

**Draft Addenda for Public Comment**

*Atlantic States Marine Fisheries Commission*

**DRAFT ADDENDUM I TO THE OMNIBUS AMENDMENT FOR  
SPOT AND DRAFT ADDENDUM II TO AMENDMENT I TO THE  
INTERSTATE FISHERY MANAGEMENT PLAN FOR ATLANTIC  
CROAKER**



*Vision: Sustainably Managing Atlantic Coastal Fisheries*

**Approved for Public Comment  
May 2014**

# Draft Addenda for Public Comment

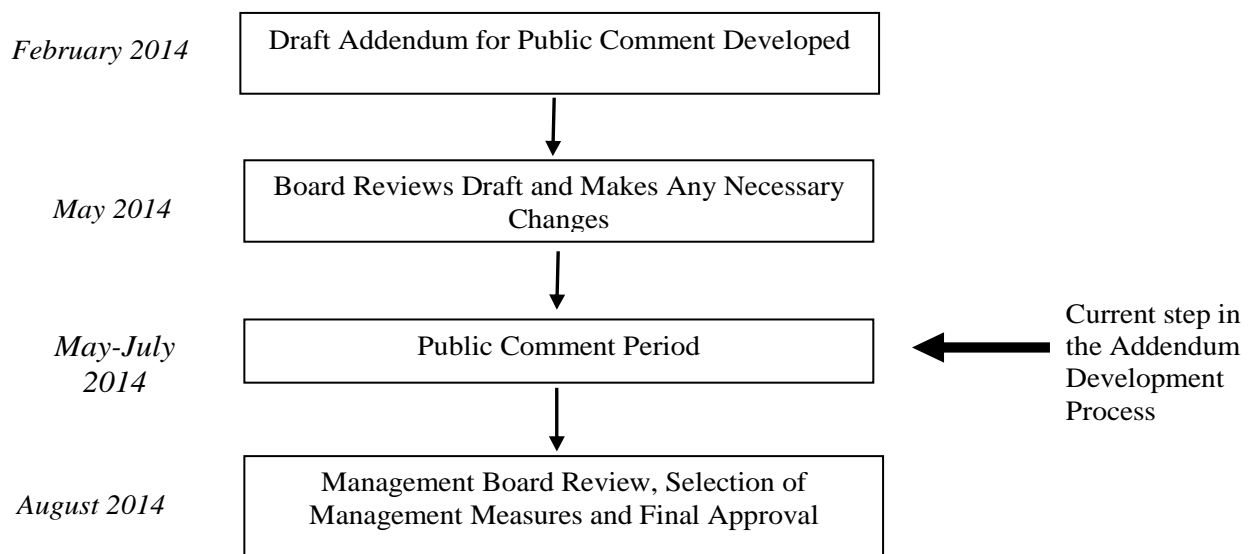
## Public Comment Process and Proposed Timeline

In February 2014, South Atlantic State/Federal Fisheries Management Board (herein after referred to as “Board”) approved a motion to initiate the development of an addendum to the Interstate Fishery Management Plans (FMP) for Atlantic Croaker and Spot to employ the traffic light approach in order to better manage these species. This draft addenda presents background on the Atlantic States Marine Fisheries Commission’s (ASMFC) management of Atlantic croaker and spot, the addendum process and timeline, and a statement of the problem. This document also provides options for Atlantic croaker and spot management for public consideration and comment.

The public is encouraged to submit comments regarding this document at any time during the public comment period. The final date comments will be accepted is **July 2, 2014 at 5:00 p.m.** Comments received after that time will not be included in the official record. You may submit public comment in one or more of the following ways:

1. Attend public hearings in your state or jurisdiction.
2. Refer comments to your state’s members on the South Atlantic State/Federal Fisheries Management Board or Advisory Panel, if applicable.
3. Mail, fax, or email written comment to the follow address:

Mail: Kirby Rootes-Murdy  
Atlantic States Marine Fisheries Commission      Email: [krootes-murdy@asmfc.org](mailto:krootes-murdy@asmfc.org)  
1050 North Highland Street, Suite 200A-N      (Subject: Croaker/Spot Draft Addendum)  
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# Draft Addenda for Public Comment

## 1.0 Introduction

ASMFC has coordinated interstate management of Atlantic croaker (*Micropogonias undulatus*) and spot (*Leiostomus xanthurus*) from 0-3 miles offshore since 1987. The management area extends from New Jersey to the east coast of Florida for Atlantic croaker and Delaware to the east coast of Florida for spot. Atlantic croaker is currently managed under Amendment 1 (2005) to the Atlantic Croaker FMP. Spot is managed under the Omnibus Amendment (2011) to the Spot, Spotted Seatrout, and Spanish Mackerel FMPs. Management authority from 3-200 miles from shore lies with NOAA Fisheries.

