*Atlantic States Marine Fisheries Commission*

# DRAFT ADDENDUM IV TO AMENDMENT 6 TO THE ATLANTIC STRIPED BASS INTERSTATE FISHERY MANAGEMENT PLAN FOR PUBLIC COMMENT

**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 this document.**

***ASMFC Vision Statement:***
***Sustainably Managing Atlantic Coastal Fisheries***

**Updated May 8, 2014**

## Public Comment Process and Proposed Timeline

In October 2013, the Atlantic Striped Bass Management Board initiated an addendum to the Interstate Fishery Management Plan for Atlantic striped bass to consider new biological reference points and management options to reduce fishing mortality to a level that is at or below the new target reference point. This draft addendum presents background on the Atlantic States Marine Fisheries Commission's management of striped bass, the addendum process and timeline, a statement of the problem, and proposed management options.

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 XXXXX. 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.

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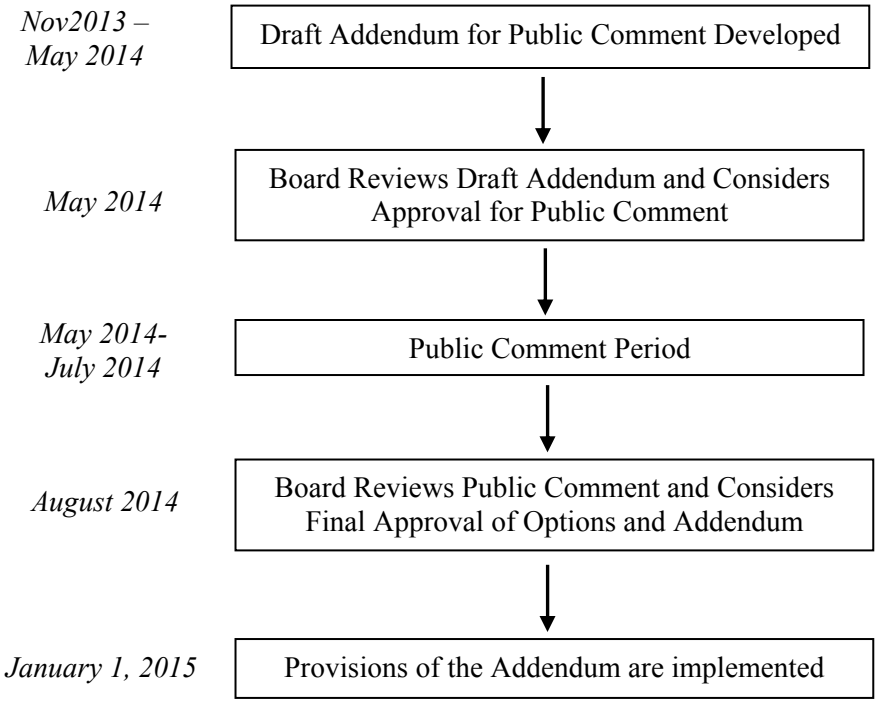

## 1.0 Introduction

Atlantic striped bass are managed through the Atlantic States Marine Fisheries Commission (ASMFC) in state waters (0-3 miles) and through NOAA Fisheries in federal waters (3-200 miles). The management unit includes the coastal migratory stock between Maine and North Carolina. Atlantic striped bass are currently managed under Amendment 6 (2003) to the Fishery Management Plan (FMP) and Addenda I–III.

At its October 2013 meeting, the Atlantic Striped Bass Management Board (Board) approved the following two motions:

*Move to develop an addendum to adopt the new biological reference points for the coastal fishery as determined by the 2013 benchmark assessment, as well as biological reference points (fishing mortality) for the Chesapeake Bay and Albemarle/Roanoke stocks.*

*Move to initiate an addendum to develop a range of management measures that reduces fishing mortality to at least the fishing mortality target with implementation in January 2015.*

At its February 2014 meeting, the Board decided to combine the two addenda into one document. As a result, Draft Addendum IV proposes changes to the biological reference points and management options to reduce fishing mortality to a level that is at or below the target with implementation in January 2015.

## 2.0 Overview

### 2.1 Statement of the Problem

The 2013 benchmark stock assessment approved by the Board for management use recommended changes to the fishing mortality (F) reference points to be consistent with the spawning stock biomass (SSB) reference points. An addendum to the FMP is required to implement new reference points for management use. Results of the benchmark stock assessment also showed that F in the terminal year (2012) was above the new F target, and SSB has been steadily declining below the target since 2006 (Figures 2 and 3). This indicates that even though the stock is not overfished and overfishing is not occurring, SSB is approaching its overfished threshold and stock projections show SSB will likely fall below the threshold in the coming years. In addition, a similar downtrend has been observed in total landings with a 32% decrease since 2008. Another concern is a management trigger in Amendment 6 that states if the "fishing mortality target is exceeded in two consecutive years and the female spawning stock biomass falls below the target within either of those years, the Management Board must adjust the striped bass management program to reduce the fishing mortality rate to a level that is at or below the target within one year". In response to these concerns, this draft addendum proposes management options that reduce F to a level at or below the target to minimize the risk of overfishing while increasing SSB back to the target thus minimizing the risk of the stock being overfished.

### 2.2 Background

#### 2.2.1 Biological Reference Points for Striped Bass

Biological reference points are used in fisheries management as a measure of stock status and as a reference to evaluate management plan effectiveness. There are two biological reference points for striped bass currently used for management. The first is based on fishing mortality (F), with a threshold value set at maximum sustainable yield (MSY). Managing a population at MSY allows the largest average catch to be taken from a stock without negatively impacting the ability of the stock to replace itself. The second reference point is based on spawning stock biomass (SSB), with a threshold value equal to the SSB value in 1995; the year that the striped bass stock was declared recovered. These threshold levels are used to determine when the stock is experiencing overfishing or is overfished, respectively. Target levels for F and SSB provide additional performance metrics. The current F target was selected to provide a higher long-term yield than $F_{msy}$, while the SSB target corresponds to 125% of the SSB threshold.

The 1995 SSB level has proven to be a useful reference point for striped bass; however, even though $SSB_{1995}$ is a proxy for $SSB_{msy}$ they are not the same. In other words, fishing at $F_{msy}$ does not maintain SSB at the 1995 level. To address this issue, the 2013 benchmark stock assessment recommended new F reference points that would maintain SSB at or above its 1995 level. The new method resulted in a fishing mortality threshold of 0.22, corresponding to the SSB threshold of 127 million pounds (57,626 mt), as well as a fishing mortality target of 0.18, corresponding to the SSB target of 159 million pounds (72,032 mt). These SSB target and threshold levels are still based on the SSB value in 1995, as estimated by the 2013 benchmark stock assessment.

The benchmark stock assessment that contains the new F reference points was accepted by the Board for management use in October 2013. This draft addendum proposes to codify the reference points contained in the 2013 benchmark stock assessment (ASMFC 2013).

### 2.2.2 Chesapeake Bay and Albemarle Sound/Roanoke River Management Areas

Separate F reference points for the Chesapeake Bay and Albemarle Sound/Roanoke River were established through conservation equivalency in Amendment 6 to compensate for the smaller minimum size limit granted to both of these management areas. Since new reference points for the coastal migratory stock are being considered from the benchmark stock assessment, the Board requested options to consider adjusting the Chesapeake Bay and Albemarle Sound/Roanoke River management areas as well.

