tow). The 2016 value increased to 1.36 fish per tow, but was still the 7th lowest value of the 28 year time series. A second JI was derived from the Striped Bass Juvenile Seine Survey (JSS). The 2016 GM catch per haul of 0.32 was the second lowest value of the 50 year time series, and well below the mean value of 1.44 fish per haul. A 4.9-m semi-balloon otter trawl has also been used to sample Maryland's Atlantic coastal bays since 1972. The 2016 GM of 5.4 spot per hectare increased for the second consecutive year, but was still below the 28 year time series mean of 8.9 fish per hectare. The final juvenile index is derived from the coastal bays seine survey. The coastal bays seine survey increased in 2016 to 9.6 spot per haul, and was above the time series mean of 7.4 for the first time since 2012.

Virginia: The Virginia Institute of Marine Science (VIMS) has been conducting a monthly juvenile trawl survey since 1955 to monitor the abundance and seasonal distribution of finfish and invertebrates in the Chesapeake Bay and its tributaries. An index of age-0 spot abundance is available from 1988 up to 2016, with sampling coming from tributaries of the Chesapeake Bay

(fixed and random sites) as well as the bay itself (random sites). The average index value from 1988 through 2016 is 13.43, and the geometric mean value for 2016 was 2.39. This represents an increase from the 0.83 in 2015, but is still one of the lowest values in the time series. Note that the values for 2015 and 2016 were calibrated due to a change in vessel/gear.

North Carolina: North Carolina has no current fishery-independent monitoring programs specifically for spot. However, the NCDMF has conducted a stratified random trawl survey in Pamlico Sound (Pamlico Sound Survey, Program 195) since 1987 to obtain juvenile abundance indices (JAI) for several economically important species, including spot. Spot less than 120 mm from the June portion of the Pamlico Sound Survey are considered in calculating the JAI. The 2016 spot JAI (mean number of individuals/tow) was 291.0, a decline from the 2015 JAI of 405.5. From 1987-2016 the average JAI was 413.1 with many large fluctuations.

South Carolina: While Spot are not necessarily a specifically targeted species for SCDNR monitoring programs or projects, they are a common component species of four fishery independent monitoring efforts conducted by the SCDNR. The Southeast Area Monitoring and Assessment – South Atlantic Program (SEAMAP-SA) is a shallow water (15 to 30 ft depth) trawl survey that monitors status and trends of numerous coastal species within the South Atlantic Bight seasonally (spring, summer and fall) from Cape Canaveral, FL to Cape Hatteras, NC. The annual stratified mean catch per tow in weight for the entire survey in 2016 declined by 9.2% (11.1kg/tow) over 2015 (12.2 kg/tow). The second survey is an inshore estuarine trammel net survey conducted by the SCDNR In 2016, CPUE decreased (68.8%) from 2015 representing the lowest annual value in the time series. Catch levels in 2016 remained below the long term mean for a seventh year. The overall trend for Spot in the trammel survey has been in decline since 1999, with only 5 years exceeding the long term mean catch since 2000. The third survey was an electroshock survey conducted in low salinity brackish and tidal freshwater portions of different South Carolina estuaries. The CPUE in 2016 ( $3.98 \pm 0.78$  fish per set) declined from 2015 by 24% and was the lowest annual CPUE on record for the survey. The fourth survey is the South Carolina Estuarine and Coastal Assessment Program (SCECAP). The CPUE increased (27.9%) in 2016 from 2015, although both years represent the lowest values in the time series (0.5 and 0.7 fish per hectare, respectively) and remained well below the series long term mean.

Georgia: Spot are occasionally observed during the red drum gillnet survey and the trammel net survey. Lengths of captured spot were recorded and then fish were released. During 2016, 150 trammel and 216 gill net sets captured 193 and 324 spot, respectively. Average fork length of spot in trammel nets was 209 mm and in the gillnet survey was 197 mm. The 2016 geometric mean (#/net set) from trammel nets (0.81) was greater and the mean from gillnets (0.59) was less than those of 2015 (0.54 and 0.89, respectively). The monthly Ecological Monitoring Survey (EMS) samples estuarine finfish from a total of 42 stations, distributed amongst 6 estuaries, from January to December. In 2016, a total of 416 tows were completed with an estimated 12,673 Spot captured. Lengths ranged from 11 to 223 millimeters fork length with a mean of 130.5 millimeters fork length

Florida: The FWC-FWRI's FIM program initiated surveys on estuarine, bay and coastal systems of the Florida Atlantic at northern Indian River Lagoon in 1990, southern Indian River Lagoon in 1997, and northeast Florida (Jacksonville study area) in 2001. Indices of abundance (IOAs) data

for juvenile (YOY) spot (<30 mm standard length, SL) were available from 21.3-m seine and 6.1-m trawl samples. IOAs for YOY and sub-adult/adult spot have been low and showed little variations; except in 2010 and 2011.

