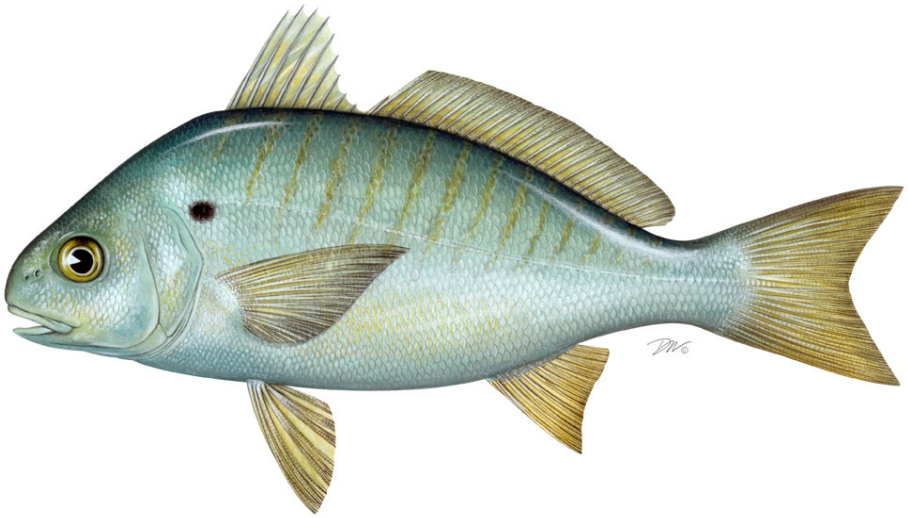
Atlantic States Marine Fisheries Commission

DRAFT ADDENDUM III TO THE OMNIBUS AMENDMENT TO THE INTERSTATE FISHERY MANAGEMENT PLANS FOR SPANISH MACKEREL, SPOT, AND SPOTTED SEATROUT FOR PUBLIC COMMENT

Revisions to Spot Management using the Traffic Light Approach



October 2019

Sustainable and Cooperative Management of Atlantic Coastal Fisheries

Draft Addendum for Public Comment

Public Comment Process and Proposed Timeline

In May 2019, the South Atlantic State/Federal Fisheries Management Board (Board) initiated the development of an addendum to the Omnibus Amendment to the Interstate Fishery Management Plans for Spanish Mackerel, Spot, and Spotted Seatrout to incorporate updates to the annual Traffic Light Approach and associated management for spot. This Draft Addendum presents background on the Atlantic States Marine Fisheries Commission's (Commission) management of spot, the addendum process and timeline, and a statement of the problem. This document also provides management options 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 **January 10, 2020 at 5:00 p.m**. Comments may be submitted at state public hearings or by mail, email, or fax. If you have any questions or would like to submit comment, please use the contact information below.

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Commission's Process and Timeline

May 2019	South Atlantic Board Tasks PDT to Develop Draft Addendum III
May 2019 – October 2019	PDT Develops Draft Addendum III for Public Comment
October 2019	South Atlantic Board Reviews Draft Addendum III and Considers Its Approval for Public Comment
November 2019 – January 10, 2020	**Board Solicits Public Comment and States Conduct Public Hearings**
February 2020	Board Reviews Public Comment, Selects Management Options and Considers Final Approval of Addendum III
TBD	Provisions of Addendum III are Implemented

Draft Addendum for Public Comment

1.0 INTRODUCTION

The Atlantic States Marine Fisheries Commission (ASMFC) is responsible for managing spot (*Leiostomus xanthurus*) in state waters (0-3 miles from shore) under the authority of the Atlantic Coastal Fisheries Cooperative Management Act, and has done so through an interstate fishery management plan (FMP) since 1987. Spot are currently managed under the Omnibus Amendment to the Spot, Spotted Seatrout, and Spanish Mackerel FMPs and Addendum II. The states of New Jersey through Florida have a declared interest in the fishery and are responsible for implementing management measures consistent with the interstate FMP as members of the South Atlantic State/Federal Fisheries Management Board (Board).

Addendum II established the Traffic Light Approach (TLA) as a precautionary management framework to evaluate fishery trends and develop management actions. The TLA was originally developed as a management tool for data-poor fisheries, and its application to spot is described in further detail in *Section 2.2.2*.

In recent years, the spot fishery has experienced significant declines in harvest, while such declines have not been evident in fishery-independent survey abundance indices used in the TLA. Furthermore, a 2017 stock assessment was not recommended for management use, due partially to conflicting signals between harvest and fishery-independent indices. These conflicting signals indicate the harvest and fishery-independent characteristics may not be representing comparable aspects or components of the stock, thus making management advice from the TLA unclear.

In response to the recent TLA and assessment results, a 2018 report from the Spot Plan Review Team (PRT) recommended five updates to the TLA. Additionally, a 2018 report from the Atlantic Croaker and Spot Plan Development Team (PDT) discussed how the management responses required by Addendum II could be updated to better reflect stock characteristics and develop more achievable management goals. Draft Addendum III addresses the recommendations of the PRT and PDT by incorporating PRT-recommended updates to the TLA analysis and proposing changes to the TLA triggers and management program.

2.0 OVERVIEW

2.1 Statement of the Problem

The TLA has been used since 2014 to monitor the spot population. The lack of a recent assessment approved for management use makes this approach the prominent source of management advice. While strong declines in harvest and reports of poor fishing have prompted concern, management action has not been triggered through the TLA because similar declines have not been observed in abundance indices. These conflicting signals suggest the current abundance indices used in the TLA may not adequately represent coastwide adult abundance and the TLA may not be sensitive enough to trigger management action when changes to the fishery occur that should trigger action. Additionally, current management lacks

specificity in measures implemented if management action is triggered and attainability by requiring a percent increase in abundance be achieved through a percent reduction in harvest derived from the TLA analysis. Draft Addendum III incorporates PRT-recommended updates to improve the TLA analysis and proposes alternatives to the current management triggers and responses.

2.2 Background

Spot are a small sciaenid forage species that support commercial and recreational fisheries in the Mid- and South Atlantic regions. Spot 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. Spot 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. Spot reach maturity by approximately age two and are considered a short-lived species, rarely living beyond six years.

2.2.1 Stock Status and Assessment

While state level stock assessments for spot have been conducted over the years, a coastwide benchmark assessment has not been approved for management use. The most recent coastwide assessment, conducted in 2017, was not recommended for management use by the Peer Review Panel. Therefore, current stock status is unknown, although the Peer Review Panel did not indicate problems in the spot fishery that would require immediate management action. The Peer Review Panel did recommend continued evaluation of the fishery using the annual TLA. The Peer Review Panel also noted that estimated discards from the shrimp trawl fishery were derived using current and supported methods. These estimates had not previously been made, but they suggested that shrimp trawl discards constitute a majority of spot removals.

