Atlantic States Marine Fisheries Commission

Black Sea Bass Commercial Management PDT

Thursday, January 9, 10:30 am-12:00 pm

DRAFT AGENDA

Phone: 1-888-585-9008
Passcode: 705-426-714

Webinar: https://global.gotomeeting.com/join/794053613

1. **Welcome & Review of the Agenda** *(C. Starks)* 10:30 a.m.

2. **Review Draft Document** *(C. Starks)* 10:35 a.m.
   - Review draft management options
   - Consider ranges of sub-options for each approach

3. **Discuss Additional Information** *(C. Starks)* 11:30 a.m.
   - What additional information would help inform the public?

4. **Next Steps** *(C. Starks)* 11:45 a.m.
   - Discuss timeline/tasks for document completion
   - Plan for next PDT call

5. **Adjourn** 12:00 p.m.

Atlantic States Marine Fisheries Commission

DRAFT ADDENDUM --- TO THE SUMMER FLOUNDER, SCUP, BLACK SEA BASS FISHERY MANAGEMENT PLAN

Black Sea Bass Commercial Management

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.

ASMFC Vision:

Sustainably Managing Atlantic Coastal Fisheries

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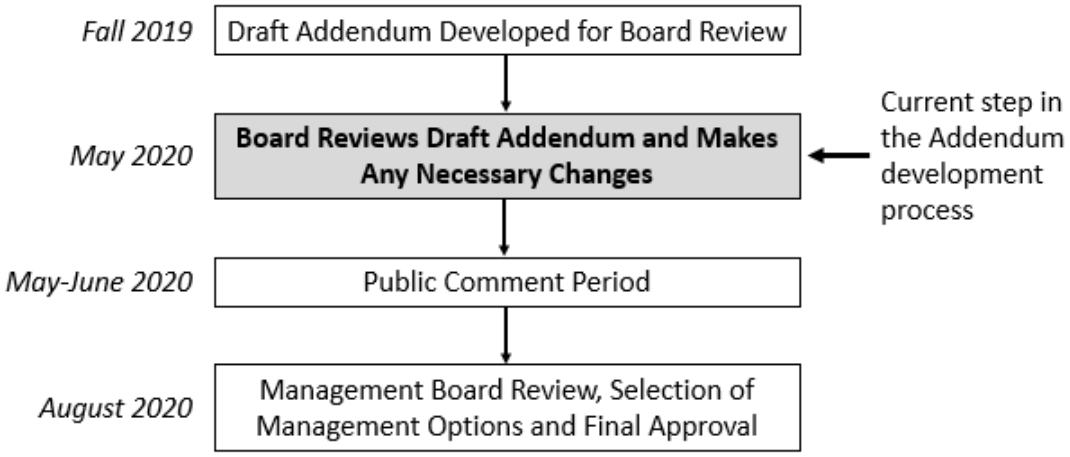
Public Comment Process and Proposed Timeline

In October 2019, the Summer Flounder, Scup, and Black Sea Bass Management Board (Board) initiated development of an addendum to the Interstate Fishery Management Plan (FMP) for Summer Flounder, Scup, and Black Sea Bass. The Draft Addendum addresses black sea bass commercial state allocations. This document presents background on black sea bass commercial management; the addendum process and timeline; and a statement of the problem. It 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 [DATE], 2020 at 11:59 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.

Mail: Caitlin Starks, FMP Coordinator
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1.0 Introduction

Draft Addendum XXXIII proposes alternative approaches for allocating the coastwide black sea bass commercial quota to the states. On October 9, 2019, the Atlantic States Marine Fisheries Commission's (Commission) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) approved the following motion:

> *Move to initiate an addendum to consider adjustments to the commercial black sea bass allocations consistent with the goal statement and options developed by the Board.*

The management unit for black sea bass in US waters is the western Atlantic Ocean from Cape Hatteras, North Carolina northward to the US-Canadian border. The black sea bass fisheries are managed cooperatively by the states through the Commission in state waters (0-3 miles), and through the Mid-Atlantic Fishery Management Council (Council) and NOAA Fisheries in federal waters (3-200 miles).

While the Council and Commission are responsible for annually implementing a coastwide commercial quota, the Commission is responsible for managing the coastwide quota through a state by state allocation system, established in 2003 through Amendment 13 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP), and extended indefinitely through Addendum XIX (2007). This draft addendum is proposed under the adaptive management procedures of Amendment 12 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP).

2.0 Overview

2.1 Statement of Problem

State allocations of the commercial black sea bass coastwide quota were originally implemented in 2003 as part of Amendment 13, loosely based on historical landings from 1980-2001. The state shares in Amendment 13 allocated 67% of the coast-wide commercial quota among the states of New Jersey through North Carolina (North of Cape Hatteras) and 33% among the states of New York through Maine. These state commercial allocations have been unchanged for 15 years. Meanwhile, the resource has experienced shifts in distribution and abundance, and changes in fishing effort and fishing behaviors have occurred.

There is scientific information to support these changes. For example, according to the most recent black sea bass stock assessment, which modeled fish north and south of Hudson Canyon separately, the majority of the stock occurred in the southern region prior to the mid-2000s. Since then the biomass in the northern region has grown considerably and currently accounts for the majority of spawning stock biomass (Figure 1). While the region specific models created for the assessment were not intended to stand alone, this shift in black sea biomass distribution has also been supported by peer reviewed scientific research (e.g., Bell et al., 2015).