## **VI. Status of Management Measures and Issues**

The FMP for Spot identified two management measures for implementation: 1) promote the development and use of bycatch reduction devices through demonstration and application in trawl fisheries, and 2) promote increases in yield per recruit through delaying entry to spot fisheries to age one and older.

Considerable progress has been made in developing bycatch reduction devices (BRDs) and evaluating their effectiveness. Proceedings from a 1993 spot and croaker workshop summarized much of the experimental work on bycatch reduction, and many states have conducted subsequent testing. For example, North Carolina Division of Marine Fisheries (NCDMF) conducted research on the four main gear types (shrimp trawl, flynet, long haul seine, and pound net) responsible for the bulk of the scrap fish landings in order to reduce the catch of small fish. State testing of shrimp trawl BRDs achieved finfish reductions of 50-70% with little loss of shrimp, although total bycatch numbers relative to shrimp fishery effort are still unknown. The Virginia Marine Resources Commission investigated the use of culling panels in pound nets and long haul seines to release small croaker, spot, and weakfish. The Potomac River Fisheries Commission (PRFC) also investigated the use of culling panels in pound nets, finding that the panels allowed the release of 28% of captured spot less than six inches in length.

Following favorable testing, devices have been made mandatory or recommended in several state fisheries. The use of BRDs is required in all penaeid shrimp trawl fisheries in the South Atlantic. The PRFC recommends the use of culling panels in pound nets and allows those nets with panels to keep one bushel of bycatch of flounder and weakfish. In North Carolina, escapement panels have been required in the bunt nets of long haul seines in an area south and west of Bluff Shoals in the Pamlico Sound since April 1999. However, evaluation of the beneficial effects of BRDs to spot stocks continues to need further study.

General gear restrictions, such as minimum mesh sizes or area trawling bans, have helped protect some age classes of spot. Georgia has implemented a spot creel limit (25 fish, both recreational and commercial, except for shrimp trawlers). South Carolina has also implemented an aggregate bag limit (50 fish) for hook and line fishing of spot, Atlantic croaker, and kingfish/whiting (*Menticirrhus* sp.).

### *Omnibus Amendment (Interstate)*

In August 2011, the Management Board approved the development of an amendment to the Spot FMP to address three issues: compliance measures, consistency with federal management in the exclusive economic zone, and alignment with Commission standards. The updated FMP's objectives are to: (1.) Increase the level of research and monitoring on spot bycatch in other fisheries, in order to complete a coastwide stock assessment (2.) Manage the Spot fishery stock to maintain the spawning stock biomass above the target biomass levels. (3.) Develop research

priorities that will further refine the spot management program to maximize the biological, social, and economic benefits derived from the spot population. The Omnibus Amendment does not require specific fishery management measures in either the recreational or commercial fisheries for states within the management unit.

#### *Addendum I*

In August 2014, the Board approved Addendum I which establishes a new management framework (i.e., Traffic Light Approach) to evaluate fisheries trends and develop state-specified management actions (i.e., bag limits, size restrictions, time & area closures, and gear restrictions) when harvest and abundance thresholds are exceeded over two years. Management measures would remain in place for two years.

#### *Recent Changes in State Regulations*

North Carolina: There are no direct restrictions on the commercial harvest of spot within coastal, joint, or inland waters of North Carolina. There are however numerous indirect restrictions that effect the commercial harvest and bycatch of spot in North Carolina. Changes to such restrictions for 2016 include: Gill net restrictions for Internal Coastal Waters pertaining to area closures/openings, gear modifications and attendance rules to avoid interactions with endangered species, and requiring the use of an additional BRD for shrimp trawlers (Proclamation SH-2-2015).