One of the reasons the 2017 stock assessment was not approved for management use was due to conflicting signals in harvest and abundance characteristics. Theoretically, increases in adult abundance should result in more fish available to be caught by the fishery; thus, fishing would be more efficient (greater catch per unit effort) and harvest would increase in a pattern similar to adult abundance. However, several of the most recent abundance indices have shown increases while harvest has declined to some of the lowest levels on record. One factor that has contributed to overestimates of adult abundance is an increase in the number of juveniles misclassified as adults in surveys that historically have typically caught adults.

2.2.2 Traffic Light Approach as Applied to Spot

The TLA was originally developed as a precautionary management framework for data poor fisheries whereby reference points could be developed that would allow for some level of evaluation and management of the fishery, particularly in the absence of or between stock assessments. 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. Examples of indicators include growth and reproduction parameters, abundance and stock biomass estimates, recreational harvest, commercial landings, or fishing mortality. Additionally, the indicators can be combined to form composite characteristics within similar categories (e.g. biological, population estimates, or combined fisheries harvest). 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 average for a reference time period and the yellow/red boundary is set at 60% of the reference period average, which would indicate a 40% decline (Halliday et al., 2001). 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.

Proportions of green and red for an individual component (e.g. recreational harvest) are calculated based on summary statistics for a predefined reference period. Annual values are compared to the reference period average to determine whether they are higher, lower, or the same. If the value is greater than the reference period average, a linear model is used to estimate the proportion green, such that greater values have a higher proportion green. If the value is less than the average, a linear model estimates the proportion red, such that lesser values have a higher proportion red. Yellow proportions are calculated as one minus the proportion green minus the proportion red and will be 100% yellow if the value equals the reference period average. Since an increasing percentage of red reflects a decreased value (e.g. harvest or abundance) below the reference period average, the proportion red offers a way of determining if any management response is necessary.

The color proportions in a composite index are averages of the color proportions for the individual components combined to make up the composite index. For example, if there are two components (e.g. recreational and commercial harvest) combined for the composite index, the proportion red is the average of the proportion red for both components, the proportion green is the average of the proportion green for both components, and the proportion yellow is the average of the proportion yellow for both components.

As an example of how to interpret TLA figures, consider year 2018 of Figure 1 (*Section 2.2.4*) which depicts the coastwide composite harvest characteristic of the Addendum II TLA. Table 1 lists specific values considered for this characteristic and year. The reference period is 1989-2012, with average annual harvests during this time period being 5.6 million pounds and 8.6 million pounds for the commercial and recreational sectors, respectively. In 2018, commercial harvest was 878 thousand pounds. This value is less than the reference period average. Therefore, a linear regression was used to calculate the percent red based on how much less the 2018 value is than the reference period average, resulting in 69.2% red, 30.8% yellow, and 0% green. In 2018, recreational harvest was 3.1 million pounds. This value is less than the reference period average. Therefore, a linear regression was used to calculate the percent red based on how much less the 2018 value is than the reference period average, resulting in 50.5% red, 49.5% yellow, and 0% green. Averaging of sector harvest characteristic values for each

color results in the final composite characteristic percentages: 59.8% red, 40.2% yellow, and 0% green.

Table 1. Commercial and recreational harvests and Traffic Light Approach (TLA) percentages for the 2018 spot harvest characteristics (commercial, recreational, and composite), using the 1989-2012 reference period.

1989-2012 Coastwide Average Commercial Harvest	5,574,170 pounds
2018 Coastwide Commercial Harvest	878,077 pounds
2018 Commercial Harvest TLA Percentages (Red, Yellow, Green)	69.2%, 30.8%, 0%
1989-2012 Coastwide Average Recreational Harvest	8,610,835 pounds
2018 Coastwide Recreational Harvest	3,068,469 pounds
2018 Recreational Harvest TLA Percentages (Red, Yellow, Green)	50.5%, 49.5%, 0%
2018 Composite Harvest TLA Percentages (Red, Yellow, Green)	59.8%, 40.2%, 0%

For spot, the TLA is used to provide management guidance in between stock assessments. It has two parts, a harvest characteristic, comprised of commercial landings and recreational harvest data, and an abundance characteristic, comprised of fishery-independent abundance indices. The PRT annually runs the TLA and includes the results in the annual FMP Review. To utilize the best data available, the PRT is able to modify the TLA as needed through annual reviews and updates.

2.2.3 Recommended Changes to the TLA and Management Responses

Following the failed assessment in 2017, the Board tasked the Spot PRT with exploring potential updates to improve the TLA. The PRT developed five recommendations, which are listed below and are being considered for implementation through this Draft Addendum.

1. Incorporation of indices from the Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) and the North Carolina Division of Marine Fisheries (NCDMF) Pamlico Sound Survey, into the adult composite characteristic index, in addition to the currently used indices from the Northeast Fisheries Science Center (NEFSC) Multispecies Bottom Trawl Survey and the South Atlantic component of the Southeast Area Monitoring and Assessment Program (SEAMAP).
2. Use of revised adult abundance indices from the surveys mentioned above, in which age-length keys and length composition information are used to estimate the number of adult (age 1+) individuals caught by each survey.
3. Use of regional metrics to characterize the fisheries north and south of the Virginia-North Carolina state border. The ChesMMAP and NEFSC surveys would be used to characterize abundance north of the border, and the NCDMF Program 195 and SEAMAP surveys would be used to characterize abundance south of the border.
4. Change/establish the reference time period for all surveys to be 2002-2012.

5. Change the triggering mechanism to the following: Management action will be triggered according to the current 30% and 60% red thresholds if both the abundance and harvest thresholds are exceeded in any 2 of the 3 terminal years.

Some of these changes, such as the selection of fishery-independent surveys used for the abundance characteristic, incorporation of age and length information, and establishment of a new reference time period are already allowed under Addendum II. However, changes to the triggering mechanism are beyond the scope of Addendum II. Thus, they are proposed in this addendum. Draft Addendum III proposes the establishment of a Spot Technical Committee (TC) with the ability to alter the TLA as needed to best represent trends in spot harvest and abundance, including selection of surveys and methods to analyze and evaluate these data. The TC would also evaluate implementation of management responses triggered through the TLA.

