



Atlantic States Marine Fisheries Commission

1050 N. Highland Street • Suite 200A-N • Arlington, VA 22201
703.842.0740 • 703.842.0741 (fax) • www.asmf.org

MEMORANDUM

March 27, 2014

To: South Atlantic Species Advisory Panel
From: Kirby Rootes-Murdy, FMP Coordinator
RE: AP call on Spot & Atlantic Croaker Draft Addendum scheduled for Friday April 4th 2014 at 10:00am

This memorandum serves as notice of an Advisory Panel call to review the Atlantic croaker and spot Draft Addendum on **Friday, April 4th 2014 at 10:00am**.

At the Commission's February 2014 Winter Meeting, the South Atlantic State/Federal Fisheries Management Board initiated a draft addendum to the Spot and Atlantic Croaker Fishery Management Plans. The purpose of this addendum is to provide options for management of Atlantic croaker and spot using the traffic light approach. As this draft addendum is being developed, it would be most helpful for the South Atlantic Species Advisory Panel (AP) members to provide input at this current stage. Attached is the call agenda and draft addendum.

If you have any questions, please contact Kirby Rootes-Murdy, FMP Coordinator by phone: 703-842-0723 or by email to krootes-murdy@asmfc.org

M14-21

Atlantic States Marine Fisheries Commission

Spot & Atlantic Croaker Conference Call – 4.4.2014

10:00am – 12:00pm

Draft Agenda

The times listed are approximate; the order in which these items will be taken is subject to change; other items may be added as necessary.

- | | |
|--|---------|
| 1) Welcome | 10:00am |
| 2) Review Spot and Atlantic Croaker Draft Addendum document | 10:10am |
| a) Overview (<i>K.Rootes-Murdy</i>) | |
| b) Discussion | |
| a. Questions | |
| b. Comments | |
| c. Recommendations | |
| 3) Next Steps | 11:30am |
| a) Presentation to the Board | |
| b) Public Comment Timetable | |
| 4) Elect Chairman | 11:45am |
| 4) Any other business/adjourn | 11:55am |

To join the call, please dial: **1-888-394-8197**,
followed by the passcode: **499811**

To join the webinar, use the following URL:
<https://www3.gotomeeting.com/join/552173822>

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Atlantic States Marine Fisheries Commission

**DRAFT ADDENDUM TO THE SPOT AND ATLANTIC
CROAKER FISHERY MANAGEMENT PLANS**



This draft document was developed for Management Board review and discussion.

This document is not intended to solicit public comment as part of the Commission/State formal public input process. Comments on this draft document may be given at the appropriate time on the agenda during the scheduled meeting.

If approved, a public comment period will be established to solicit input on the issues contained in the document.

Vision: Sustainably Managing Atlantic Coastal Fisheries

February 2014

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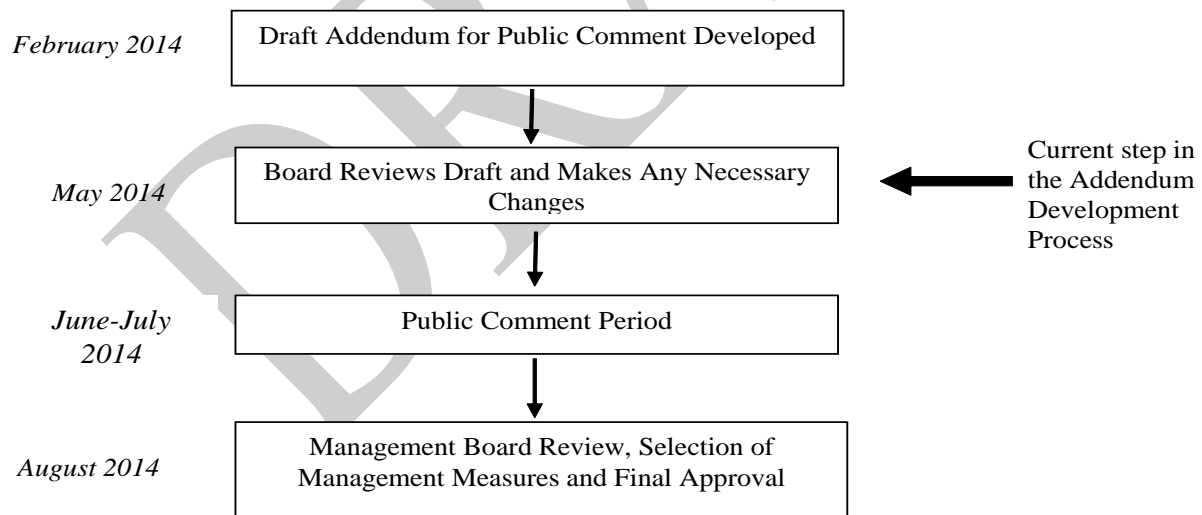
Public Comment Process and Proposed Timeline

In February 2014, South Atlantic State/Federal 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 addendum 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 addendum process. The final date comments will be accepted is **Month Day Year**. Comments may be submitted by mail, email, or fax. If you have any questions or would like to submit comment, please use the contact information below.