Striped bass stocks that occur in the Chesapeake Bay and Albemarle Sound/Roanoke River management areas are thought to contribute differently to the coastal migratory stock. More specifically, the Albemarle Sound/Roanoke River stock is not included in the coastwide assessment because it is thought to contribute insignificantly to the coastal migratory stock. Conversely, the Chesapeake Bay stock is a major contributor to the coastal migratory stock and is included in the coastwide assessment.

## 2.3 Description of the Fishery

Striped bass have formed the basis of one of the most important fisheries on the Atlantic coast for centuries. However, overfishing and poor environmental conditions led to the collapse of the fishery in the 1980s and a moratorium on harvest from 1985 – 1989. Through the hardship and

dedication of both commercial and recreational fishers, the stock was rebuilt and continues to support fishing opportunities along the Atlantic coast.

### 2.3.1. Commercial Fishery Status

Total and state-specific commercial harvests of striped bass have varied little from year to year, since the implementation of a quota management system through Amendment 6. Refer to Appendix 1 for jurisdiction specific regulations. The total coastal commercial harvest from 2003 to 2013 ranged between 2.48 and 3.15 million pounds (Table 1) and averaged 2.87 million pounds. Massachusetts and New York land on average 65% of the total coastal quota. The average commercial harvest since 2003 (2.87 million pounds) is approximately a 19% underage from the allocated coastal quota in Amendment 6 after accounting for conservation equivalency programs. The coastal quota underage is mainly attributed to low harvest from states that transfer commercial quota to support a recreational bonus fishing program (i.e., Connecticut, New Jersey). Additionally, in recent years migratory striped bass have not been available to the ocean fishery in North Carolina, resulting in minimal harvest.

The Chesapeake Bay commercial fishery harvest averaged 4.06 million pounds from 2003 to 2013 (Table 2), with Maryland landing, on average, 50% of the harvest, followed by Virginia (35%) and PRFC (15%). Within the Albemarle Sound/Roanoke River management areas, commercial harvest (Albemarle Sound only) averaged 165,504 pounds from 2003 to 2013 (Table 2). The Chesapeake Bay and Albemarle Sound/Roanoke River management areas have not exceeded their total quotas since the implementation of Amendment 6 in 2004.

In total, the commercial fishery harvested an estimated 5.77 million pounds in 2013, which is lower than harvest in 2012 (6.51 million pounds) and also lower than the 2003-2012 average harvest of 7.05 million pounds.

### 2.3.2 Recreational Fishery Status

The recreational fishery is currently managed with bag and size limits (refer to Appendix 1 for jurisdiction-specific regulations). From 2003 to 2013, total coastal recreational harvest has ranged from a high of 31 million pounds in 2006 to a low of 19.2 million pounds in 2012 with an average of 26.4 million pounds (Table 4). Landings from New York (25%), Massachusetts (19%), New Jersey (19%), and Maryland (11%) have comprised approximately 74% of annual recreational landings since 2003. The number of fish released alive increased annually after the passage of Amendment 6 to a high of 23.3 million fish in 2006. Since then, the number of fish released alive has decreased by 77% to a low of 5.2 million fish in 2012. Reasons for the decline may be attributed to a reduction in stock size from the peak in 2003, a decreased availability of fish staying in nearshore areas, and changes in angler behavior in response to socioeconomic factors.

Recreational harvest in the Chesapeake Bay, between 2003 and 2013, has ranged from a high of 5.5 million pounds in 2005 to a low of 2.4 million pounds in 2012 with an average of 3.90 million pounds. The Albemarle Sound/Roanoke River recreational quota is set at 275,000 pounds and is divided between the two management areas equally. The average harvest from the combined areas from 2003 through 2013 is 111,598 pounds, less than half the allowable quota (Table 3).

### 2.3.3 Management History

Since Amendment 4, the foundation of the striped bass management program has been to maintain harvest below a target fishing mortality rate (F). Amendment 6, implemented in 2004, modified the F targets and thresholds, and also introduced a new set of biological reference points based on female SSB. On a regular basis, SSB and F are estimated and compared to target and threshold levels. These reference points, as well as new management triggers, have enabled the Management Board to be more responsive to changes in the stock.

Amendment 6 also phased in new regulations for both the commercial and recreational fisheries. In 2003, the coastal commercial quotas for striped bass were restored to the states' historical average landings during the 1972-1979 base period, a 43 percent increase from the 2002 coastal commercial quotas. In the recreational fisheries, all states were required to implement a two fish bag limit with a minimum size limit of 28 inches, except for the Chesapeake Bay and Albemarle-Roanoke fisheries, and states with approved conservation equivalency proposals. Addendum III (August 2012) outlined measures to address illegal harvest of striped bass. States and jurisdictions are required to implement a tagging program for all commercially harvested striped bass within state or jurisdictional waters to better track harvest and minimize poaching.

The Exclusive Economic Zone (EEZ; 3-200 miles) has been closed to the harvest, possession and targeting of striped bass since 1990, with the exception of a defined route to and from Block Island in Rhode Island. A recommendation was made in Amendment 6 to re-open federal waters to commercial and recreational fisheries. However, NOAA Fisheries concluded opening the EEZ to striped bass fishing was not warranted at that time.

### 2.4 Status of the Stock

In 2012, the Atlantic striped bass stock was not overfished or experiencing overfishing relative to the new reference points defined in the 2013 benchmark assessment. Female spawning stock biomass (SSB) was estimated at 128 million pounds (58,200 mt) just above the SSB threshold of 127 million pounds (57,626 mt), and below the SSB target of 159 million pounds (72,032 mt; Figure 2). Total fishing mortality was estimated at 0.20, below the fishing mortality threshold of 0.22 but above the fishing mortality target of 0.18 (Figure 3).

*Recruitment*
Striped bass experienced several years of strong recruitment (age-1 fish) from 1993-2004, followed by a period of lower recruitment from 2005-2010 (although not as low as the early 1980s, when the stock was overfished). The 2011 year-class (age-1 fish in 2012) was strong (i.e., abundant; Figure 2); however, early observations from several states' juvenile indices indicate the 2012 year-class was very weak (i.e., low abundance).

### 2.5 Proposed Fishing Mortality Reference Points
*Adopted options (other than status quo) would replace Amendment 6, Section 2.5.1.*

Fishing mortality based reference points are designed to manage the rate at which individual striped bass die because of fishing. If the current F exceeds the F threshold, then overfishing is occurring. This means that the rate at which striped bass are dying because of fishing (i.e.,

harvest and dead discards) exceeds the stock's ability to replenish itself. The value of the F target is set at a cautionary level intended to safeguard the fishery from reaching the overfishing threshold. The F target and threshold may change through updated stock assessments because these reference point values are estimated based on the best available data.

This section considers F reference points for the (1) coastwide population, (2) Chesapeake Bay Stock, and (3) Albemarle Sound/Roanoke River Stock. Separate reference points for the Chesapeake Bay and Albemarle Sound/Roanoke River were established through conservation equivalency in Amendment 6 to compensate for the smaller minimum size limit granted to both of these management areas.

**ISSUE 1: Coastwide Population**

This section proposes to adjust the F target and threshold, based on reference points developed in the 2013 benchmark stock assessment that was approved through the 57th Northeast Regional Stock Assessment Review Committee (SARC 57) and accepted by the Board for management use.