South Carolina: In 2015, the SCDNR established a trip ticket monitoring system for all commercial bait harvesters in South Carolina. The purpose of the program is to track which species are being harvested for use in state and federal waters for commercial fishermen holding a commercial bait harvesting license. Previously, there was some monitoring of which species might be captured by bait harvesters through voluntary reporting, but there was no record of the actual quantities harvested unless they were sold to wholesale seafood dealers who would have reported fish utilized as bait in that system. Small Sciaenidae species (including spot) were one of the species of concern and why the program was initiated.

#### *De minimis Guidelines*

A state qualifies for *de minimis* status if its past 3-years' average of the combined commercial and recreational catch is less than 1% of the past 3-years' average of the coastwide combined commercial and recreational catch. Those states that qualify for *de minimis* are not required to implement any monitoring requirements, none of which are included in the plan.

### **VII. De Minimis Requests**

Georgia requests *de minimis* status. The PRT notes that Georgia meets the requirements of *de minimis*.

### **VIII. Implementation of FMP Compliance Requirements for 2016**

All states within the management unit have submitted compliance reports for the 2016 fishing year. The PRT found no compliance issues.

## **IX. Recommendations of the Plan Review Team**

### Management and Regulatory Recommendation

The Spot PRT will continue to monitor the fishery through the Traffic Light Approach. The Spot PRT recommends that the Board consider incorporation of adjustments to the TLA submitted in their collaborative memo with the Atlantic Croaker Technical Committee.

### Research and Monitoring Recommendations

#### *High Priority*

- Explore adjustments to the annual TLA that can reduce or explain the conflict between harvest and abundance metrics. Potential adjustments may include incorporation of additional indices, region-specific metrics, age-partitioned indices, or alteration of the management-triggering mechanism.
- Expand collection of life history data for examination of lengths and age, especially fishery-dependent data sources.
- Organize an otolith exchange and develop an ageing protocol between ageing labs.
- Increase observer coverage for commercial discards, particularly the shrimp trawl fishery. Develop a standardized, representative sampling protocol and pursue collection of individual lengths and ages of discarded finfish.
- Continue state and multi-state fisheries-independent surveys throughout the species range and subsample for individual lengths and ages. Ensure NEFSC trawl survey continues to take lengths and ages. Examine potential factors affecting catchability in long-term fishery independent surveys.
- Continue to develop estimates of length-at-maturity and year-round reproductive dynamics throughout the species range. Assess whether temporal and/or density-dependent shifts in reproductive dynamics have occurred.
- Re-examine historical ichthyoplankton studies for an indication of the magnitude of estuarine and coastal spawning, as well as for potential inclusion as indices of spawning stock biomass in future assessments. Pursue specific estuarine data sets from the states (NJ, VA, NC, SC, DE, ME) and coastal data sets (MARMAP, EcoMon).

#### *Medium Priority*

- Develop and implement sampling programs for state-specific commercial scrap and bait fisheries in order to monitor the relative importance of Spot. Incorporate biological data collection into program.
- Conduct studies of discard mortality for commercial fisheries. Ask commercial fishermen about catch processing behavior for spot when trawl/gillnets brought over the rail to determine if the discard mortality rate used in the assessment is reasonable.
- Conduct studies of discard mortality for recreational fisheries.
- Collect data to develop gear-specific fishing effort estimates and investigate methods to develop historical estimates of effort.
- Identify stocks and determine coastal movements and the extent of stock mixing, via genetic and tagging studies.
- Investigate environmental and recruitment/ natural mortality covariates and develop a time series of potential covariates to be used in stock assessment models.