Mail: Kirby Rootes-Murdy
Atlantic States Marine Fisheries Commission
1050 North Highland Street, Suite 200A-N
Arlington, VA 22201

Email: krootes-murdy@asmfc.org
Phone: (703) 842-0740
Fax: (703) 842-0741



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1.0 Introduction

The 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 Fishery Management Plan (FMP). Spot is managed under the Omnibus Amendment (2011) for spot, spotted seatrout, and Spanish mackerel. Management authority from 3-200 miles from shore lies with NOAA Fisheries.

The purpose of this addendum is to consider alternative management programs for both species with the application of the Traffic Light Approach (Caddy and Mahon, 1995; Caddy, 1998, 1999) as a precautionary management framework. The Board initiated this addendum 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).

2.0 Overview

2.1 Statement of the problem

The current management scheme for Atlantic croaker compares annual changes in various trigger indices with the previous two year's average 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 Atlantic croaker TC. For spot, index values are compared to the 10th percentile of the indices time series. If two of these indices (one of which must be a fishery independent index) are below the 10th percentile the PRT is to recommend the South Atlantic Board consider management action. Neither of these management trigger schemes illustrate long term declines or increases in stock abundance since they don't make comparisons over longer time periods. Under the current annual trigger exercises, the high degree of variability in year to year index values and harvest estimates make it difficult to respond to gradual, but persistent decreases in the trigger indices beyond a general review by the TC or PRT without a formal management framework in place.

2.2 Background

With the development of Amendment 1 to the Atlantic croaker FMP in 2005, the TC was tasked 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 in part to address the lack of available management measures while bringing the FMP into compliance with the Atlantic Coastal Fisheries Cooperative Management Act (ACFCMA). The Omnibus Amendment brought the Spot FMP into compliance with the ACFCMA by initiating annual trigger exercises to monitor the status of the stock while also tasking the Board to consider management action depending on the results of the

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trigger exercise. Without coastwide minimum management measures for either species, the current trigger exercises do little to provide effective guidance in light of declining trends. 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), as well as levels of discards in directed fisheries. While there has been efforts to enact bycatch monitoring programs, such efforts have not encompassed the entire management range for either species. Changes to the management program for both species will need to consider the potential of increased regulatory discards that could develop in addition to the current bycatch concerns.

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 in management index triggers. 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, a management response scheme which uses techniques that illustrate multi-year changes and trends would be more useful than simply examining year to year changes against the previous year or sharp declines in a single year compared to the time series. 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 TLA 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

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

In general practice with the TLA, the green/yellow boundary is typically set at the long term mean of the data series reference period 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 decreases, the relative proportion of red in the index may offer one way of determining if any management response is necessary.

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North Carolina Blue Crab Adaptive Management Framework

One current example of incorporating the TLA was recently implemented for the North Carolina blue crab fishery (Table 1). This framework applies the TLA to a production characteristic (spawning stock and general stock indicators from multiple fishery independent surveys), as well as an adult abundance characteristic (from individual fishery independent surveys that catch adults). There are two levels of management response that are 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 is required 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

Characteristic	Moderate management level (50% red)	Elevated management level (75% red)
Adult abundance	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
Recruit abundance	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
Production	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)

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Applying the Traffic Light Approach to Atlantic croaker & spot

The application of tiered thresholds has utility in addressing declines in harvest or production of the 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.

For Atlantic croaker and spot, a more appropriate production characteristic is the 'harvest' characteristic comprised of commercial and recreational harvest data; such as indices are currently used in the annual trigger exercises for these species (Figures 1 and 3). Similarly, the composite of fishery independent survey indices (Figures 2 and 4) could be used to derive the adult abundance characteristic.

3.0 Management Options

If options 3.1.2 or 3.1.3 and 3.2.2 or 3.2.3 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). Regardless of which option is taken, the Atlantic croaker TC and spot PRT emphasize the need for benchmark stock assessments for both species.