**Option A:** Status Quo

The fishing mortality reference points will not change, but remain based on maximum sustainable yield from the 2008 benchmark stock assessment:

| Reference Point | Definition | Value (as estimated in 2008 benchmark stock assessment) |
|---|---|---|
| Fthreshold | Fmsy | 0.34 |
| Ftarget | TC recommended value more conservative than Fmsy | 0.30 |

**Option B:** Measures Consistent with the 2013 Benchmark Stock Assessment

The fishing mortality reference points will be adjusted to be internally consistent with the SSB target and threshold:

| Reference Point | Definition | Value (as estimated in 2013 benchmark stock assessment) |
|---|---|---|
| Fthreshold | F associated with achieving the SSB threshold | 0.22 |
| Ftarget | F associated with achieving the SSB target | 0.18 |

**ISSUE 2: Chesapeake Bay Stock**

This section proposes to adjust reference points for the Chesapeake Bay management area.

**Option A:** Status Quo

F target is 0.27 as established in Amendment 6.

**Option B:** Use coastwide population reference points

Due to data and model limitations, the Technical Committee cannot calculate separate reference points for the Chesapeake Bay management area at this time. Previously, the intent of

establishing a lower F target in the Chesapeake Bay was to account for the impacts of harvesting a smaller sized fish (i.e., 18 inch minimum) in the Chesapeake Bay. However, the new coastwide reference points coming from the 2013 benchmark stock assessment include the effects of the Chesapeake Bay's harvest of smaller fish on the coastwide SSB. Therefore, the coastwide population reference points represent the best available scientific advice to manage total fishing mortality on both the coastal migratory and the Chesapeake Bay stocks.

**ISSUE 3: Albemarle Sound/Roanoke River Stock**

This section proposes to adjust reference points for the Albemarle Sound/Roanoke River management areas.

**Option A:** Status Quo
F target is 0.27 as established in Amendment 6.

**Option B:** The state of North Carolina will manage the Albemarle Sound/Roanoke River stock using reference points from the latest North Carolina stock assessment that are accepted by the Striped Bass Technical Committee and approved for management use by the Board. If this option is selected, the recreational and commercial fisheries in the Albemarle Sound/Roanoke River management areas would be regulated by the state of North Carolina.

**F Reference Point Evaluation**

The Board will evaluate the current estimates of F with respect to its reference points before proposing any additional management measures. If the current F exceeds the threshold level, overfishing is occurring and the Board will take steps to reduce F to a level that is at or below the target within one year; if current F exceeds the target, but is below the threshold, the Board should consider steps to reduce F to a level that is at or below the target. If current F is below the target F, then no action would be necessary to reduce F.

Section 4.1 of Amendment 6 contains management triggers to prevent overfishing the Atlantic striped bass resource and ensure the objectives of Amendment 6 are achieved. The management triggers will be evaluated upon completion of an updated or benchmark stock assessment.

## 3.0 Proposed Management Program

The coastal area can be defined as the entire management unit (i.e., all coastal and estuarine areas of all states and jurisdictions from Maine through North Carolina) excluding the Chesapeake Bay and Albemarle Sound/Roanoke River management areas. It should be noted that the current management regime permits the implementation of Board approved, alternative regulations that are conservation equivalents to any regulatory standard approved in this document (see Section 4.6 of Amendment 6 for process). Additionally, states may voluntarily implement management programs that are more conservative than those required herein.

### 3.1 Stock Projections

F is currently above the proposed target and SSB is trending towards its overfished threshold, therefore the Board is proposing management options to reduce F to the target and restore SSB to the target. Stock projections are a useful management tool because they can provide estimates of harvest needed to reduce F to the target level over a specified timeframe. After estimating the

level of harvest that equals the F target, the Board can then consider management options to limit the fishery to that level of harvest.

The Technical Committee used a forward projecting methodology to identify the percent reduction from 2013 harvest levels that is necessary to achieve F target. Projection results indicate:

- If total harvest is reduced by 36% starting in the 2015 fishing year, there is a 50% probability[1] F will be at or below its target level within one year.
- If total harvest is reduced by 32% starting in the 2015 fishing year, there is a 50% probability F will be at or below its target level within a two year timeframe.
- To contrast these options, if total harvest remains unchanged (status quo), there is less than a 1% probability that F will be at or below its target in 2015 or 2016.

It is important to note in all of the harvest scenarios, the probability of the stock being overfished (SSB less than the SSB threshold) is high and increases until 2015-2016. This means despite any reduction in harvest through these scenarios, SSB will continue to decline reaching a low point in 2015 before it begins a trajectory towards its target. This trend is driven by the lack of strong year classes currently in the fishery, and the emergence of the strong 2011 year class that matures into the spawning stock in 2016-2017.

Based on the above projection results, the Plan Development Team (PDT) focused on management options estimated to achieve a 32-36% reduction from total harvest levels in 2013. The desired reduction would be achieved by approximately equal relative reductions to both the commercial and recreational fisheries.

**3.2 Proposed Recreational Fisheries Management Options**

In order to achieve a 32-36% reduction in recreational harvest, the PDT identified two separate management approaches to achieve the desired reductions: changes to the bag limit or size limit. *Adopted options (other than status quo) would replace Amendment 6, Section 4.2.*

To help evaluate each proposed management option, the Technical Committee produced an associated estimate of the spawning potential ratio (SPR). SPR represents the percent of juvenile striped bass that survive to become part of the spawning stock biomass. The percent SPR ranges from 0 to 100 with higher SPR associated with greater reproductive capacity. For example, a 100% SPR would be equal to an unfished population, meaning every striped bass born that did not die from natural causes would become part of the spawning stock biomass because they are not experiencing fishing mortality.

Considering each management option represents approximately the same reduction in recreational harvest (i.e., 32-36%), the intent of the SPR analysis was to provide a biological metric to compare the reproductive benefit of the different management strategies. Results of the SPR analysis for the Chesapeake Bay indicated both bag and size limit options yielded very similar SPR. Therefore, the SPR estimates presented below are more informative for the coastal fishery.

[1] A 50% probability was a minimum recommendation by the TC - a higher probability of being at or below the target would require more restrictive management measures.

### 3.2.1 ISSUE 4: Recreational Bag Limits

The management options in this section consider changes to the recreational bag limit only.

**Option A:** Status Quo
All jurisdictions will be constrained by a two fish bag limit and 28 inch minimum size limit, except for the Chesapeake Bay and Albemarle Sound/Roanoke River management areas that are constrained by an 18 inch minimum size limit and a bag limit that maintains target fishing mortality of 0.27. This option is estimated to achieve a 0% reduction from 2013 recreational harvest, and its SPR is less than 26%.

**Option B:** All jurisdictions would implement a one fish bag limit and 28 inch minimum size limit for the coastal fishery (ocean). The Chesapeake Bay management area would implement a one fish bag limit and 18 inch minimum size limit. This option is estimated to achieve a 31% reduction from 2013 recreational harvest, and its SPR is less than 29%.

*Under Option B, the state of North Carolina will manage the recreational striped bass fisheries in the Albemarle Sound and Roanoke River based on reference points from the latest North Carolina stock assessment that are accepted by the Striped Bass Technical Committee and approved for management use by the Board.*

### 3.2.2 ISSUE 5: Recreational Size Limits

The management options in this section consider changes to the recreational size limit only, maintaining the two fish bag limit.