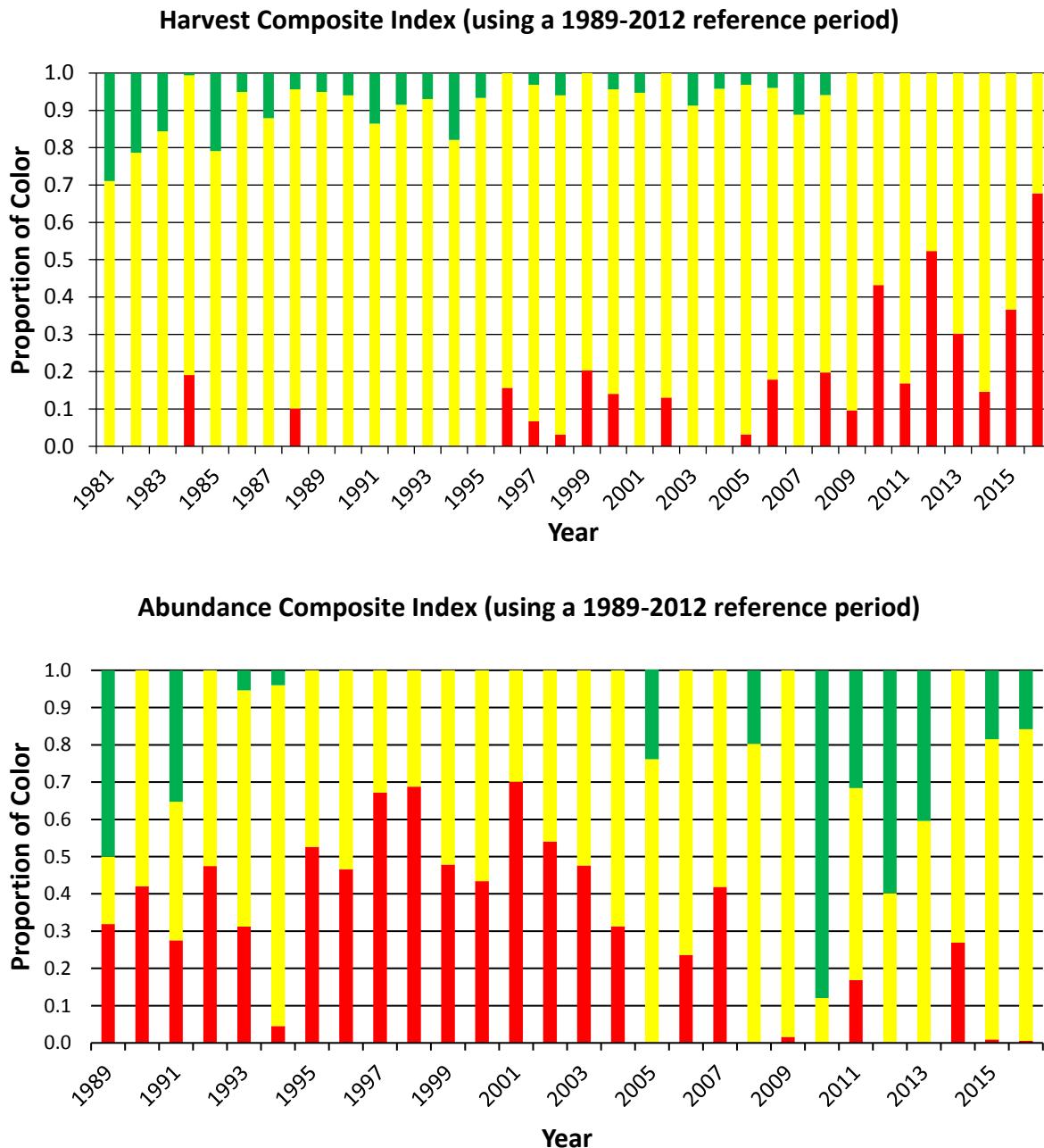
- Investigate environmental covariates in stock assessment models, including climate cycles (e.g., Atlantic Multi-decadal Oscillation, AMO, and El Nino Southern Oscillation, El Nino) and recruitment and/or year class strength, spawning stock biomass, stock distribution, maturity schedules, and habitat degradation.
- Investigate the effects of environmental changes (especially climate change) on maturity schedules for spot, particularly because this is an early-maturing species, and because the sSPR estimates are sensitive to changes in the proportion mature.
- Investigate environmental and oceanic processes in order to develop better understanding of larval migration patterns into nursery grounds.
- Investigate the relationship between estuarine nursery areas and their proportional contribution to adult biomass. I.e., are select nursery areas along Atlantic coast contributing more to SSB than others, reflecting better juvenile habitat quality?
- Develop estimates of gear-specific selectivity.