The purpose of this draft addenda is to consider alternative management programs for Atlantic croaker and spot with the application of the Traffic Light Approach (Caddy and Mahon, 1995; Caddy, 1998, 1999) as a precautionary management framework. The Board initiated this addenda at its February 2014 meeting following the development of the Traffic Light Approach (TLA) report and management memo by the Atlantic Croaker Technical Committee (TC) and Spot Plan Review Team (PRT). The TC and PRT recommend both species for a benchmark stock assessment with the proposed Traffic Light Approach providing guidance in the interim period.

## 2.0 Overview

### 2.1 Statement of the Problem

Under the current management program for Atlantic croaker, annual changes in recreational and commercial landings are compared with the average of the previous two years' index value. If the index value drops below 70% of the previous two year average, at a minimum, examination of the data is required by the TC.

Under current management program for spot, index values are compared to the 10<sup>th</sup> percentile of the indices time series. If two of these indices (one of which must be fishery-independent) are below the 10<sup>th</sup> percentile the PRT is to recommend to the Board that it consider management action.

Both the Atlantic croaker and spot management triggers are limited in their ability to illustrate long-term declines or increases in stock abundance. Under the current annual trigger exercises, the high degree of variability in year to year index values make it difficult to respond to gradual but persistent decreases in the trigger indices without a formal management framework in place.

### 2.2 Background

Atlantic croaker and spot are small sciaenid forage species that support commercial and recreational fisheries in the Mid- and South Atlantic regions. Both species migrate seasonally along the coast, moving northward and inshore to estuaries and bays during warmer months (spring-fall) and southward and offshore to more oceanic waters in the winter. Both species feed on planktonic organisms as post-larvae and young of the year, and as juveniles and adults prey on bottom dwelling organisms such as worms and crustaceans. While both species reach maturity by approximately age two, spot are considered a short-lived species rarely living beyond six years. Atlantic croaker can live up to 17 years, but more commonly live no longer than 10 years.

## Draft Addenda for Public Comment

The last benchmark stock assessment for Atlantic croaker was conducted in 2010. Unlike previous assessments it evaluated the resource as a single coastwide stock. The assessment indicated that the resource is not experiencing overfishing, biomass has increased, and age-structure has expanded since the late 1980s. However, it could not determine stock status given uncertain model estimates due to limited data on shrimp trawl bycatch and fishing mortality. While state level stock assessments for spot have been conducted over the years, a coastwide benchmark assessment has not yet been done. As such the stock status of spot is unknown.

Amendment 1 to the Atlantic Croaker FMP tasks the TC with conducting annual trigger exercises to assess the stock in years between benchmark stock assessments. This level of monitoring - with the stipulation of initiating a stock assessment based on the results of the trigger exercises - was enacted to enable the Board to better monitor changes in stock abundance. The Omnibus Amendment initiated annual trigger exercises to monitor the status of spot resource while also directing the Board to consider management action depending on the results of the trigger exercise. Without coastwide minimum management measures for either species, the current trigger exercises do little to provide effective management in between stock assessments.

Additional concerns have been raised over the significant level of bycatch and discards that may be occurring through the shrimp trawl fishery for both spot and Atlantic croaker (ASMFC 2010, 2011). While bycatch monitoring programs have been enacted in some states, such efforts have not encompassed the entire management range for either species. Though bycatch reduction devices have been introduced in the shrimp trawl fishery, there has not been observed increases in abundance for either spot or Atlantic croaker in recent years. Addressing these bycatch concerns, as well as the potential for increased regulatory discards in directed fisheries caused by changing the current management program for both species will need to be considered by the Board.

In relatively short-lived species like spot or a fast-growing, early maturing species like Atlantic croaker it is preferable to respond to persistent periodic declines that occur over several years rather than respond to rapid annual changes. Declines that occur over several years require close monitoring in order to anticipate when or if management action may be required. With this in mind, management responses that use techniques showing multi-year changes and trends would be more useful than simply examining year to year changes. Knowing the level at which to respond or initiate some type of management action should be based on long-term knowledge of general stock indications as well as how that stock has changed over time. The Traffic Light Approach offers the ability to illustrate trends based on relevant stock characteristics that can include historical abundance, life history parameters, and response to fishing pressure; this approach can also incorporate assessment based reference points.