**Option A:** Status Quo
All jurisdictions will be constrained by a two fish bag limit and 28 inches minimum size limit, except for the Chesapeake Bay and Albemarle Sound/Roanoke River management areas that are constrained by a two fish bag limit and 18 inch minimum size limit. This option is estimated to achieve a 0% reduction from 2013 recreational harvest, and its SPR is less than 26%.

**Option B:** All jurisdictions would implement a two fish bag limit and 33 inch minimum size limit for the coastal fishery (ocean). The Chesapeake Bay management area would implement a two fish bag limit and 24 inch minimum size limit. This option is estimated to achieve a 31% reduction from 2013 recreational harvest, and its SPR is less than 35%.

**Option C:** All jurisdictions would implement a two fish bag limit and a slot limit with a 28 inch minimum size and a 34 inch maximum size. The Chesapeake Bay management area would implement a two fish bag limit and a slot limit with a 18 inch minimum size and a 21 inch maximum size. This option is estimated to achieve a 30% reduction from 2013 recreational harvest, and its SPR is less than 48%.

*Under either Option B or C, the state of North Carolina will manage the recreational striped bass fisheries in the Albemarle Sound and Roanoke River based on reference points from the latest North Carolina stock assessment that are accepted by the Striped Bass Technical Committee and approved for management use by the Board.*

### 3.3 Proposed Commercial Fishery Management Options

In order to achieve a 32-36% reduction in commercial harvest, the following options are proposed. *Adopted options (other than status quo) would replace Amendment 6, Section 4.3.*

#### 3.3.1 ISSUE 6: Commercial Quota Allocation

Commercial quotas are allocated on a fishing year basis. In the event that a jurisdiction exceeds its allocation, the amount in excess of its annual quota will be deducted from the state's allowable quota in the following year.

States with approved conservation equivalency would need to update their proposals if a new quota allocation is chosen. The requirements of Addendum III to Amendment 6 would remain unchanged if the quota allocations are adjusted.

*Commercial quota allocation options are explained below and shown in the table on the next page.*

**Option A:** Status Quo
Each state will be allocated 100% of the base period (1972-1979) average coastal commercial landings (Section 4.3.2 of Amendment 6). This option is estimated to achieve a 0% reduction from the total 2013 commercial harvest.

**Option B:** Each state's quota will be set at 69% of the Amendment 6 quota allocations
Each state's quota from the Amendment 6 quota allocations will be reduced by 31%. This option would achieve a 0% reduction from the total 2013 commercial harvest if all states harvested their new commercial quota in full; however, based on more realistic harvest expectations for 2015 (e.g., only those states that have recently harvested their full commercial quota will continue to do so), this option could achieve upwards of a 23% reduction from the total 2013 commercial harvest.

**Option C:** Each state's quota will be set at 69% of that state's 2013 commercial harvest
Each state's quota represents a 31% reduction from its 2013 commercial harvest. This option results in a revision to the percentage of the total quota allocated to each state in Amendment 6 because of the magnitude of each state's 2013 harvest levels. This option is estimated to achieve a 31% reduction from the total 2013 commercial harvest.

**Option D:** Each state's quota will be set at 45% of the Amendment 6 quota allocations
Each state's quota from the Amendment 6 quota allocations will be reduced by 55%. This quota option was calculated by taking 69% of the total 2013 commercial harvest (1,711,148 lbs) and then allocating that amount to the individual states based on the percentage of the total quota allocated to each state in Amendment 6. This option is estimated to achieve a 31% reduction from the total 2013 commercial harvest if all states harvested their new quota in full; however, based on more realistic harvest expectations for 2015 (e.g., only those states that have recently harvested their full commercial quota will continue to do so), this option may achieve upwards of a 45% reduction from the total 2013 commercial harvest.

| | OPTION A | OPTION B | OPTION C | OPTION D | FOR REFERENCE |
|---|---|---|---|---|---|
| **State** | **Am6 Quota (lbs)** | **69% of Am6 Quota (lbs)** | **69% of 2013 Harvest (lbs)** | **45% of Am6 Quota (lbs)** | **2013 Harvest (lbs)** |
| Maine | 250* | 173 | 0 | 112 | 0 |
| New Hampshire | 5,750* | 3,968 | 0 | 2,585 | 0 |
| Massachusetts | 1,159,750 | 800,228 | 691,738 | 521,377 | 1,002,519 |
| Rhode Island | 243,625† | 168,101 | 159,583 | 109,524 | 231,280 |
| Connecticut | 23,750** | 16,388 | 1,021 | 10,677 | 1,479 |
| New York | 1,061,060† | 732,131 | 529,451 | 477,010 | 767,321 |
| New Jersey | 321,750** | 222,008 | 6,219 | 144,646 | 9,013 |
| Delaware | 193,447 | 133,478 | 132,083 | 86,966 | 191,424 |
| Maryland | 131,560† | 90,776 | 64,537 | 59,144 | 93,532 |
| Virginia | 184,853 | 127,549 | 126,516 | 83,102 | 183,356 |
| North Carolina | 480,480 | 331,531 | 0 | 216,004 | 0 |
| **Coastal Total** | **3,806,275** | **2,626,330** | **1,711,148** | **1,711,148** | **2,479,924** |

* Commercial harvest/sale prohibited, with no re-allocation of quota.
** Commercial harvest/sale prohibited, with re-allocation of quota to the recreational fishery.
†Quota reduced through management program equivalency; NY (828,293 pounds) and MD (126,396 pounds) beginning in 2004, RI (239,963 pounds) beginning in 2007.

### 3.3.1.2 Commercial Quota Transfers

Transfers between states may occur upon agreement of two states at any time in the fishing season up to 45 days after the last day of the fishing season. All transfers require a donor state (state giving quota) and a receiving state (state accepting additional quota). There is no limit on the amount of quota that can be transferred by this mechanism, and the terms and conditions of the transfer are to be identified solely by the parties involved in the transfer. In order to affect a within-year transaction, the Administrative Commissioner of the agency involved must submit a signed letter to the Commission identifying the involved states, species, and pounds of quota to be transferred between the parties. A transfer becomes effective upon receipt by Commission staff of the signed letters from the donor and receiving states, and does not require the approval of the Commission staff or Board. All transfers are final upon receipt of the signed letters at the Commission. In the event that the donor or receiving member of a transaction subsequently wishes to change the amount or details of the transaction, both parties have to agree to the change, and submit to the Commission signed letters from the Administrative Commissioner of the agencies involved. These transfers do not permanently affect the state-specific shares of the quota (i.e., the state-specific quotas remain fixed).

Once quota has been transferred to a state, the state receiving quota becomes responsible for any overages of transferred quota. That is, the amount over the final quota (that state's quota plus any quota transferred to that state) for a state will be deducted from the corresponding state's quota the following fishing season.

### 3.3.1.3 Chesapeake Bay

**Option A:** Status Quo
The Chesapeake Bay jurisdictions would manage striped bass fisheries so as not to exceed a target fishing mortality rate of F=0.27 with an 18 inch size limit. The area to be managed under a target fishing mortality rate of 0.27 is described in Section 2.4.2 in Amendment 6. This option is estimated to achieve a 0% reduction from 2013 commercial harvest.

**Option B:** The commercial fishery quota for the Chesapeake Bay will be set at its 2013 quota level. This option is estimated to achieve a 0% reduction from 2013 commercial harvest.