## X. References

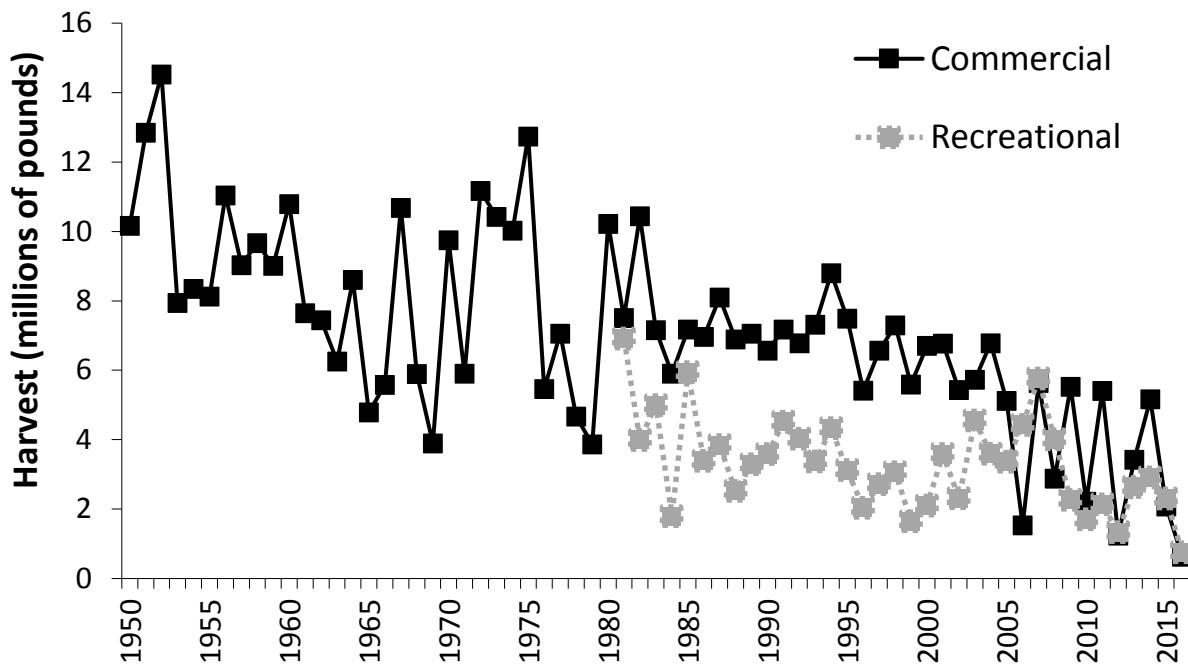
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- NCDMF. 2001. Assessment of North Carolina commercial finfisheries, 1997–2000. Final Report, North Carolina Department of Environment and Natural Resources, Division of Marine Fisheries, Award Number NA 76 FI 0286, 1-3.
- Spot Plan Review Team (PRT). 2012. Spot Data Availability and Stock Monitoring Report, 2009. Washington (DC): Atlantic States Marine Fisheries Commission. Report to the South Atlantic State-Federal Fisheries Management Board. 85 p.

## X. Figures

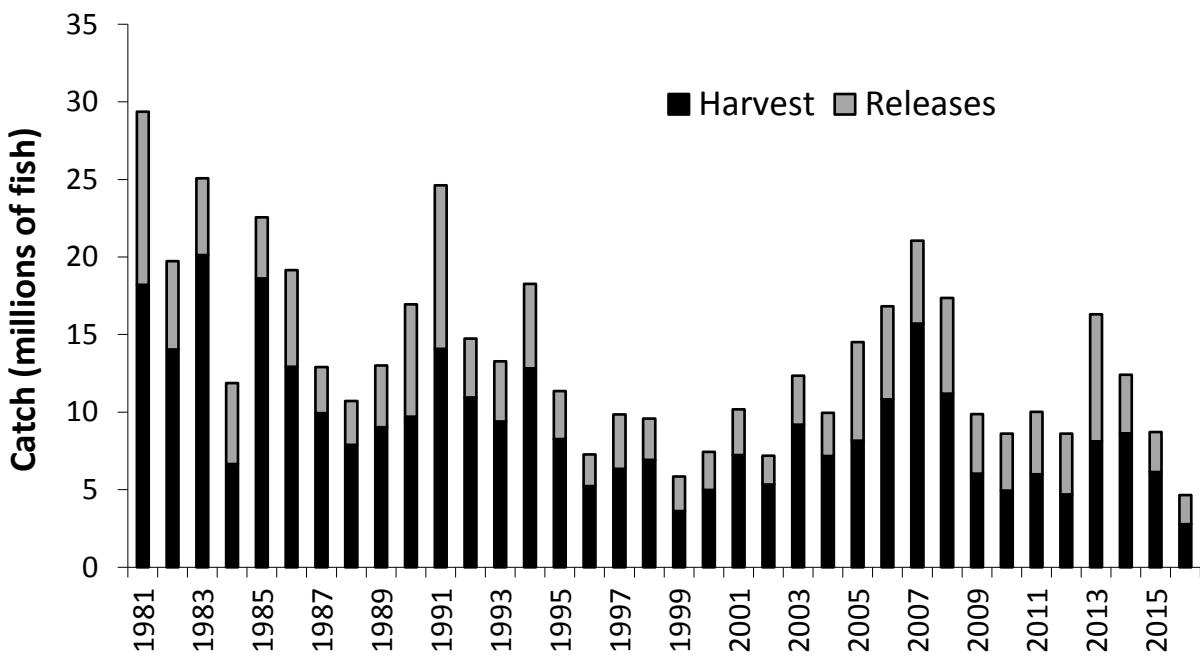
**Figure 1: Traffic Light Approach for spot, 2016.** Top figure shows the harvest composite index and the bottom figure shows the abundance composite index.