### *Traffic Light Approach (TLA)*

The TLA was originally developed as a precautionary management framework for data poor fisheries whereby reference points could be developed that would allow for a reasonable level of resource management. The name comes from assigning a color (red, yellow, or green) to categorize relative levels of different indicators for either a fish population or a fishery. These indicators can be combined to form composite characteristics within similar categories and can include biological indicators, such as growth and reproduction; population level indicators, such as abundance and stock biomass estimates; or fishery indicators, such as harvest/landings and

## Draft Addenda for Public Comment

fishing mortality. However, each indicator must be evaluated separately to determine its appropriateness for use in management.

In general practice when applying the TLA, the green/yellow boundary is typically set at the long-term mean of the data series reference period (Halliday et al., 2001) of the indicator and the yellow/red boundary is set at 60% of the long-term mean, which would indicate a 40% decline from the series mean. Index values in the intermediate zone can be represented by a mixture of either yellow/green or yellow/red depending on where they fall in the transition zone. Since increasing proportions of red reflect decreasing trends away from the time series mean, the relative proportion of red of the indicator may offer one way of determining if any management response is necessary.

### *North Carolina Blue Crab Adaptive Management Framework*

One current example of the TLA was recently implemented for the North Carolina blue crab fishery (Table 1) by the North Carolina Division of Marine Fisheries (NCDMF). The NCDMF developed a management framework that applies the TLA to stock characteristics (adult abundance, recruit abundance, and production) derived from fishery-independent data (NCDMF surveys). Within the management framework, two levels of management response were developed based on the relative proportion of red within each characteristic. A moderate response is required when the traffic light characteristic meets or exceeds 50% red for three consecutive years and can result in actions that limit harvest such as restricting trip level harvest for sponge crabs, institution of minimum and/or maximum size limits for female crabs, or seasonal closures in spawning areas. An elevated management level response is initiated when the traffic light characteristic meets or exceeds 75% proportion of red for three consecutive years and can result in more restrictive management actions such as prohibition of sponge crabs, no peeler harvest, or closure of the fishery through season closures, gear restrictions or both.

**Table 1. North Carolina Blue Crab Adaptive Management Framework**

Stock Characteristic	Moderate management level (50% red)	Elevated management level (75% red)
<b>Adult abundance</b>	A1. Increase in minimum size limit for male and immature female crabs A2. Reduction in tolerance of sub-legal size blue crabs (to a minimum of 5%) and/or implement gear modifications to reduce sublegal catch A3. Eliminate harvest of v-apron immature hard crab females	A4. Closure of the fishery (season and/or gear) A5. Reduction in tolerance of sub-legal size blue crabs (to a minimum of 1%) and/or implement gear modifications to reduce sublegal catch A6. Time restrictions
<b>Recruit abundance</b>	R1. Establish a seasonal size limit on peeler crabs R2. Restrict trip level harvest of sponge crabs (tolerance, quantity, sponge color) R3. Close the crab spawning sanctuaries from September 1 to February 28 and may impose further restrictions	R4. Prohibit harvest of sponge crabs (all) and/or require sponge crab excluders in pots in specific areas R5. Expand existing and/or designate new crab spawning sanctuaries R6. Closure of the fishery (season and/or gear) R7. Gear modifications in the crab trawl fishery
<b>Production</b>	P1. Restrict trip level harvest of sponge crabs (tolerance, quantity, sponge color) P2. Minimum and/or maximum size limit for mature female crabs P3. Close the crab spawning sanctuaries from September 1 to February 28 and may impose further restrictions	P4. Prohibit harvest of sponge crabs (all) and/or require sponge crab excluders in pots for specific areas P5. Reduce peeler harvest (no white line peelers and/or peeler size limit) P6. Expand existing and/or designate new crab spawning sanctuaries P7. Closure of the fishery (season and/or gear)

## Draft Addenda for Public Comment

### *Applying the Traffic Light Approach to Atlantic Croaker & Spot*

The TLA has utility in addressing declines in harvest or production of Atlantic croaker and spot fisheries. Additionally, some of the management tools utilized in the blue crab adaptive management framework could be applied to the Atlantic croaker and spot fisheries, particularly size limits, possession limits, and seasonal closures. While the Blue Crab Adaptive Management Framework uses the TLA as a stock assessment, the TLA can provide management guidance in lieu of a current stock assessment for either spot or Atlantic croaker. The TC and PRT recommend both species for a benchmark stock assessment with the proposed TLA providing guidance in the interim period.

For Atlantic croaker and spot, the TC and PRT determined a more appropriate production characteristic for both species would be a 'harvest' characteristic comprised of composite commercial landings and recreational harvest data. These indices are currently used in the annual trigger exercises for these species. Similarly, a composite of fishery-independent survey indices could be used to derive the adult abundance characteristic. As the TLA is not considered a stock assessment for either species, the characteristics would be understood as population characteristics rather than stock characteristics. For both species, the TC and PRT would utilize the best available data and modify the TLA as needed in an annual review and update.