**Option C:** The commercial fishery quota for the Chesapeake Bay will be set at 69% of its 2013 quota level. This option is estimated to achieve a 26% reduction from 2013 commercial harvest.

**Option D:** The commercial fishery quota for the Chesapeake Bay will be set at 69% of 2013 commercial harvest. This option is estimated to achieve a 31% reduction from 2013 commercial harvest.

| | OPTION A | OPTION B | OPTION C | OPTION D | FOR REFERENCE |
|---|---|---|---|---|---|
| **Chesapeake Bay** | **Status Quo** | **2013 Commercial Quota** | **69% of 2013 Commercial Quota** | **69% of 2013 Harvest (lbs)** | **2013 Harvest (lbs)** |
| | F=0.27 | 3,554,699 | 2,452,742 | 2,272,403 | 3,293,337 |

The Chesapeake Bay quota has historically been split among the three Bay jurisdictions based on their percent contribution to the 1994 catch as follows,
Maryland = 52.359%, PRFC = 15.226%, and VA = 32.414%.

### 3.3.1.4 Albemarle Sound/Roanoke River

**Option A:** Status Quo
The state of North Carolina will manage the commercial striped bass fishery in the Albemarle Sound so as not to exceed a target fishing mortality of F=0.27. The striped bass regulations outlined in Amendment 6 for the Albemarle-Roanoke stock will cover the area described in *Section 2.4.1*.

**Option B:** The state of North Carolina will manage the commercial striped bass fishery in the Albemarle Sound based on reference points from the latest North Carolina stock assessment that are accepted by the Striped Bass Technical Committee and approved for management use by the Board.

### 3.3.2 ISSUE 7: Commercial Size Limits

**Option A:** Status Quo with Amendment 6
In each jurisdiction, the commercial fishery is constrained by the same size limit regime established for the jurisdiction's recreational fishery. This means if the Board selects a different

minimum size for the recreational fishery, the commercial fishery would be constrained to the same size limit.

**Option B:** Status Quo with existing size limits
All areas will maintain a 28 inch minimum size limit for the commercial fishery, except the Chesapeake Bay (18 inch minimum), Albemarle Sound (18 inch minimum) and the Delaware Bay shad gillnet fishery (20 inch minimum). This option only applies if the Board selects to change the size limits for the recreational fishery.

## 4.0 Compliance Schedule

If approved, states must implement Addendum IV according to the following schedule to be in compliance with the Atlantic Striped Bass ISFMP:

XXXXXX: States submit proposals to meet requirements of Addendum IV.

XXXXXX: Management Board reviews and takes action on state proposals.

XXXXXX: States implement regulations.

## 5.0 ISSUE 8: Recommendation for Federal Waters

If options in section 2.5 or 3.0 are adopted through the addendum process, the Board would consider which options, if any should be recommended to NOAA Fisheries for implementation in the exclusive economic zone.

## 6.0 Literature Cited

ASMFC. 2003. Amendment 6 to the Interstate Fishery Management Plan for Atlantic Striped Bass. Washington (DC): ASMFC. Fisheries Management Report No. 41. 63 p.

ASMFC. 2013. Update of the Striped Bass Stock Assessment using Final 2012 Data. A report prepared by the Atlantic Striped Bass Technical Committee. 74 p.

## 7.0 Tables

Table 1. Coastal commercial harvest of Atlantic striped bass by state in pounds (2003-2013).

| Year | MA | RI | CT* | NY | NJ* | DE | MD+ | VA+ | NC** | Total Harvest *** |
|---|---|---|---|---|---|---|---|---|---|---|
| **2003** | 1,055,439 | 246,312 | | 753,261 | 121,410 | 188,419 | 98,149 | 159,786 | 434,369 | 3,057,145 |
| **2004** | 1,206,305 | 245,204 | | 741,668 | 81,870 | 181,974 | 115,453 | 160,301 | 421,645 | 3,154,420 |
| **2005** | 1,104,737 | 242,303 | | 689,821 | 29,866 | 173,815 | 46,871 | 184,734 | 454,521 | 2,926,668 |
| **2006** | 1,312,168 | 238,797 | | 688,446 | 23,656 | 185,987 | 91,093 | 194,934 | 352,036 | 3,087,117 |
| **2007** | 1,040,328 | 240,627 | | 729,743 | 13,615 | 188,668 | 96,301 | 165,587 | 424,723 | 2,899,592 |
| **2008** | 1,160,122 | 245,988 | | 653,100 | 7,345 | 188,719 | 118,005 | 164,400 | 299,162 | 2,836,841 |
| **2009** | 1,138,291 | 234,368 | | 789,891 | 10,330 | 192,311 | 127,327 | 140,420 | 189,995 | 2,822,933 |
| **2010** | 1,224,356 | 249,520 | | 782,402 | 12,833 | 185,410 | 44,802 | 116,338 | 272,632 | 2,888,293 |
| **2011** | 1,163,865 | 228,163 | | 854,731 | 16,332 | 188,620 | 21,401 | 158,811 | 242,600 | 2,874,523 |
| **2012** | 1,219,665 | 239,913 | 1,062 | 681,399 | 6,285 | 194,324 | 77,551 | 170,788 | 6,226 | 2,597,213 |
| **2013** | 1,002,519 | 231,280 | 1,021 | 767,321 | 9,013 | 191,424 | 93,532 | 183,356 | - | 2,479,466 |

***** NJ and CT values reflect striped bass harvested recreationally via the Bonus Fish Program

** NC values represent harvest during the December 1-November 30 fishing year

***Total harvest counted toward quota. NJ's quota is not counted toward the coastal quota.

+MD, VA and NC harvest from ocean only. Does not include Chesapeake Bay or Albemarle Sound/ Roanoke River.

Table 2. Total (commercial and recreational) Chesapeake Bay harvest in pounds (2003-2013).

| Year | Commercial | Recreational | Total Harvest | Quota |
|---|---|---|---|---|
| 2003 | 4,169,585 | 5,335,278 | 9,504,863 | 10,500,000 |
| 2004 | 4,156,977 | 4,277,549 | 8,434,526 | 8,417,000 |
| 2005 | 4,102,804 | 5,484,312 | 9,587,116 | 9,285,588 |
| 2006 | 4,008,349 | 4,859,593 | 8,867,942 | 9,590,238 |
| 2007 | 4,206,503 | 4,228,977 | 8,435,480 | 9,590,238 |
| 2008 | 4,369,971 | 3,539,541 | 7,909,512 | 10,132,844 |
| 2009 | 4,403,215 | 4,065,721 | 8,468,936 | 10,132,844 |
| 2010 | 4,092,654 | 3,173,290 | 7,265,944 | 9,489,794 |
| 2011 | 3,925,048 | 2,914,653 | 6,839,701 | 8,825,510 |
| 2012 | 3,924,372 | 2,402,699 | 6,327,071 | 8,825,510 |
| 2013 | 3,293,337 | 2,667,886 | 5,961,223 | 7,589,937 |

Table 3. Albemarle Sound / Roanoke River annual quota* and harvest in pounds (2003 – 2013).