After considering the recommended changes to the TLA, the Board tasked the Atlantic Croaker and Spot PDT with exploring potential management responses to management triggers that could result after incorporation of these updates. The PDT noted that there are currently no coastwide management requirements for spot. Additionally, because of a lack of information on environmental impacts on spot abundance or harvest and the apparent disconnect between Addendum II harvest and abundance characteristics, a reduction in harvest may not necessarily result in a proportional increase in abundance. Therefore, the PDT recommended establishment of base management measures that would reduce fishing impacts so as to not exacerbate periods of low abundance. Additionally, with the recommended updates incorporating regional TLAs, the PDT noted this approach was developed to increase survey coverage and sensitivity, but spot are still a single, coastwide stock. Therefore, any management triggers resulting from regional TLAs should incorporate some form of response throughout the management unit.

2.2.4 Population Characteristics

The following figures show composite harvest characteristic TLA analyses for spot through 2018 using the methods from Addendum II (Figure 1) and those proposed in Draft Addendum III (Figures 2 and 3). Changes to analyses being incorporated through Draft Addendum III are shown in bold font in the captions for Figures 2 and 3, including use of regional information and a different reference time period.

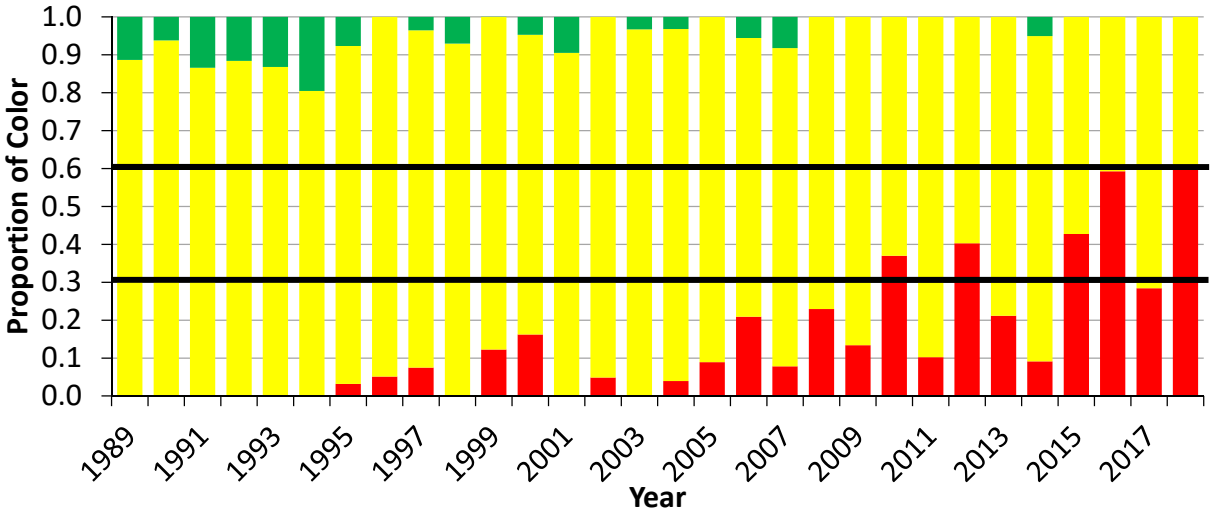

Figure 1. Addendum II Composite TLA using commercial landings and recreational harvest for spot with 30% and 60% red management thresholds (reference years 1989 – 2012).

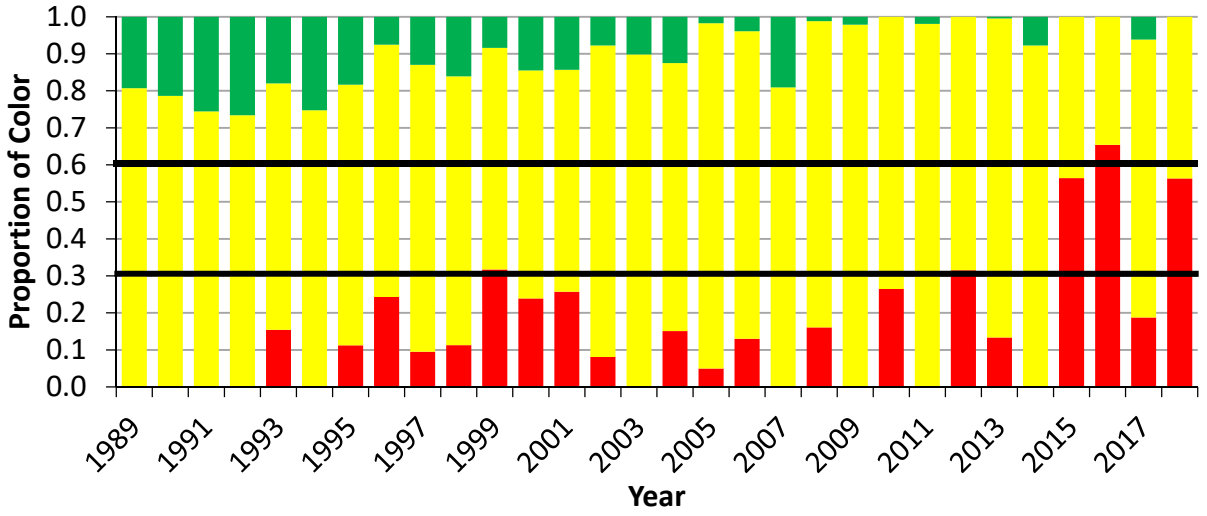

Figure 2. Draft Addendum III **Mid-Atlantic (NJ-VA) Regional** Composite TLA using commercial landings and recreational harvest for spot with 30% and 60% red management thresholds (**reference years 2002 – 2012**).

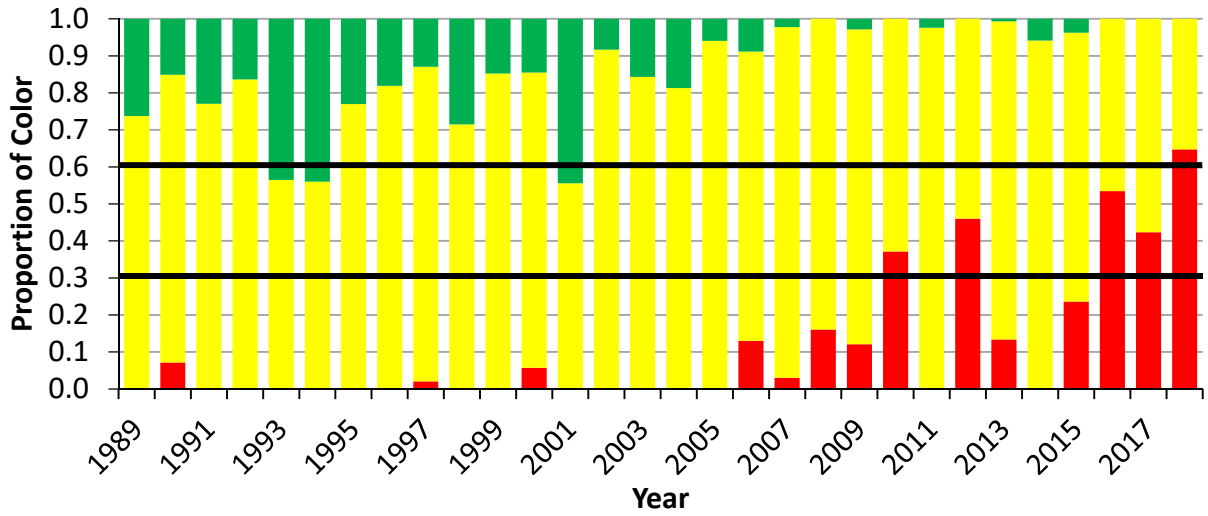

Figure 3. Draft Addendum III **South Atlantic (NC-FL) Regional** Composite TLA using commercial landings and recreational harvest for spot with 30% and 60% red management thresholds (**reference years 2002 – 2012**).