### **3.0 Management Options**

If options 2 or 3 are approved by Board action, they will replace the current annual trigger exercises for Atlantic croaker (under Amendment 1) and spot (under the Omnibus Amendment).

#### **3.1 Atlantic Croaker Management Options**

##### **Option 1 - Status Quo**

Under this option, there is no change to the annual trigger exercises. The current trigger exercises specify that if either the most recent year's commercial landings or recreational harvest are less than 70% of the previous two year average for their respective category a new stock assessment will be initiated. Additionally, if the TC notices substantial changes in one or more of the remaining trigger categories (biological data monitoring, commercial fisheries effort vs. landings, recreational catch rates, or surveys), the TC can also request that a stock assessment be conducted.

##### **Option 2 - Coastwide Management Framework based on threshold**

The thresholds for the proportion of red in the population characteristic that would determine a management response would be as follows:

30% - this represents moderate concern to the fishery with moderate management response

60% - this represents significant concern to the fishery with elevated management response

The TC determined that these thresholds currently serve as adequate proxies based on fishery-dependent and fishery-independent data during the last 30 years. A minimum threshold significantly higher than 30% may not work effectively in addressing declining trends. An example of when these thresholds have been met or exceeded during the last 20 years are provided in figures 1 and 2.

## Draft Addenda for Public Comment

**Sub-Option 2A. Single Population Characteristic criteria for Management Action**  
Management action should be enacted when either one of the population characteristics consecutively achieve or exceed a threshold during a three year period.

**Sub-Option 2B. Multiple Population Characteristic criteria for Management Action**  
This management option would require that both population characteristics achieve or exceed the proportion of threshold (Adult abundance 'AND' Harvest) for the specified three year period.

**Under option 2A or B** management measures would remain in place for three years to promote consistent coastwide measures and allow for sufficient time to evaluate population response (Table 2). Once management action has been taken, the thresholds will not be applied to the harvest characteristics in assessing the fishery for three years, as the fishery-dependent data may be influenced by management action.

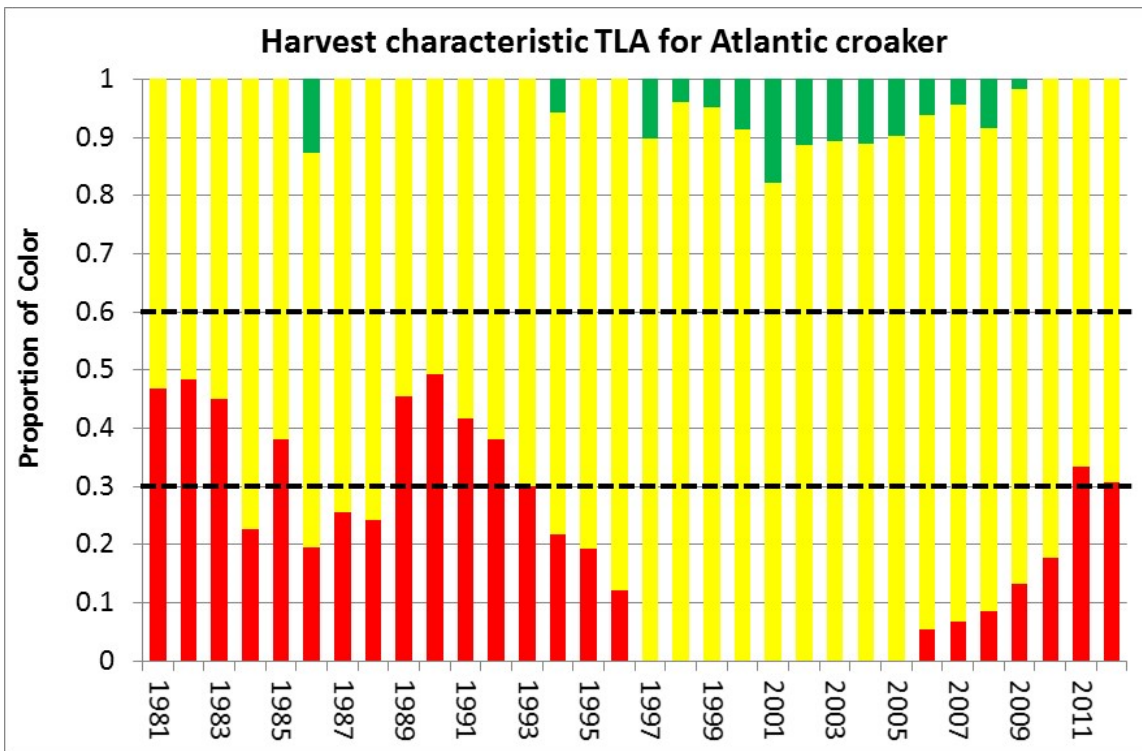


Figure 1. Composite TLA using Commercial Landings and Recreational Harvest for Atlantic Croaker with Management Thresholds of 30% and 60% Proportion Red (Base years 1996 – 2008).