3.1 Croaker Management Options

3.1.1 Status Quo

Under this option, there is no change to the annual trigger exercises that specify if 2 of 3 indices falls below 70% of the previous two year average for either the commercial or recreational landings a stock assessment is triggered.

3.1.2 Management Framework based on threshold

Proportion Thresholds

In considering appropriate thresholds for the proportion of red necessary to enact management measures, the Atlantic croaker TC and spot PRT determined that approximately 30% (moderate concern) and approx. 60% (elevated concern) currently serve as adequate proxies based on independent and dependent fishery data during the last 30 years to be used in assessing the harvest and abundance characteristics for management action. The Atlantic croaker TC and spot PRT recommend that management action should be enacted by either of the characteristics exceeding the thresholds during a defined period (consecutively achieving or exceeding the threshold, not average of the time series), and not require both. Once management action has been taken, the thresholds will not be applied to the harvest characteristics in assessing the fishery during the management time period. The harvest characteristic cannot effectively be assessed during the management time due to confounding effect from management action. Thresholds significantly higher than these may not work effectively in addressing declining trends. Further analysis may be needed to establish effective thresholds for management.

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Management Measures

The tiered approach based on the TLA may allow for conservative measures to be utilized and still provide flexibility for more or less restrictive measures depending on performance. Effort controls may not be a viable option as a management tool for Atlantic croaker recreational and commercial fisheries due to the inability to enact limited entry, define the appropriate unit of effective effort, or real-time monitoring of quotas. Possible management tools for consideration may be bag limits, size restrictions, time & area closures, and gear modifications. An example of each of these tools is provided in Table 2. Seasonal closures (as listed in Table 2) were determined from inspection of coastwide recreational harvest estimates during 2010-2012 and assessed based on when harvest is highest. Size limits were determined based on evidence of size at first maturity. Similar to the NC blue crab adaptive management framework, each level of response would be implemented after considering TLA thresholds during the previous 3 years. Management measures would remain in place for 3 years to promote consistent coastwide measures and allow for sufficient time to evaluate population response. The decision to use a tiered approach or only one level will be at the Board’s discretion.

2. Fishery Management Measures for Atlantic croaker Management Framework

Characteristic	Moderate management level (30% red for 3 consecutive years)		Elevated management level (60% red for 3 consecutive years)	
	<u>Recreational</u>	<u>Commercial</u>	<u>Recreational</u>	<u>Commercial</u>
Adult abundance Or Harvest	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:	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)

3.1.3 Conservation Equivalency

The application of an overall harvest percentage reduction as recommended by the Technical Committee, proportional to the magnitude of exceeding the threshold, using a

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combination of management tools that include size limits, bag/trip limits, seasonal closures, and gear restrictions can be an option for state-by-state management rather than the implementation of coastwide measures at each tiered level.

3.2 Spot Management Options

3.2.1 Status Quo

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

3.2.2 Management Framework based on threshold

Proportion Thresholds

In considering appropriate thresholds for the proportion of red necessary to enact management measures, the Atlantic croaker TC and spot PRT determined that approximately 30% (moderate concern) and approx. 60% (elevated concern) currently serve as adequate proxies based on independent and dependent fishery data during the last 30 years to be used in assessing the harvest and abundance characteristics for management action. The Atlantic croaker TC and spot PRT recommend that management action should be enacted by either of the characteristics exceeding the thresholds during a defined period (consecutively achieving or exceeding the threshold, not average of the time series), and not require both. Once management action has been taken, the thresholds will not be applied to the harvest characteristics in assessing the fishery during the management time period. The harvest characteristic cannot effectively be assessed during the management time due to confounding effect from management action. . Thresholds significantly higher than these may not work effectively in addressing declining trends. Further analysis may be needed to establish effective thresholds for management.

Management Measures

Because spot do not have reference points for 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 (as listed in Table 2) were determined from inspection of coastwide recreational harvest estimates during 2010-2012 and assessed based on when harvest is highest. Similar to the Atlantic croaker example & NC blue crab adaptive management framework, each level of management response could be enacted based on observed characteristics during 2 consecutive years and subsequently hold management measures in place for 2 years to provide consistent coastwide measures and allow for sufficient time to evaluate population response. A 2 year period rather than 3 was considered more appropriate given the short life history 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 if

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any spot are observed beyond age 3 although this species may live 4 or more years.