The following figures show composite abundance characteristic TLA analyses for spot through 2018 using the methods from Addendum II (Figure 4) and those proposed in Draft Addendum III (Figures 5 and 6). Changes to analyses being incorporated through Draft Addendum III are shown in bold font in the captions for Figures 5 and 6, including use of age and regional information and a different reference time period.

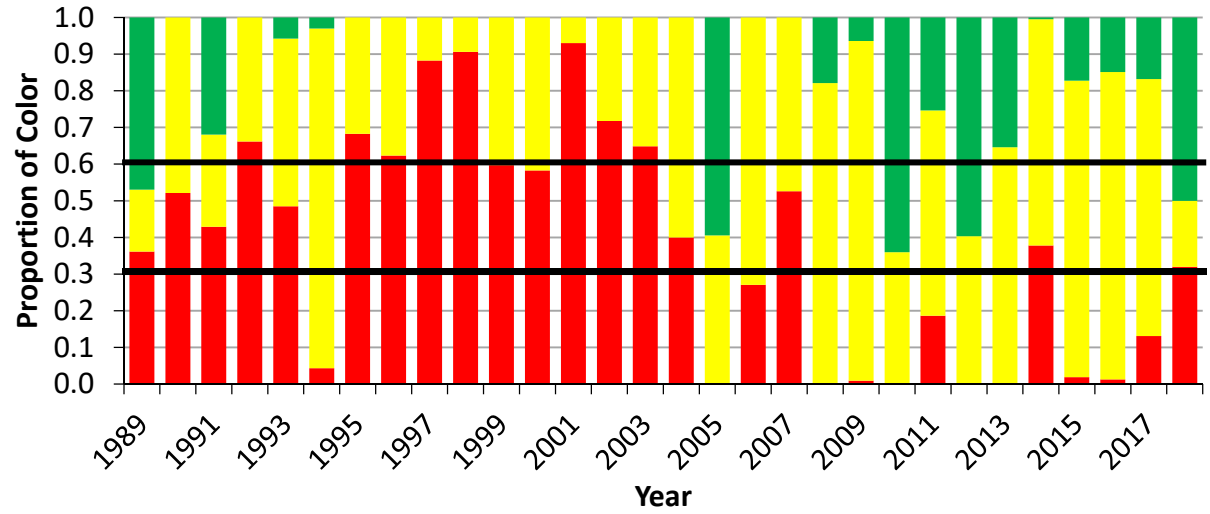

Figure 4. Addendum II Composite TLA using fishery-independent survey indices (NEFSC Trawl Survey and SEAMAP) for spot with 30% and 60% red management thresholds (reference period years 1989 – 2012).

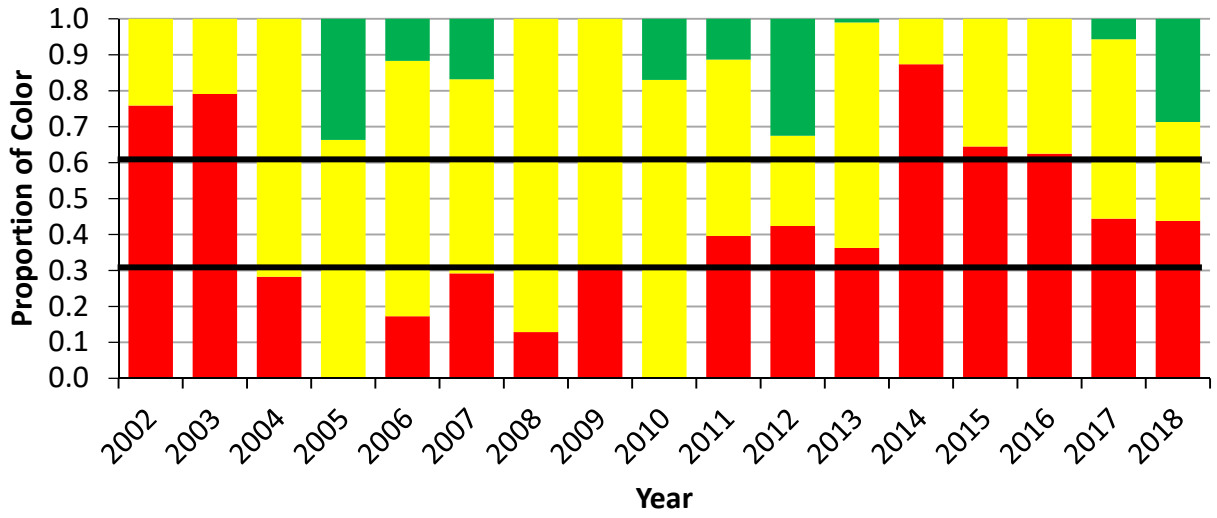

Figure 5. Draft Addendum III **Mid-Atlantic (NJ-VA) Regional** Composite TLA using **age-specified** fishery-independent survey indices (NEFSC Trawl Survey and **ChesMMAP**) for spot with 30% and 60% red management thresholds (**reference period years 2002 – 2012**).