## Draft Addenda for Public Comment

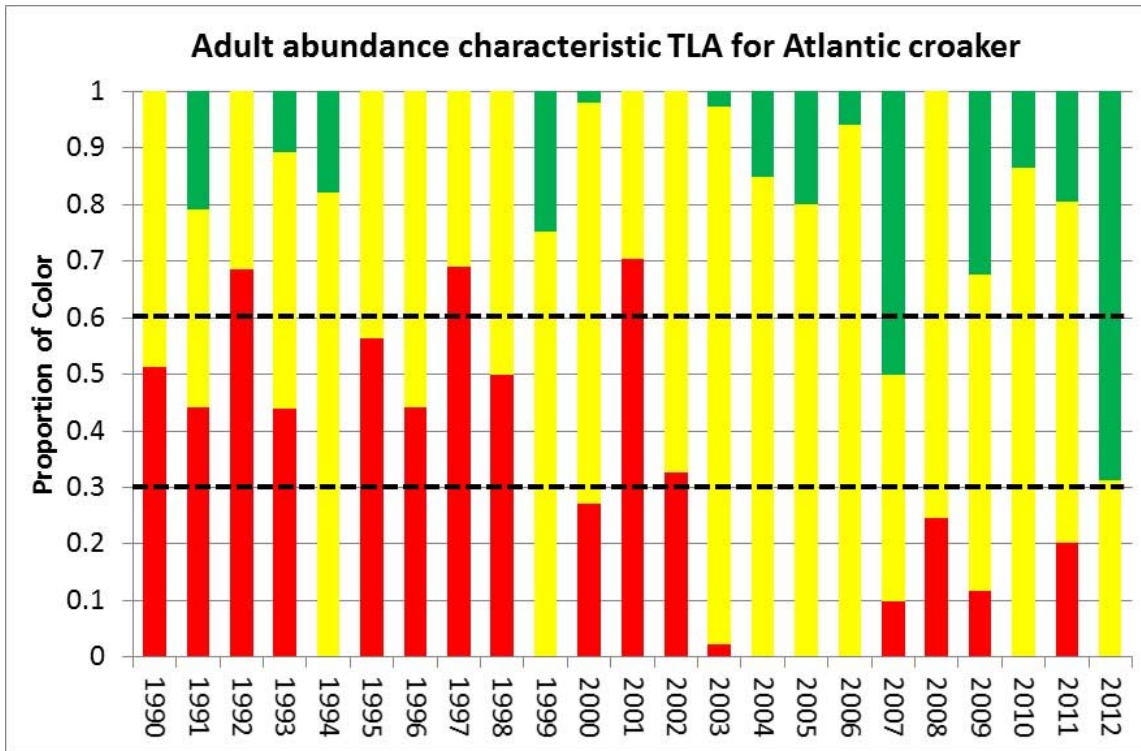


Figure 2. Composite TLA using Fishery-independent Surveys and Index for Atlantic Croaker with Management Thresholds of 30% and 60% proportion red (Base years 1996 – 2008).

### ***Management Measures***

The TC would recommend the appropriate percent reduction in harvest needed and measures to achieve the harvest reduction on a coastwide basis to be approved by the Board.

Under this option, possible management tools for consideration once the above thresholds are exceeded include bag limits, size restrictions, time & area closures, and gear restrictions. An example of each of these tools is provided in Table 2. Seasonal closures were determined from inspection of coastwide recreational harvest estimates during 2010-2012 and assessed based on the time period during which harvest was highest. Size limits were determined based on evidence of size at first maturity. Please note that the listed management tools under each sector (recreational and commercial) are considered as a set of measures to be implemented together. The Board will determine which set of measures, in consultation with the TC, are most appropriate for the needed management action, if this management option is approved.