| | Commercial | | Recreational | |
|---|---|---|---|---|
| **Year** | **Quota** | **Harvest** | **Quota** | **Harvest** |
| 2003 | 275,000 | 266,555 | 275,000 | 90,964 |
| 2004 | 275,000 | 273,636 | 275,000 | 187,288 |
| 2005 | 275,000 | 232,693 | 275,000 | 171,007 |
| 2006 | 275,000 | 186,399 | 275,000 | 120,518 |
| 2007 | 275,000 | 171,683 | 275,000 | 89,125 |
| 2008 | 275,000 | 74,921 | 275,000 | 64,353 |
| 2009 | 275,000 | 96,134 | 275,000 | 106,894 |
| 2010 | 275,000 | 199,829 | 275,000 | 83,507 |
| 2011 | 275,000 | 134,538 | 275,000 | 114,097 |
| 2012 | 275,000 | 115,940 | 275,000 | 159,727 |
| 2013 | 275,000 | 68,214 | 275,000 | 40,094 |

* Quota is allocated 25% for the Roanoke River recreational fishery, 25% for the Albemarle Sound recreational fishery, and 50% for the Albemarle Sound commercial fishery

Table 4. Total coastal recreational harvest of Atlantic striped bass by state in pounds (2003-2013).

| **Year** | **ME** | **NH** | **MA** | **RI** | **CT** | **NY** | **NJ** | **DE** | **MD** | **VA** | **NC** | **Total** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2003** | 253,910 | 281,549 | 5,120,554 | 1,502,455 | 1,537,899 | 4,687,685 | 4,545,515 | 303,909 | 2,975,437 | 2,789,745 | 772,981 | 24,771,639 |
| **2004** | 226,200 | 98,995 | 6,112,746 | 1,386,138 | 1,617,561 | 3,727,105 | 5,548,167 | 330,623 | 2,347,752 | 2,956,310 | 4,833,112 | 29,184,709 |
| **2005** | 381,058 | 281,114 | 5,097,821 | 1,732,581 | 2,173,638 | 5,537,432 | 5,958,454 | 286,777 | 4,612,417 | 1,996,840 | 2,164,859 | 30,222,991 |
| **2006** | 323,355 | 179,181 | 4,832,355 | 999,300 | 2,030,878 | 6,028,409 | 7,067,533 | 260,134 | 3,868,944 | 3,694,529 | 1,759,796 | 31,044,414 |
| **2007** | 232,328 | 68,142 | 5,136,580 | 1,584,354 | 1,468,499 | 7,913,817 | 3,718,451 | 99,800 | 3,504,041 | 2,392,258 | 876,707 | 26,994,977 |
| **2008** | 271,768 | 73,807 | 5,763,763 | 751,507 | 1,868,335 | 10,925,408 | 4,696,090 | 333,149 | 2,728,048 | 2,657,976 | 525,891 | 30,595,742 |
| **2009** | 329,064 | 113,705 | 4,786,895 | 1,123,434 | 835,970 | 5,004,604 | 4,238,319 | 275,410 | 4,278,145 | 1,791,058 | 160,922 | 22,937,526 |
| **2010** | 104,117 | 67,409 | 4,270,401 | 1,096,369 | 1,259,008 | 6,997,089 | 5,382,743 | 251,853 | 2,630,802 | 481,147 | 453,844 | 22,994,782 |
| **2011** | 91,705 | 370,798 | 3,504,522 | 1,257,302 | 758,216 | 8,969,762 | 6,197,026 | 241,149 | 2,640,309 | 1,160,914 | 2,042,981 | 27,234,684 |
| **2012** | 57,509 | 163,804 | 5,489,928 | 851,460 | 814,310 | 6,540,024 | 2,376,866 | 360,106 | 1,260,490 | 1,353,351 | - | 19,267,848 |
| **2013** | 103,106 | 227,447 | 4,828,109 | 3,076,814 | 2,129,160 | 6,749,587 | 4,643,220 | 248,183 | 2,377,734 | 478,750 | 70,798 | 24,932,908 |

Notes: The 2003 to 2006 values for Virginia do not include Technical Committee estimates of wave 1 harvest. The 2013 values do not include Technical Committee estimates of wave 1 harvest and are preliminary.

## 8.0 Figures

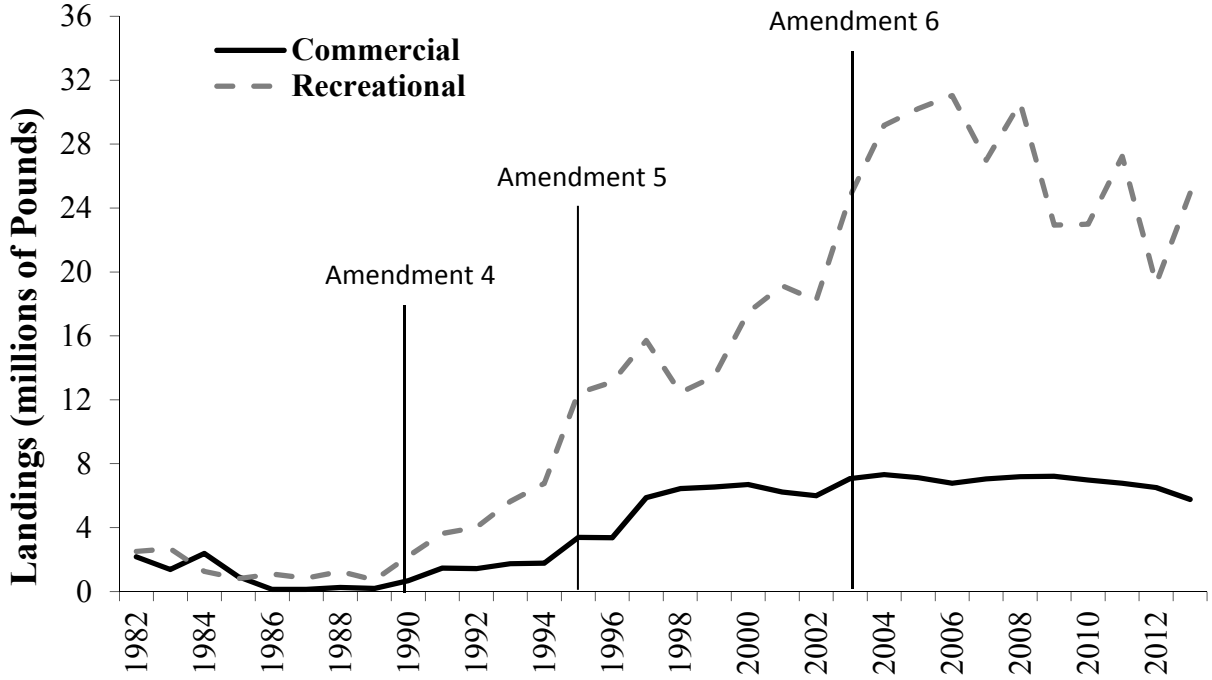


Figure 1. Annual migratory striped bass landings (in pounds) from coastal and Chesapeake Bay fisheries, 1982 – 2013.