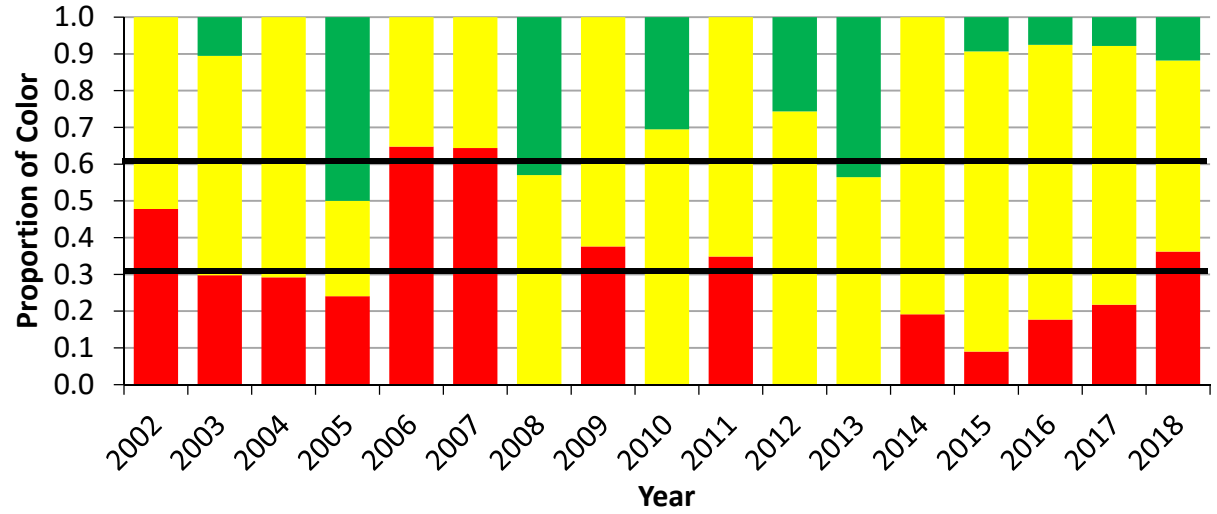

Figure 6. Draft Addendum III **South Atlantic (NC-FL) Regional** Composite TLA using **age-specified** fishery-independent survey indices (SEAMAP and **NCDMF**) for spot with 30% and 60% red management thresholds (**reference period years 2002 – 2012**).

3.0 PROPOSED MANAGEMENT PROGRAM

Changes to the management program would replace Section 3.0 of Addendum II to the Omnibus Amendment to the Interstate FMPs for Spanish Mackerel, Spot, and Spotted Seatrout.

The following issues consider options for the TLA management triggering mechanism (Issue 1) and required management responses for the recreational (Issue 2) and commercial (Issue 3)

fisheries. Recommended updates to the TLA analyses including additional fishery-independent survey indices, use of age information, use of regional characteristics, and changing the reference time period, will be incorporated into the TLA as part of this addendum, but are not considered with alternatives in the following issues as they apply the most current scientific advice, which is allowed under Addendum II. Draft Addendum III also retains the TC's ability to alter the TLA as needed to best represent trends in spot harvest and abundance.

3.1 Issue 1: Management Trigger Based on Proportion Red

Staus quo is not included in either of the following options due to the incorporation of regional characteristics, which is based on the most current scientific advice. Option A is closest to status quo, as it retains the Addendum II trigger timeframe.

Option A. If red proportions for both population characteristics (adult abundance and harvest) in a specific regional or a coastwide TLA meet or exceed the proportion of a threshold for the two terminal (most recent) years, then management action would be required.

Option B. If red proportions for both population characteristics (adult abundance and harvest) in a specific regional or a coastwide TLA meet or exceed the proportion of a threshold for any two of the three terminal years, then management action would be required. (PRT recommendation from *Section 2.2.3*)

Thresholds for both options 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

3.2 Management Response to Triggers

If management action has not been triggered according to *Section 3.1*, there are no coastwide management requirements, in accordance with the Omnibus Amendment. State regulations restricting spot harvest are encouraged to be maintained.

Per the PDT recommendations and direction of the Board, TLA-triggered management response options were developed to reduce fishing impacts to not exacerbate periods of low abundance. As the TLA does not offer advice on overfished or overfishing status, resulting management responses are not designed to stop overfishing or recover an overfished stock. Such status designations should be evaluated through a stock assessment and responded to accordingly. Additionally, while projected reductions to previous harvests are incorporated into the management responses, due to the lack of a coastwide quota and uncertainty of the fishery's behavioral response to triggered management measures, it is recognized that projected harvest reductions based on past fishery performance may not necessarily be achieved through triggered management measures. Furthermore, due to large numbers of removals from this population as bycatch through the South Atlantic shrimp trawl fishery, it is also recognized that

directed harvest reductions may not result in large increases to abundance. However, these measures would reduce the probability of directed harvest inhibiting growth of the spot stock and provide baseline information for any future consideration of coastwide management measures.

Recreational response alternatives include bag limits while commercial alternatives include percentage reductions through quantifiable measures such as seasons, trip limits, or size limits. In developing these different regulatory responses, the PDT considered sector differences in gears, fishing behavior, and state regulations already in place.

If management action is triggered according to *Section 3.1*, the Draft Addendum proposes the following coastwide requirements (NOTE: the public is asked to identify its preferred option for both the recreational and commercial sectors):

3.2.1 Issue 2: Recreational Management Trigger Response Options

Option A. (Status Quo) The PRT would recommend the appropriate percent reduction in recreational harvest needed and state-by-state measures to achieve the harvest reduction for approval by the Board. This allows the states to meet the individual needs of their 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.

Option B. If management action is triggered by meeting or exceeding the 30% red threshold, all non-*de minimis* states would be required to institute a bag limit of no more than 50 spot per person. If management action is triggered by meeting or exceeding the 60% threshold, all states (including *de minimis*) would be required to institute a bag limit of no more than 40 spot per person.

Option C. If management action is triggered by meeting or exceeding the 30% red threshold, all non-*de minimis* states would be required to institute a bag limit of no more than 40 spot per person. If management action is triggered by meeting or exceeding the 60% threshold, all states (including *de minimis*) would be required to institute a bag limit of no more than 30 spot per person.

Option D. If management action is triggered by meeting or exceeding the 30% red threshold, all non-*de minimis* states would be required to institute a bag limit of no more than 30 spot per person. If management action is triggered by meeting or exceeding the 60% threshold, all states (including *de minimis*) would be required to institute a bag limit of no more than 20 spot per person.

State and coastwide harvest reductions for each of the above options were estimated, based on Marine Recreational Information Program intercept and harvest data from 2009-2018 (Table 2). For trips that exceeded the number of fish allowed by each limit, the number of fish beyond the

limit were summed, converted to pounds using average weights, and divided by the total harvest to estimate the percent reductions. Coastwide reductions, depending on the option chosen and which percent red threshold is exceeded (30% or 60%), range from 5.4% (50 fish bag limit) to 36.6% (10 fish bag limit).

Table 2. Estimated state and coastwide reductions from Issue 2 option bag limits, based on Marine Recreational Information Program intercept and harvest data from 2009-2018. Shown reductions assume non-*de minimis* status for all states, although Issue 2 Options A-D do not require bag limits for *de minimis* states when management action is triggered by exceedance of the 30% red threshold.