## Draft Addenda for Public Comment

**Table 2. Coastwide Fishery Management Measures for Atlantic Croaker Management Framework**

Population Characteristic	Moderate management level (at least 30% red for 3 consecutive years)		Elevated management level (at least 60% red for 3 consecutive years)	
	<u>Recreational</u>	<u>Commercial</u>	<u>Recreational</u>	<u>Commercial</u>
<b>Adult abundance Or Harvest</b>	Size limit: 8” minimum (coastwide)  Bag limit: X number/day limit (coastwide)  Closures: state specific areas closure for 20 days after May 1 & before Oct 1	Catch limit: 8” minimum (coastwide); Trip Limit: X pounds/day limit (coastwide)  Closures: NA	Size limit: 9” minimum (coastwide)  Bag Limit: X number/day limit (coastwide) Closures: state specific areas closure from Aug 1-Sept 1  Gear Restrictions: (e.g., landings from gillnets prohibited from August 1-30)	Catch limit: 9” minimum (coastwide);  Trip Limit: X pounds/day limit (coastwide)  Closures: state specific areas from Sept 1-Nov 1 Gear Restrictions: (e.g., landings from gillnets prohibited from August 1-30)

### **Option 3 – State-by-State Management Framework Based on Threshold**

#### ***Proportion Thresholds***

Under this option, thresholds for the proportion of red in either population characteristic would be the same for initiating management action as under the Coastwide Management Framework (Table 2). These thresholds are listed below:

- 30%- this represents moderate concern to the fishery with moderate management response
- 60%- this represents significant concern to the fishery with elevated management response

#### **Sub-Option 3A. Single Population Characteristic criteria for Management Action**

This management option would require management action be enacted when either one of the population characteristics consecutively achieve or exceed a threshold during a three year period.

#### **Sub-Option 3B. Multiple Population Characteristic criteria for Management Action**

This management option would require that both population characteristics achieve or exceed the proportion of threshold (Adult abundance ‘AND’ Harvest) for the specified three year period.

**Under Sub-option 3A or B,** management measures would remain in place for three years to promote consistent measures and allow for sufficient time to evaluate population response.

## Draft Addenda for Public Comment

### *Management Measures*

The TC would recommend the appropriate percent reduction in harvest needed and measures to achieve the harvest reduction on a state-by-state basis rather than be applied coastwide to be approved by the Board. This allows the states to meet the individual needs of their state's fisheries. The application of an overall harvest percentage reduction would be proportional to the magnitude of exceeding the trigger, using a combination of management tools that include size limits, bag/trip limits, seasonal closures, and gear restrictions.

### **3.2 Spot Management Options**

#### **Option 1 - Status Quo**

Under this option, there is no change to annual trigger exercises. The current trigger exercises specify that the Board will be prompted to consider new management action when the terminal value in two of the relative abundance indices are equal to or below their respective data set's 10<sup>th</sup> percentile (for the entire time series). At least one of the relative abundance indices must be a fishery-independent index.

#### **Option 2 – Coastwide Management Framework based on threshold**

##### ***Proportion Thresholds***

The thresholds for the proportion of red in the population characteristic that would determine management response would be as follows:

30% - this represents moderate concern to the fishery with moderate management response

60% - this represents significant concern to the fishery with elevated management response

The PRT determined that these thresholds currently serve as adequate proxies based on fishery-dependent and fishery-independent data during the last 30 years. A minimum threshold significantly higher than 30% may not work effectively in addressing declining trends. An example of when these thresholds have been met or exceeded during the last 20 years are provided in figures 3 and 4.

##### **Sub-Option 2A. Single Population Characteristic criteria for Management Action**

This management option would require management action be enacted when either one of the population characteristics consecutively achieve or exceed a threshold during a two year period

##### **Sub-Option 2B. Multiple Population Characteristic criteria for Management Action**

This management option would require that both population characteristics achieve or exceed the proportion of threshold (Adult abundance 'AND' Harvest) for the specified two year period.

**Under sub-option 2A or B,** Management measures would remain in place for two years to promote consistent measures and allow for sufficient time to evaluate population response (Table 3). Once management action has been taken, the thresholds will not be applied to the harvest characteristics in assessing the fishery for two years, as the fisheries dependent data may be influenced by management action.