**Figure 2: Spot commercial and recreational landings (pounds), 1950-2016.** (Recreational landings available from 1981-present; see Tables 1 and 3 for state-by-state values and data sources)



**Figure 3. Spot recreational harvest and releases (numbers of fish), 1981-2016.** (See Tables 4 and 5 for state-by-state values and data source)



## XI. Tables

**Table 1. Commercial landings (pounds) of spot by state 1997-2016.** (Source: ACCSP for 2015 and earlier for all jurisdictions, except PRFC; annual compliance reports for 2016 and for all PRFC years. Starred values are confidential. Total values adhere to the ACCSP rule of 3, i.e. totals are reflective of the true total if 0 or at least 3 states' data are confidential in a given year. Otherwise, they are sums of non-confidential data. Data dating back to 1950 are available upon request to ACCSP.)

Year	NY	NJ	DE	MD	PRFC	VA	NC	SC	GA	FL	Total
1997	189	6,175	35,686	*	134,591	3,343,884	*	87,170	*	227,097	6,570,132
1998	*	27,582	140,363	*	117,580	4,170,072	2,396,979	*	*	161,205	7,293,859
1999		7,822	*	*	108,326	2,860,784	2,262,175	9,393	*	73,018	5,589,288
2000	939	13,852	*	*	120,642	3,677,628	2,829,843	8,519		57,957	6,709,380
2001	160	20,034	*	*	176,546	3,131,044	3,093,872	12,950	*	33,029	6,770,093
2002	5,737	1,326	*	132,346	140,776	2,927,729	2,184,032	22,628	*	21,258	5,435,832
2003	35	6,003	*	170,009	227,430	3,258,482	2,043,387	17,059		9,260	5,731,665
2004	*	1,652	58,502	27,131	131,605	4,223,075	2,317,169	2,649	*	12,681	6,774,463
2005	435	769	157,563	84,841	95,350	3,037,612	1,714,485	10,468		21,154	5,120,448
2006	3,099	3,646	62,934	27,908	40,777	*	1,364,743	5,691	*	22,501	1,531,299
2007	1,080	4,474	128,207	387,420	70,514	4,259,469	879,082	6,357		14,334	5,637,154
2008	650	1,942	32,650	121,201	29,835	1,949,319	736,484	1,492	*	9,177	2,882,748
2009	317	34,065	*	522,659	63,470	3,852,408	1,006,500	22,557		22,057	5,524,033
2010	447	6,048	*	587,028	44,025	984,892	572,315	3,957	*	13,420	2,212,132
2011	*	54,890	*	618,569	60,106	3,687,377	936,970	12,162		33,889	5,403,962
2012	90,141	9,935	*	*	14,563	600,351	489,676	541		36,744	1,241,950
2013	156,751	48,324	*	332,692	41,286	2,044,538	768,592	2,446		31,368	3,425,996
2014	2,112	29,683	*	348,435	148,908	3,843,869	765,824	5,917	*	16,742	5,161,490
2015	901	86	*	96,102	86,972	1,490,127	377,135	1,619		27,969	2,080,911
2016	1,895	105	*	18,110	8,480	284,596	235,670	1,059		82,875	632,790