	Estimated Percent Reductions in Harvest (Pounds) from 2009-18 Averages								
Bag Limit	**NJ**	**DE**	**MD**	**VA**	**NC**	**SC**	**GA**	**FL***	**Total**
50 fish	0.00%	6.81%	0.83%	9.26%	5.40%	1.39%	0.00%	0.21%	5.35%
40 fish	0.96%	10.89%	1.31%	12.69%	7.91%	6.07%	0.00%	0.41%	8.19%
30 fish	8.26%	20.71%	1.91%	19.15%	12.11%	17.17%	0.00%	0.60%	13.93%
20 fish	13.19%	30.67%	3.42%	29.73%	20.88%	29.14%	0.00%	1.22%	22.52%
10 fish	24.03%	44.77%	11.89%	42.96%	39.30%	46.60%	0.00%	8.29%	36.56%
2009-18 Average Harvest	181,274	124,704	865,618	2,760,249	1,462,935	1,093,306	8,988	344,906	6,841,980

*Florida only includes Atlantic coast harvest and estimated reduction.

Under any option selected, states would be encouraged to maintain any measures already in place that are more restrictive than those required by this addendum.

De minimis states are those in which enforcement actions would be expected to contribute insignificantly to a coastwide conservation plan. Per *Section 4.4.3* of the Omnibus Amendment, states may apply for this status if, for the preceding three years for which data are available, their average combined commercial and recreational spot landings (by weight) constitute less than one percent of the average combined coastwide commercial and recreational spot landings for the same period.

Recreational for-hire vessels may possess live spot for use as bait. The maximum number of spot allowed to be held onboard for this use prior to beginning a trip, during a trip or after a trip is completed would be the bag limit in effect multiplied by the number of customers allowed on the vessel. During a trip, the number of spot in possession to be harvested could not exceed the bag limit in effect multiplied by number of anglers onboard the vessel during the trip (any additional spot in possession, up to the limit stated above, must be those to be used as live bait). In this context, a trip would be defined as a period of time in which fishing is conducted, beginning when the vessel leaves port and ending when the vessel returns to port. If no coastwide bag limit is in effect, then this use would not be limited by this addendum.

Recreational private vessels that possess live spot for use as bait would be subject to personal bag limits of anglers on the vessel, with live fish possessed counting towards the bag limits. If no coastwide bag limit is in effect, then this use would not be limited by this addendum.

3.2.2 Issue 3: Commercial Management Trigger Response Options

Option A. (Status Quo) The PRT would recommend the appropriate percent reduction in commercial harvest needed and state-by-state measures to achieve the harvest reduction for approval by the Board. This allows the states to meet the individual needs of their 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.

Option B. Include the following language defining commercial responses to triggers at the 30% and 60% thresholds, with selection of one of Sub-Options B1-B3.

30% Red Threshold *(single option proposed)*

If management action is triggered by meeting or exceeding the 30% red threshold, non-*de minimis* states that do not already have a minimum size limit or possession limit would be required to institute quantifiable measures (e.g. season, trip limit, or size limit) to reduce commercial harvest by 1% of the average state commercial harvest from the previous 10 years. States may establish differential measures by gear or area, as long as measures implemented are quantifiable and achieve the required 1% reduction for the entire state commercial harvest.

60% Red Threshold *(choose one of Sub-Options B1-B3)*

Sub-Option B1. If management action is triggered by meeting or exceeding the 60% red threshold, all states (including *de minimis*) would be required to institute quantifiable measures (e.g. season, trip limit, or size limit) to reduce commercial harvest by 5% of the average state commercial harvest from the previous 10 years.

Sub-Option B2. If management action is triggered by meeting or exceeding the 60% red threshold, all states (including *de minimis*) would be required to institute quantifiable measures (e.g. season, trip limit, or size limit) to reduce commercial harvest by 10% of the average state commercial harvest from the previous 10 years.

Sub-Option B3. If management action is triggered by meeting or exceeding the 60% red threshold, all states (including *de minimis*) would be required to institute quantifiable measures (e.g. season, trip limit, or size limit) to reduce commercial harvest by 20% of the average state commercial harvest from the previous 10 years.

All measures established as required responses to TLA triggers would be evaluated to determine if they are both quantifiable and meet the objective reduction by the TC and approved by the Board prior to implementation.

3.2.3 Technical Committee

This Draft Addendum proposes the establishment of a Spot TC to provide scientific and technical advice, as defined in *Section 4.7.4* of the Omnibus Amendment. This advice would include evaluation of plans to implement management actions. All measures established as required responses to TLA triggers would be reviewed by the TC and approved by the Board prior to implementation.

3.2.4 Management Alternatives

If management action is triggered by meeting or exceeding the 60% red threshold and the Board determines more restrictive actions are necessary than those defined in *Sections 3.2.1* or *Section 3.2.2*, the Board may task the TC to determine an alternative reduction to the recreational or commercial fisheries. The TC would recommend the appropriate percent reduction in harvest needed and state-by-state measures to achieve the harvest reduction for approval 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 may include use of a combination of management tools that include size limits, bag/trip limits, seasonal closures, and gear restrictions.

3.3 Issue 4: Evaluation of Fishery Response to Management Measures

Option A. (Status Quo) Management measures set in response to any trigger 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 would 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.

Option B. Management measures set in response to any trigger would remain in place for at least two years to promote consistent measures and allow for sufficient time to evaluate population response. Once management action has been taken, the harvest characteristics would no longer be used to trigger management action, as the fishery-dependent data may be influenced by triggered measures. While triggered measures are in effect, a composite regional abundance characteristic, by itself, may trigger action at the next highest level of management response by the proportion red exceeding the next highest threshold in any two of the three terminal years.

After a minimum of two years, once no composite regional abundance characteristics trigger management action at either threshold, triggered measures would no longer be required, and the TC would resume using the harvest characteristics as components of the TLA that would be required to trigger management action.

If triggered measures have remained in place for a minimum of three years due to proportions of red above a threshold for either of the composite regional abundance characteristics, the TC would, as part of conducting the annual TLA, evaluate trends in abundance to recommend to the Board whether triggered measures should remain in place or more restrictive measures should be considered.

4.0 COMPLIANCE

The management framework contained in *Section 3.0* of Addendum III to the Omnibus Amendment is effective immediately upon Addendum III's approval.

5.0 LITERATURE CITED

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. 41 p.

6.0 APPENDIX

To aid in public interpretation of TLA figures and results, the following figures depict components of spot TLA characteristics in a linear format with the long-term mean (average) (LTM) of the proposed reference period (2002-2012).

Commercial and Recreational Harvest

Commercial landings show general declining trends in both regions with greater variability in the Mid-Atlantic.