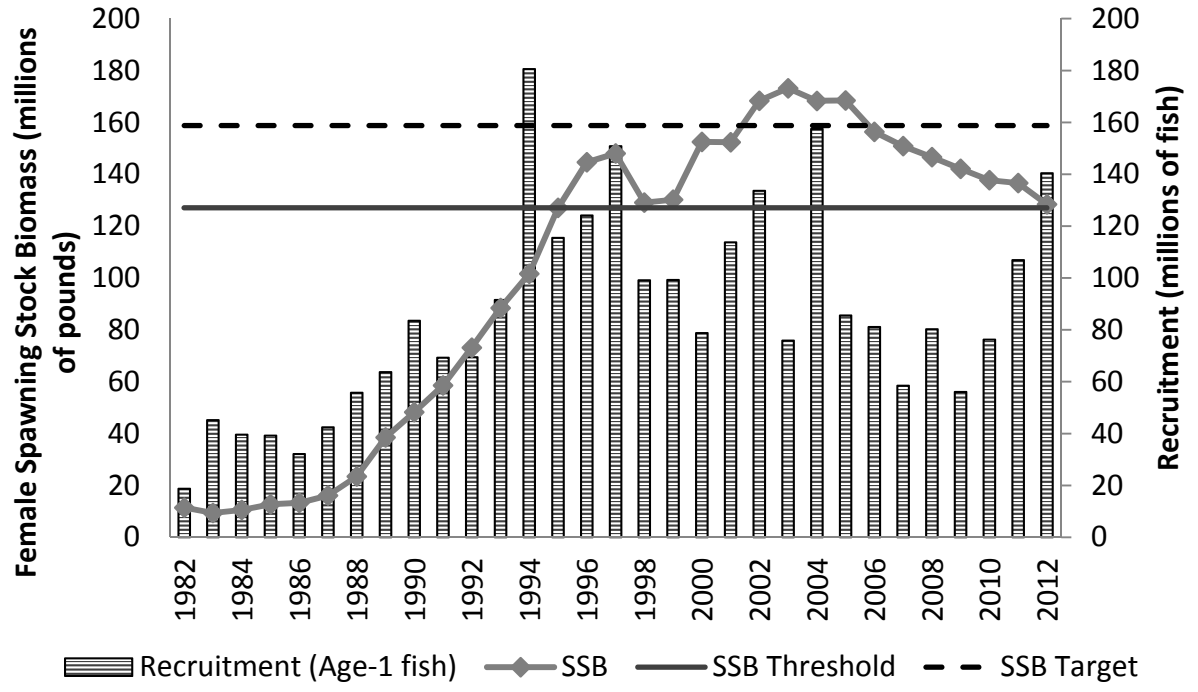


Figure 2. Atlantic striped bass female spawning stock biomass and recruitment (age-1) from 1982 to 2012.

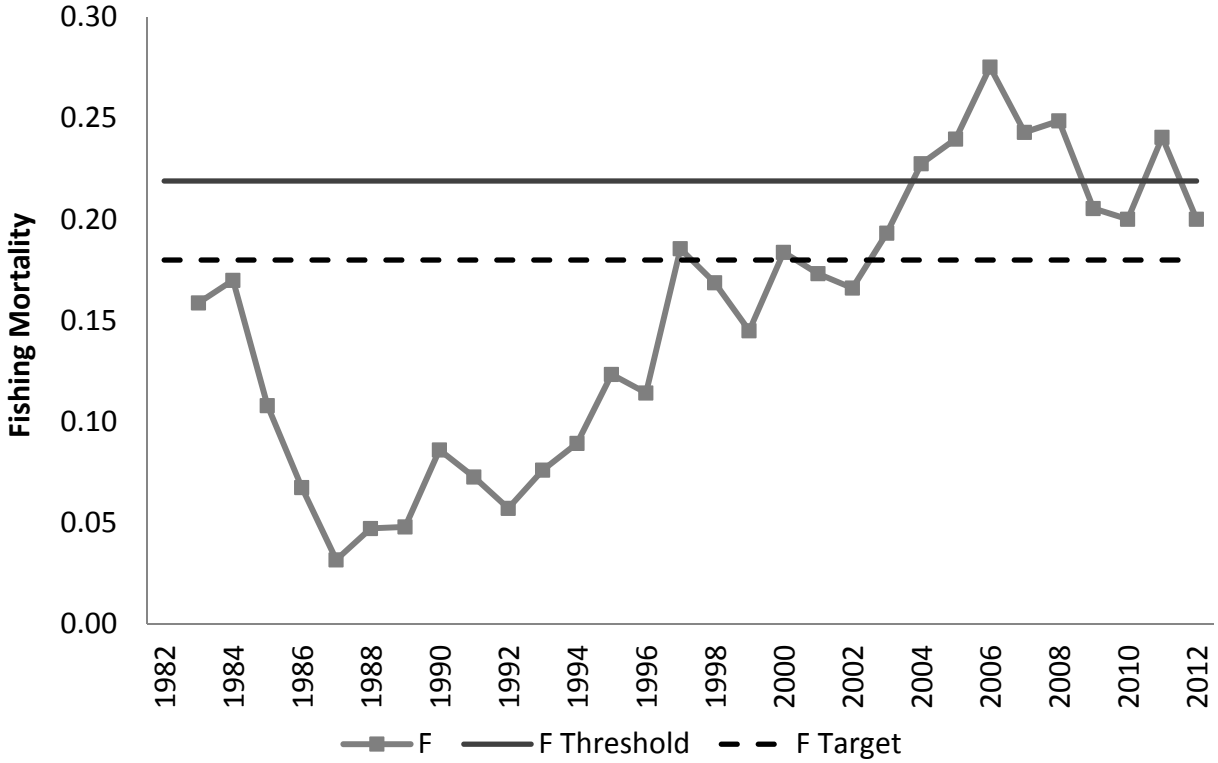


Figure 3. Atlantic striped bass fishing mortality rates relative to the proposed Fthreshold and Ftarget from 1982 to 2012.

**Appendix 1**

Summary of Atlantic Striped Bass Commercial Regulations

| STATE | SIZE LIMITS | SEASONAL QUOTA | OPEN SEASON |
|---|---|---|---|
| ME | Commercial fishing prohibited | | |
| NH | Commercial fishing prohibited | | |
| MA | 34" min. | 1,159,750 lb. (minus any overage from previous year)<br>Hook & line only | 7.12 until quota reached; 5 fish/day on Sun; 30 fish/day Tues-Thurs |
| RI | Floating fish trap: 26" min.<br><br>General category (mostly rod & reel): 34" min. | Total: 239,963 lb. (minus any overage from previous year)<br>Split 39:61 between trap and general category.<br>Gill netting prohibited. | Trap: 1.1 until quota reached; if 80% quota harvested before 8.26, a 500 lb/trap/day limit is imposed; from 8.27–12.31, 10,000 lb. quota set-aside available.<br>General Category: 6.1-8.31 or 75% quota; 9.13-12.31 or 100% quota; 5 fish/day Sun-Thu. |
| CT | Commercial fishing prohibited | | |
| NY | 24–36"<br>Ocean only<br>(Hudson River closed to commercial harvest) | 828,293 lb. (minus any overage from previous year). Pound nets, gill nets (6-8"stretched mesh), hook & line. | 7.1 – 12.15<br>Gill nets <6 or >8", 7 fish/trip; trawls 21 fish/trip.<br>Gill nets prohibited in Great South, South Oyster, and Hempstead Bays. |
| NJ | Commercial fishing prohibited | | |
| PA | Commercial fishing prohibited | | |
| DE | 28" minimum except 20" spring gillnet in DE Bay/River & Nanticoke River (5.5" max mesh & 0.28mm max twine) | 193,447 lb. (minus any overage from previous year) | Gillnet: 2.15-5.31 (3.1-31 for Nanticoke) & 11.15-12.31; drift nets only 2.15-28 & 5.1-31; no fixed nets in DE River<br>Hook and Line: 4.1–12.31<br>Except 4.1-5.31 closed spawning areas |
| MD | Bay and Rivers: 18–36"<br><br>Ocean: 24" | Bay and River: 1,963,873 lbs (part of Baywide quota)<br>Gear specific quotas and landing limits<br><br>Ocean: 126,396 lb. (minus any overage from previous year) | Bay Pound Net: 6.1-11.30, Mon-Sat<br>Bay Haul Seine: 6.7-11.30, Mon-Fri<br>Bay Hook & Line: 6.7-11.30, Mon-Thu<br>Bay Drift Gill Net: 1.1-2.28, 12.1-12.31, Mon-Fri<br>Ocean Drift Gill Net & Trawl: 1.1-4.30, 11.1-12.31, Mon-Fri |