3. Fishery Management Measures for Spot Management Framework

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>
Adult Abundance Or Harvest	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)

3.2.3 Conservation Equivalency

The application of an overall harvest percentage reduction as recommended by the Technical Committee, 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 can be an option for state-by-state management rather than the implementation of coastwide measures at each tiered level.

4.0 Compliance: To be determined by the Board

4.1 Atlantic Croaker

4.2 Spot

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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.

Caddy, J.F. 1998. A short review of precautionary reference points and some proposals for their use in data-poor situations. FAO Fisheries Technical Paper No. 379, 30pp .

Caddy, J.F. 1999. Deciding on precautionary management measures for a stock based on a suite of Limit Reference Points (LRPs) as a basis for a multi-LRP harvest law. NAFO Sci. Council Studies, 32:55-68.

Caddy, J.F. 2002. Limit reference points, traffic lights, and holistic approaches to fisheries management with minimal stock assessment input. Fisheries Research 56:133-137.

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6.0 Figures

Figure 1. Composite TLA using Commercial Landings and Recreational Harvest for Atlantic croaker (Base years 1996 – 2008).

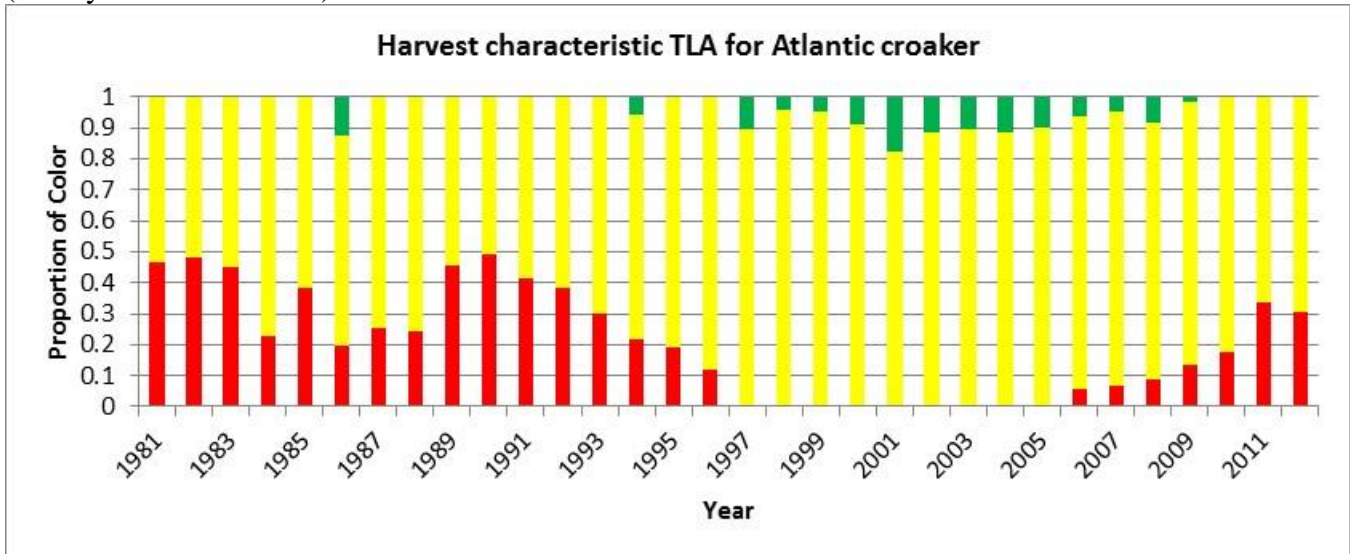
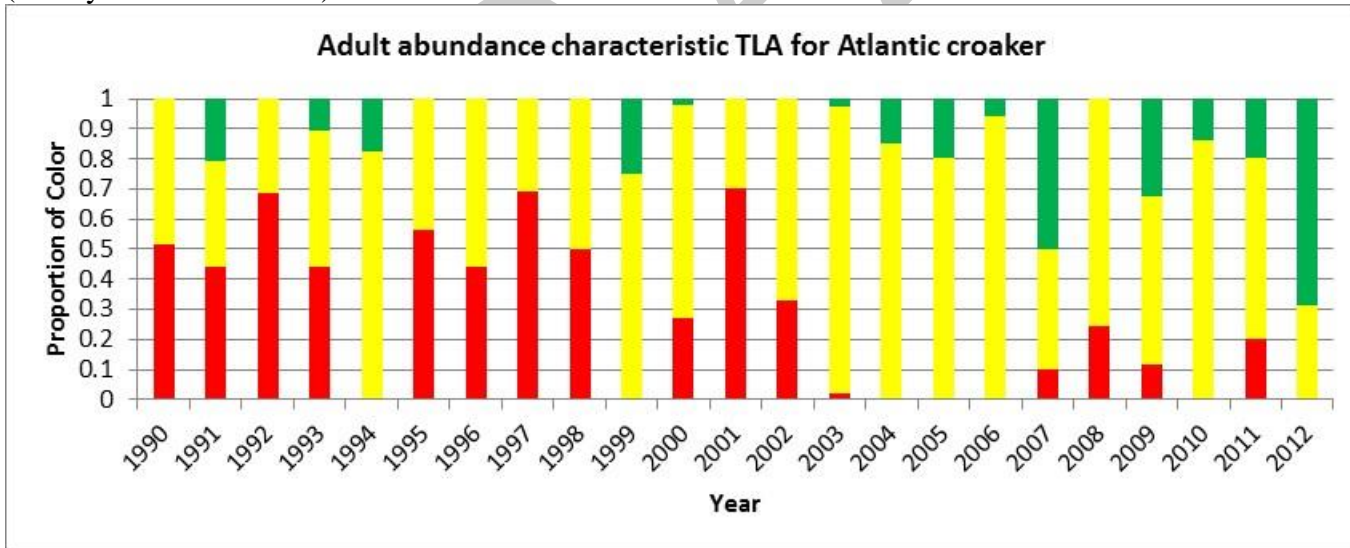