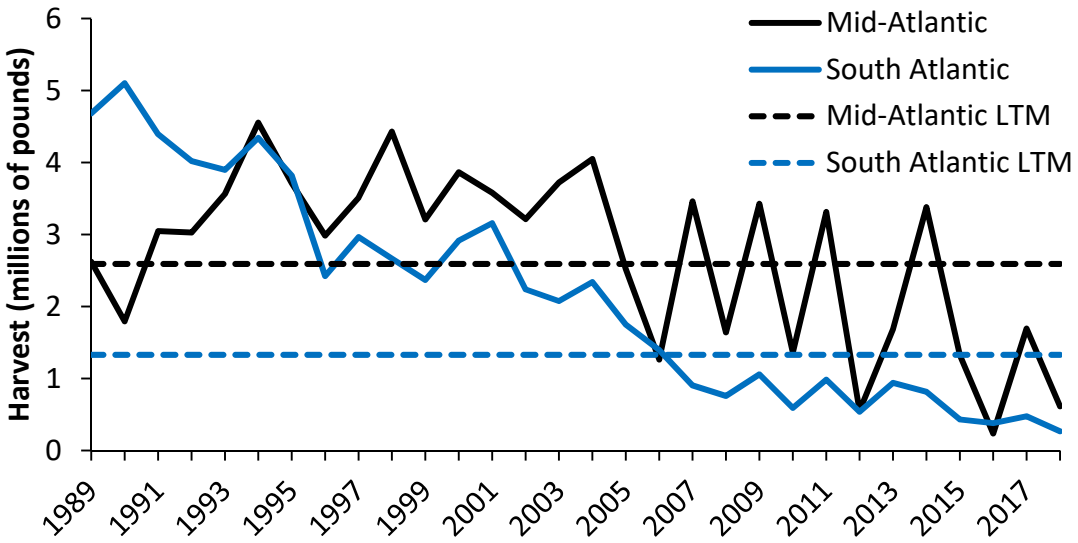

Figure A1. Commercial harvest and the LTM harvest for 2002-2012 in the Mid-Atlantic (NJ-VA) and South Atlantic (NC-FL) regions.

Recreational harvest shows a highly variable trend in the Mid-Atlantic, with most of the last ten years near or below the LTM. South Atlantic recreational harvest shows a declining trend with most of the last ten years near or below the LTM.

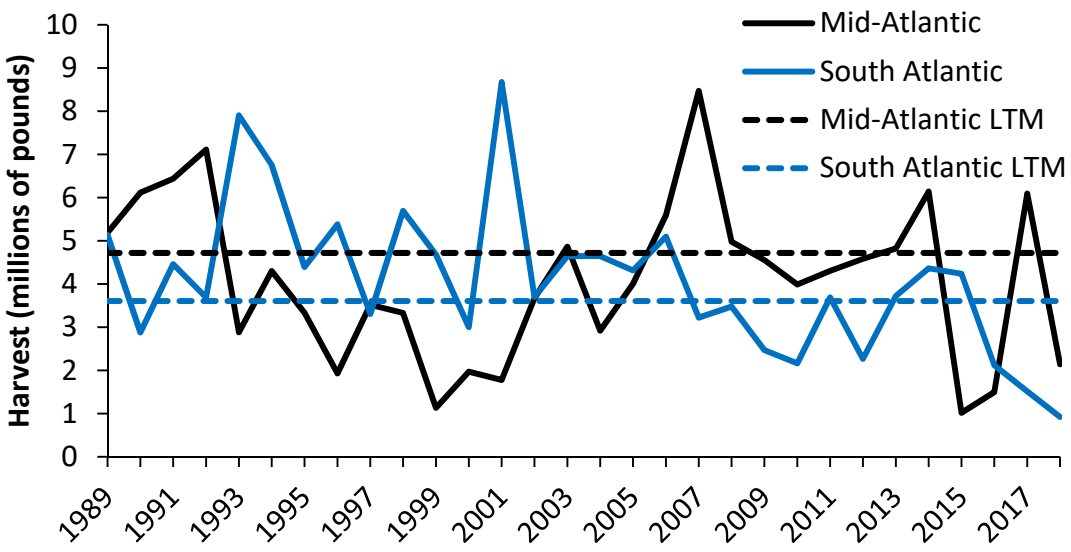

Figure A2. Recreational harvest and the LTM harvest for 2002-2012 in the Mid-Atlantic (NJ-VA) and South Atlantic (NC-FL) regions.

Abundance Indices

Mid-Atlantic

The Northeast Fishery Science Center (NEFSC) Multispecies Bottom Trawl Survey adult index showed a general increasing trend from the early 1990s to 2012, after which the index has been highly variable.

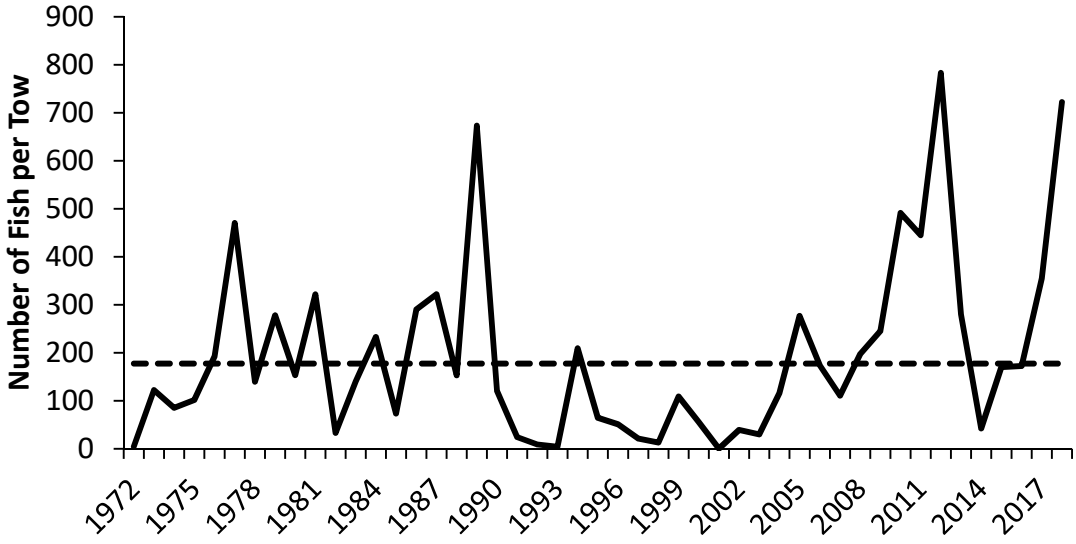

Figure A3. NEFSC adult index (solid line) and the LTM adult index for 2002-2012 (dashed line).