(Continued – Summary of commercial regulations)

| STATE | SIZE LIMITS | SEASONAL QUOTA | OPEN SEASON |
|---|---|---|---|
| PRFC | 18” min all year<br>36” max 2.15–3.25 | 739,097 lbs (part of Baywide quota) | Hook & line: 2.15-3.25, 6.1-12.31<br>Pound Net & Other: 2.15-3.25, 6.1-12.15<br>Gill Net: 1.1-3.25 |
| DC | Commercial fishing prohibited | | |
| VA | Bay and Rivers: 18” min, 28” max & complimentary gill net mesh size limit 3.26–6.15<br>Ocean: 28” minimum | Bay and Rivers: 1,430,361 lbs in 2012 (part of Baywide quota)<br><br>Ocean: 184,853 lb. (minus any overage from previous year) | Bay and Rivers: 2.1-12.31<br><br>Ocean: 2.1-12.31 |
| NC | Albemarle Sound: 18”<br><br>Ocean: 28” | Albemarle Sound: 275,000 lb<br>Ocean: 480,480 lb. (minus any overage from previous year) split 160,160 lbs each to beach seine, gill net & trawl | Albemarle Sound: 1.1-4.30, 10.1-12.31; daily trip limit ranging from 5 to 15 fish; striped bass cannot exceed 50% by weight of total finfish harvest; season and daily trip limits set by proclamation.<br>Ocean: gear requirements; open days and trip limits for beach seine, gill net, and trawl set via proclamation |

Summary of Atlantic Striped Bass Recreational Regulations

| STATE | SIZE LIMITS | BAG LIMIT | OTHER | OPEN SEASON |
|---|---|---|---|---|
| ME | 20 – 26" OR ≥40" | 1 fish | Hook & line only | All year, except spawning areas are closed 12.1 – 4.30 and catch and release only 5.1 – 6.30 |
| NH | 1 fish 28–40" & 1 fish >28" | 2 fish | No netting; no gaffing; must be landed with head and tail intact; no culling | All year |
| MA | 28" min | 2 fish | Hook & line only | All year |
| RI | 28" min | 2 fish | | All year |
| CT | 28" min, except Connecticut River Bonus Program: 22-28" | 2 fish, except CR Bonus: 1 fish | CR Bonus Quota: 4,025 fish | All year, except CR Bonus 5.4-6.30 (limited to I-95 bridge to MA border) |
| NY | Ocean Private: 1 fish 28-40" & 1 fish > 40"<br>Ocean Charter: 28" min<br>Hudson River: 18" min<br>DE River: 28" min | Ocean: 2 fish<br><br>Hudson R.: 1 fish<br>DE River: 2 fish | Angling or spearing only | Ocean: 4.15 – 12.15<br><br>Hudson River: 3.16 – 11.30<br>Delaware River: All year |
| NJ | 28" min | 2 fish, plus 1 additional through Bonus Program | Bonus program quota: 321,750 lb.<br>No netting. Non-offset circle hooks required 4.1-5.31 in DE River if using natural bait. | All year except 1.1-2.28 in intra-coastal waters plus 4.1-5.31 in lower DE River |
| PA | Non-tidal DE River: 28" min; Delaware Estuary: 28" min. except 20-26" from 4.1-5.31 | 2 fish | | Year round |
| DE | 28" min. except 20-26" from 7.1-8.31 in Del. River, Bay & tributaries | 2 fish | Hook & line, spear (for divers) only. Circle hooks required in spawning season. | All year except 4.1-5.31 in spawning grounds (catch & release allowed) |

(Continued – Summary of recreational regulations)

| STATE | SIZE LIMITS | BAG LIMIT | OTHER | OPEN SEASON |
|---|---|---|---|---|
| MD | Susquehanna Flats (SF): 18-26”<br><br>Chesapeake Bay Trophy: 28” min<br>Chesapeake Bay Regular: 18” min with 1 fish > 28”<br>Ocean: 28” min | SF: 1 fish<br><br>Chesapeake Bay Trophy: 1 fish<br>Chesapeake Bay Regular: 2 fish<br><br>Ocean: 2 fish | SF: non-off set circle hook if baited hooks & gap>0.5”<br><br>Chesapeake Bay Quota: 2,657,102 lbs (part of Baywide quota; includes Susquehanna Flats harvest, excludes trophy harvest) | SF: 3.1-5.31; catch & release only 3.1-5.3<br><br>Chesapeake Bay Trophy: 4.18-5.15 (most tribs closed)<br>Chesapeake Bay Regular: 5.16-12.15 (most tribs closed until 6.1)<br><br>Ocean: All year |
| PRFC | Trophy: 28”<br>Regular: 18” min with 1 fish > 28” | Trophy: 1 fish<br>Regular: 2 fish | Quota: 604,716 lbs. (part of Baywide quota; excludes trophy harvest) | Trophy: 4.18 -5.15<br>Regular: 5.16-12.31 |
| DC | 18” min with 1 fish > 28” | 2 fish | Hook & line only | 5.16-12.31 |
| VA | Bay/Coastal Trophy: 32” min (28” Potomac tribs)<br>CB Spring: 18-28”; 1 fish >32”<br>CB Fall: 18–28”; 1 fish >34”<br>Potomac Tribs: 18-28”; 1 fish >28”<br>Ocean: 28” | Bay/Coastal Trophy: 1 fish<br><br>CB Spring: 2 fish<br><br>CB Fall: 2 fish<br>Potomac Tribs: 2 fish<br>Ocean: 2 fish | Hook & line, rod & reel, hand line only<br><br>Chesapeake Bay Quota: 1,430,361lbs in 2012 (part of Baywide quota; excludes trophy harvest) | Bay Trophy: 5.1-6.15 (open 4.18 Potomac tribs)<br>Coastal Trophy: 5.1-5.15<br>CB Spring: 5.16-6.15 (no fish >32” in spawning areas)<br>CB Fall: 10.4-12.31<br>Potomac Tribs: 5.16-12.31<br>Ocean: 1.1-3.31, 5.16-12.31 |
| NC | Roanoke River: 2 fish 18-22” OR 1 fish 18-22” and 1 fish >27”<br>Albemarle Sound: 18” min.<br><br>Ocean: 28” min | Roanoke River: 2 fish<br>Albemarle Sound: 3 fish<br>Ocean: 2 fish | Roanoke River quota: 137,500 lb.<br><br>Albemarle Sound quota: 137,500 lb. | Roanoke River: 3.1 – 4.30 (single barbless hook required 3.1-6.30 from Roanoke Rapids dam downstream to US 258 bridge)<br>Albemarle Sound: Spring 1.1 – 4.30; Fall 10.1-12.31<br>Ocean: All year |