Figure 2. Composite TLA using Fishery Independent Surveys and Index for Atlantic croaker (Base years 1996 – 2008).



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Figure 3. Composite TLA using Commercial Landings and Recreational Harvest for spot
(Base years 1989 – 2012).

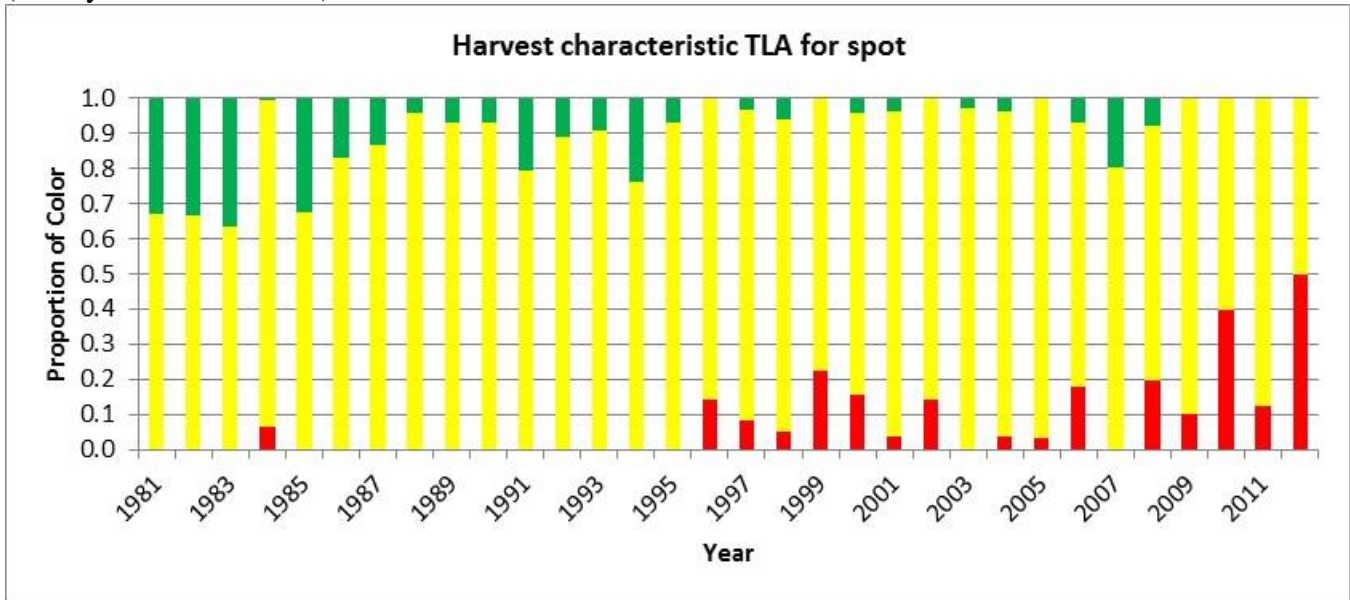


Figure 4. Composite TLA using Fishery Independent Surveys and Index for spot
(Base years 1989 – 2012).