**Table 2. Commercial landings (pounds) by gear, 2016.**

[Source: NMFS Fisheries Statistics Division (queried 1/25/2018)]

Gear	Percent of Total
Gill nets	58.9%
Haul Seines	15.2%
Pound Net	2.9%
Trawl	2.1%
Other	20.9%

**Table 3. Recreational harvest (pounds) of spot by state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

<b>Year</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>FL</b>	<b>Total</b>
<b>1997</b>		8,608	50,781	401,275	1,263,447	722,869	254,795	2,071	13,961	2,717,807
<b>1998</b>			36,659	631,421	866,618	1,249,542	228,503	2,087	47,195	3,062,025
<b>1999</b>			10,886	272,293	244,498	646,663	391,402	2,275	84,511	1,652,528
<b>2000</b>	130,650	46,244	32,968	600,302	252,886	893,834	128,669	1,403	14,129	2,101,085
<b>2001</b>			20,110	629,862	523,202	1,773,671	346,879	1,719	284,706	3,580,149
<b>2002</b>			10,870	336,661	829,973	984,899	140,164	2,857	7,839	2,313,263
<b>2003</b>			14,386	1,690,502	875,729	1,714,159	227,821	5,711	26,504	4,554,812
<b>2004</b>			6,867	433,825	1,132,309	1,749,843	272,056	448	1,706	3,597,054
<b>2005</b>		24,612	68,743	656,191	1,373,341	1,102,398	124,954	945	8,344	3,359,528
<b>2006</b>		24,896	34,616	991,192	1,869,212	1,059,852	444,709	688	2,696	4,427,861
<b>2007</b>	600	0	74,548	1,276,466	3,239,708	982,463	174,059	2,026	13,697	5,763,567
<b>2008</b>		21,862	40,835	618,950	1,827,978	670,511	809,205	3,771	18,835	4,011,947
<b>2009</b>		2,222	48,269	805,894	823,928	363,998	209,974	5,895	9,081	2,269,261
<b>2010</b>		227,812	74,457	442,890	566,838	260,341	98,155	214	34,881	1,705,588
<b>2011</b>		755	52,095	313,721	1,091,139	410,317	215,960	171	51,760	2,135,918
<b>2012</b>	32,917	104,028	21,558	253,103	410,777	230,250	264,795	91	19,090	1,336,609
<b>2013</b>	6,131	119,348	107,362	277,173	1,321,886	460,928	301,307	1,614	42,267	2,638,016
<b>2014</b>		6,477	210,001	404,080	1,255,500	704,445	157,258	3,968	165,159	2,906,888
<b>2015</b>	0	0	3,274	187,061	378,959	395,268	1,202,646	575	134,444	2,302,227
<b>2016</b>		385	2,766	118,442	242,657	151,352	211,292	3,968	22,491	753,353

**Table 4. Recreational harvest (numbers) of spot by state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

Year	NY	NJ	DE	MD	VA	NC	SC	GA	FL	Total
<b>1997</b>		20,148	126,089	713,657	3,328,144	1,440,661	680,842	5,471	31,987	6,346,999
<b>1998</b>		0	96,389	1,327,259	2,023,756	2,865,190	489,068	6,788	120,389	6,928,839
<b>1999</b>		19,911	655,289	569,250	1,308,167	801,785	5,578	264,233		3,624,213
<b>2000</b>	498,470	281,481	65,952	1,389,505	527,259	1,924,107	246,291	2,950	40,908	4,976,923
<b>2001</b>		0	51,096	1,088,997	1,056,365	3,650,711	735,551	3,681	652,975	7,239,376
<b>2002</b>	0	0	22,013	690,515	1,601,837	2,586,313	393,597	6,987	25,907	5,327,169
<b>2003</b>		0	30,165	3,300,594	1,441,002	3,796,557	524,513	11,524	84,685	9,189,040
<b>2004</b>			17,494	867,589	1,717,416	3,825,768	729,851	1,563	6,789	7,166,470
<b>2005</b>		46,795	150,772	1,788,679	2,781,973	3,012,872	358,550	3,199	23,795	8,166,635
<b>2006</b>		68,168	110,608	2,895,783	3,584,930	2,978,506	1,170,610	1,761	7,990	10,818,356
<b>2007</b>	1,813	0	176,997	3,615,346	8,203,377	3,078,346	605,024	6,529	30,184	15,717,616
<b>2008</b>		132,473	133,996	1,892,115	4,398,473	1,843,343	2,731,815	8,903	58,731	11,199,849
<b>2009</b>		6,720	128,799	2,064,326	2,146,607	1,056,346	589,027	17,948	25,391	6,035,164
<b>2010</b>		650,259	214,180	1,164,091	1,669,843	834,560	322,885	851	94,670	4,951,339
<b>2011</b>		1,370	150,650	912,704	2,967,030	1,207,335	596,680	968	152,329	5,989,066
<b>2012</b>	39,912	627,663	65,555	766,145	1,350,153	784,272	1,001,664	348	65,598	4,701,310
<b>2013</b>	13,365	329,162	248,456	935,539	4,264,524	1,464,592	732,413	6,573	132,204	8,126,828
<b>2014</b>		13,062	344,930	1,254,029	3,832,452	2,111,880	466,106	15,620	608,813	8,646,892
<b>2015</b>	0	0	10,277	524,079	867,365	1,081,083	3,258,544	1,800	391,653	6,134,801
<b>2016</b>		1,164	9,474	466,856	1,058,410	513,320	690,469	15,620	27,579	2,782,892