The Chesapeake Bay Multispecies Monitoring and Assessment Program (ChesMMAP) adult index shows a steady decline from the peak in 2005 and values below the LTM since 2008.

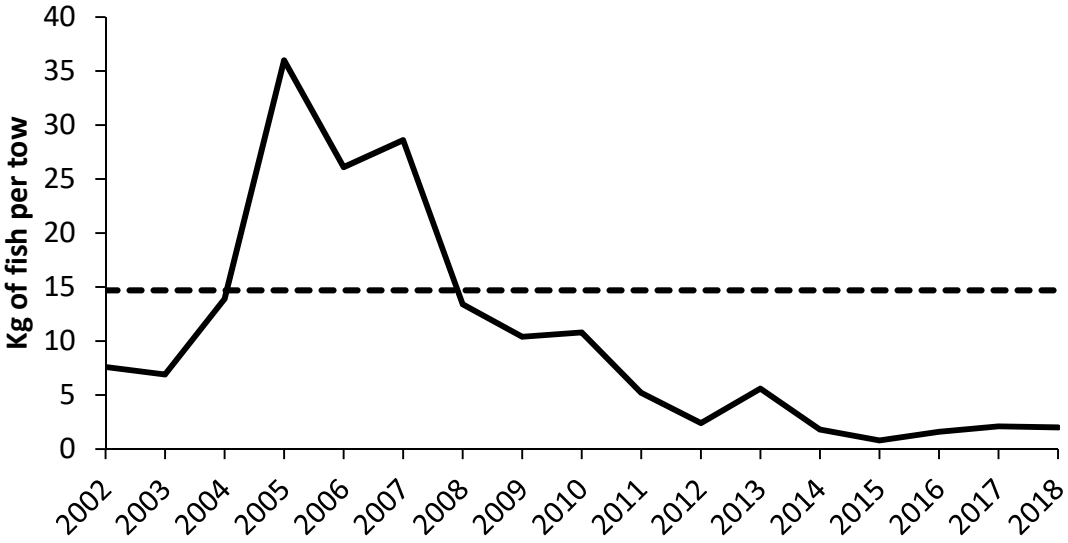

Figure A4. ChesMMAP adult index (solid line) and the LTM adult index for 2002-2012 (dashed line).

South Atlantic

The Southeast Area Monitoring and Assessment Program (SEAMAP) adult index has been variable about the LTM over, approximately, the last 25 years.

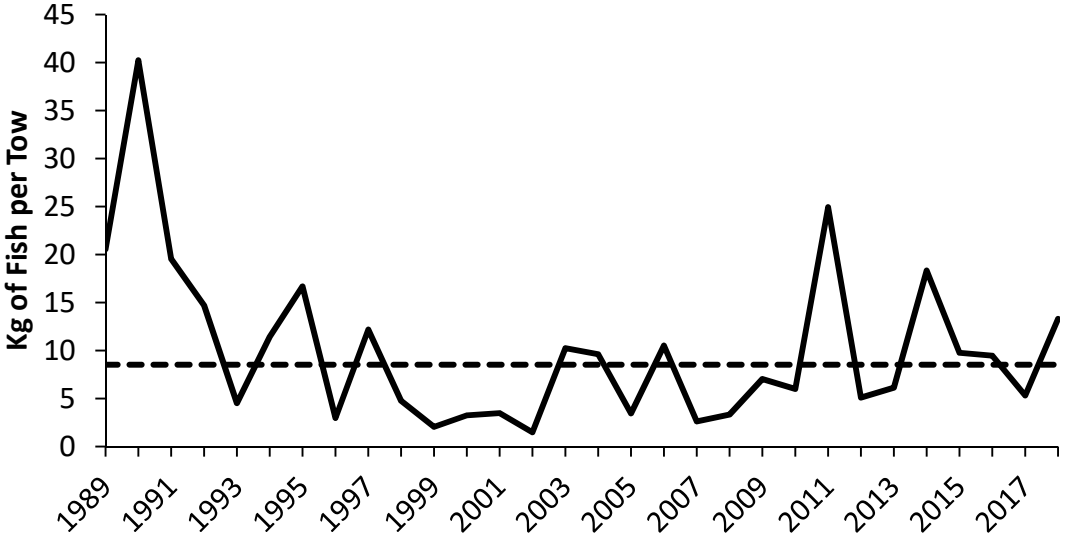

Figure A5. SEAMAP adult index (solid line) and the LTM adult index for 2002-2012 (dashed line).

The North Carolina Division of Marine Fisheries (NCDMF) Pamlico Sound Survey index has been below the LTM for most years since its peak in 2005.

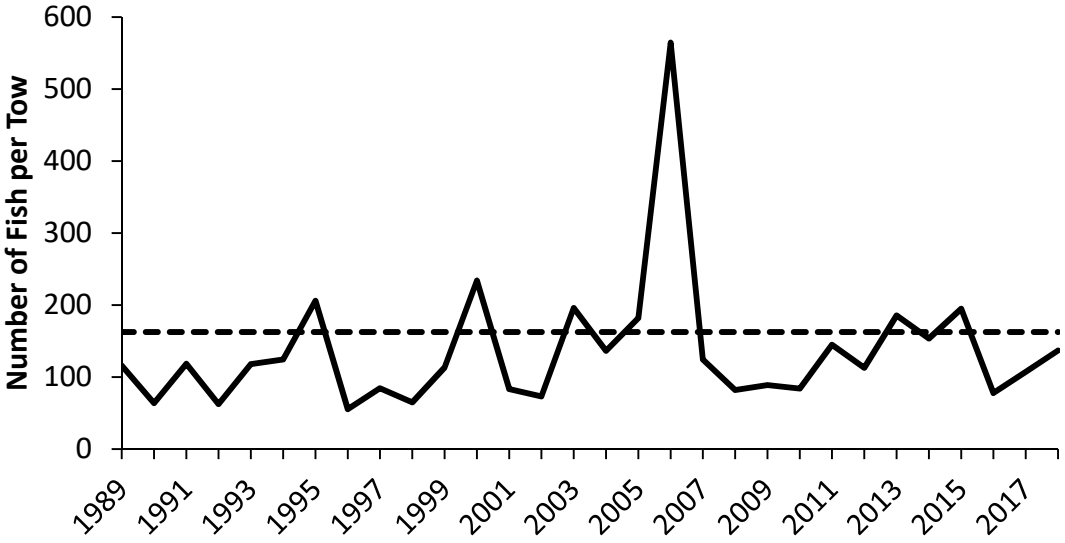

Figure A6. NCDMF adult index (solid line) and the LTM adult index for 2002-2012 (dashed line).