## Draft Addenda for Public Comment

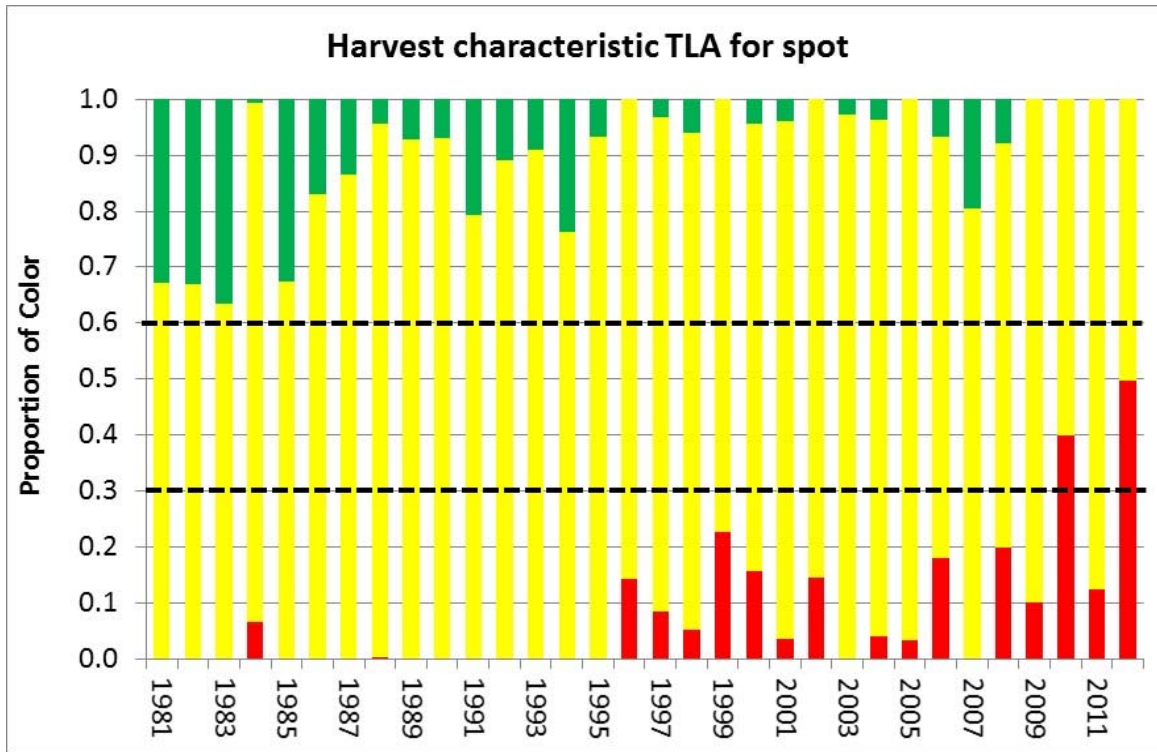


Figure 3. Composite TLA using Commercial Landings and Recreational Harvest for Spot with Management Thresholds of 30% and 60% Proportion Red (Base years 1989 – 2012).

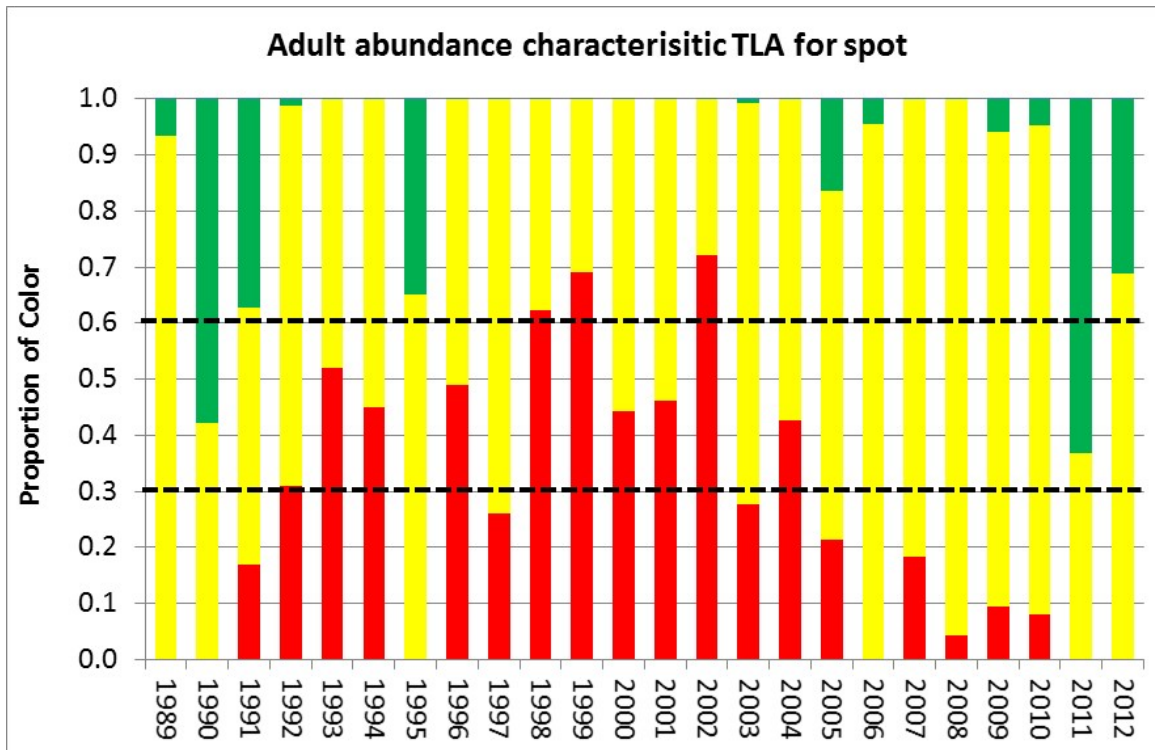


Figure 4. Composite TLA using Fishery-independent Surveys and Index for Spot with Management Thresholds of 30% and 60% Proportion Red (Base years 1989 – 2012).