**Table 5. Recreational releases (numbers) of spot by state, 1997-2016.** (Source: MRIP for 2015 and earlier and annual compliance reports for 2016. Data dating back to 1981 are available upon request to the NMFS Fisheries Statistics Division via MRIP.)

<b>Year</b>	<b>NY</b>	<b>NJ</b>	<b>DE</b>	<b>MD</b>	<b>VA</b>	<b>NC</b>	<b>SC</b>	<b>GA</b>	<b>FL</b>	<b>Total</b>
<b>1997</b>		21,512	88,751	1,316,341	1,365,809	450,663	245,349	990	18,102	3,507,517
<b>1998</b>		12,542	75,985	633,914	900,352	650,157	307,480	12,286	58,264	2,650,980
<b>1999</b>		15,789	618,742	339,988	633,112	86,894	10,675	530,849	2,236,049	
<b>2000</b>	157,991	16,633	30,522	1,080,310	502,923	481,995	115,682	17,376	54,388	2,457,820
<b>2001</b>		2,040	13,139	577,417	968,976	1,143,695	154,077	11,714	74,232	2,945,290
<b>2002</b>	2,127	3,331	27,220	501,111	481,765	671,669	103,914	20,038	44,584	1,855,759
<b>2003</b>		39,049	13,273	670,382	933,842	1,132,992	231,612	31,055	106,918	3,159,123
<b>2004</b>			39,998	383,292	882,136	1,257,887	210,215	12,536	9,427	2,795,491
<b>2005</b>		5,772	157,445	2,135,086	2,456,981	1,334,559	183,819	25,117	41,773	6,340,552
<b>2006</b>		65,244	92,864	1,355,280	1,371,751	2,588,647	496,870	3,774	21,755	5,996,185
<b>2007</b>	535	119,976	44,455	1,618,690	2,156,839	1,197,005	151,481	17,600	26,675	5,333,256
<b>2008</b>		1,166,532	98,304	1,737,665	1,487,665	1,322,408	188,746	25,908	128,942	6,156,170
<b>2009</b>		7,691	140,014	632,595	1,457,588	1,222,053	326,065	10,486	40,890	3,837,382
<b>2010</b>		191,745	72,216	1,155,003	1,155,882	871,054	166,679	562	57,924	3,671,065
<b>2011</b>		1,370	66,661	296,513	2,245,221	1,000,566	222,623	9,766	196,294	4,039,014
<b>2012</b>	37634	477938	60,334	919,896	1,145,960	759,081	142,093	3,968	373,916	3,920,820
<b>2013</b>	332	747,906	214,067	2,622,037	2,214,061	1,314,199	957,781	8,623	110,865	8,189,871
<b>2014</b>		15,323	78,691	565,679	1,185,087	890,831	427,049	27,224	575,251	3,765,135
<b>2015</b>	512	74,530	11,404	242,912	509,194	708,122	772,410	34,884	238,078	2,592,046
<b>2016</b>		1,903	7,300	229,987	489,621	498,424	384,284	27,224	238,647	1,877,390