## Draft Addenda for Public Comment

### *Management Measures*

The PRT would recommend the appropriate percent reduction in harvest needed and measures to achieve the harvest reduction on a coastwide basis to be approved by the Board.

Because the Omnibus Amendment does not have reference points for spot management it is difficult to determine the impact of proposed measures particularly in light of the observed natural cycles of abundance. Limited options are available to constrain effort in spot fisheries. Reduction of landings through seasonal closures and timed gear restrictions may provide some benefits for production of the stock. An example of how each of these measures may be implemented is provided in Table 3. Seasonal closures were determined from inspection of coastwide recreational harvest estimates during 2010-2012 and assessed based on when harvest is highest. Each level of management response could be enacted based on observed characteristics during two consecutive years and subsequently hold management measures in place for two years to provide consistent coastwide measures and allow for sufficient time to evaluate population response. A two year period rather than three was considered more appropriate given the short life span of spot. Implementation of these measures, while potentially improving abundance, may allow for an expansion of the age structure for spot, as current data indicate that few spot are observed beyond age three although this species may live four or more years.

Please note that the listed management tools under each sector (recreational and commercial) are considered as a set of measures to be implemented together. The Board will determine which set of measures, in consultation with the PRT, are most appropriate for the needed management action, if this management option is approved.

**Table 3. Coastwide Fishery Management Measures for Spot Management Framework**

Population Characteristic	Moderate management level (30% red for 2 consecutive years)		Elevated management level (60% red for 2 consecutive years)	
	<u>Recreational</u>	<u>Commercial</u>	<u>Recreational</u>	<u>Commercial</u>
<b>Adult Abundance Or Harvest</b>	Minimum Size Limit: 6” Bag Limit: X” Closures: May 1- June 15	Trip limit: X pounds/trip Closures: NA	Minimum Size Limit: 6” Bag Limit: X Closures: Sept 1- Oct 15	Trip limit: <X pounds/trip Closures: Sept 1- Oct 1 Gear Restrictions: (e.g., gillnets prohibited from Sept 1-30)

### **Option 3 – State-by-State Management Framework Based on Threshold**

Under this option, thresholds for the proportion of red in either population characteristic would be as the same for initiating management action as under the Coastwide Management Framework (Table 3). These thresholds are listed below:

- 30%- this represents moderate concern to the fishery with moderate management response
- 60%- this represents significant concern to the fishery with elevated management response

## Draft Addenda for Public Comment

### **Sub-Option 3A. Single Population Characteristic criteria for Management Action**

This management option would require management action be enacted when either one of the population characteristics consecutively achieve or exceed a threshold during a two year period.

### **Sub-Option 3B. Multiple Population Characteristic criteria for Management Action**

This management option would require that both population characteristics achieve or exceed the proportion of threshold (Adult abundance 'AND' Harvest) for the specified two year period.

**Under sub-option 3A or B**, management measures would remain in place for two years to promote consistent measures and allow for sufficient time to evaluate population response. Once management action has been taken, the thresholds will not be applied to the harvest characteristics in assessing the fishery for two years, as the fishery-dependent data may be influenced by management action.

### ***Management Measures***

The PRT would recommend the appropriate percent reduction in harvest needed and measures to achieve the harvest reduction on a state-by-state basis rather than be applied coastwide to be approved by the Board. This allows the states to meet the individual needs of their state's fisheries. The application of an overall harvest percentage reduction would be proportional to the magnitude of exceeding the trigger, using a combination of management tools that include size limits, bag/trip limits, seasonal closures, and gear restrictions.

#### **4.0 Compliance: To be determined by the Board**

##### 4.1 Atlantic Croaker

##### 4.2 Spot

## Draft Addenda for Public Comment

### 5.0 References

- ASMFC, 2005. Amendment 1 to the Interstate Fishery Management Plan for Atlantic Croaker. Approved 2005. 92pp.
- ASMFC, 2010. Atlantic Croaker 2010 Benchmark Stock Assessment. 366pp.
- ASMFC, 2011. Omnibus Amendment to the Interstate Fishery Management Plans for Spanish Mackerel, Spot, and Spotted Seatrout. Approved 2011. 131pp.
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- Halliday, R.G., L.P. Fanning, and R.K. Mohn. 2001. Use of the Traffic Light Method in Fishery Management Planning. Canadian Science Advisory Secretariat, Research Document No. 108, 41pp.