In some cases, expansion of the black sea bass stock into areas with historically minimal fishing effort has created significant disparities between state allocations and current abundance and resource availability. The most noteworthy example is Connecticut, which has experienced significant increases in black sea bass abundance and fishery availability in Long Island Sound in recent years but was only allocated 1% of the coastwide commercial quota based on landings from 1980-2001.

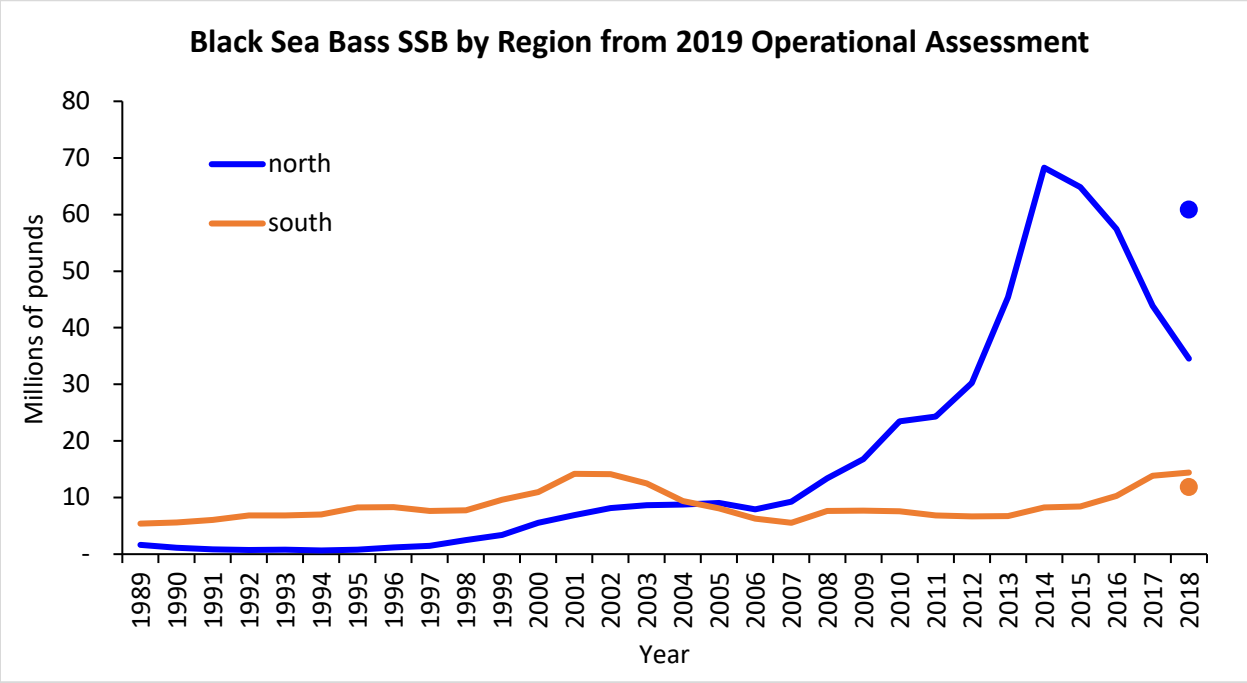

Figure 1. Black sea bass spawning stock biomass by region from the 2019 Operational Assessment Update. Open marks represent retro-adjusted values (used to set catch limits). Source: Personal communication with Northeast Fishery Science Center.

2.2 Background

The Fishery Management Plan (FMP) for black sea bass was approved in October 1996 by Commission, and the Council approved the black sea bass management measures as Amendment 9 to the Summer Flounder, Scup, and Black Sea Bass Fishery Management Plan (FMP) in October 1996. The FMP established an annual process of developing commercial quotas, recreational harvest limits, and recreational and commercial management measures, as well as a series of permitting and reporting requirements. Under the original FMP, the annual coastwide commercial quota was divided into four quarters: January 1 through March 31, April 1 through June 30, July 1 through September 30, and October 1 through December 31.

Under the quarterly quota allocation system, the fishery had been subjected to lengthy closures and some significant quota overages. Fishery closures occurring as a result of filled/exceeded quotas resulted in increased discards of legal sized black sea bass in mixed fisheries for the remainder of the closed period. Significant financial hardship on the part of the fishing industry also resulted due to a decrease in market demand caused by a fluctuating supply. To address

these issues, the Management Board enacted a series of Emergency Rules in 2001 establishing initial possession limits, triggers, and adjusted possession limits. While these measures helped reduce the length of fishery closures, the frequent regulatory changes confused fishermen and added significant administrative burden to the states. Addendum VI (2002) provided a mechanism for initial possession limits, triggers, and adjusted possession limits to be set during the annual specification setting process without the need for further Emergency Rules.

The quarterly quota system was replaced by Amendment 13, approved by the Commission and Council in May 2002. Amendment 13 implemented a federal coastwide commercial quota to be managed by the Commission through a state-by-state allocation system for 2003 and 2004. This system was adopted to reduce fishery closures, achieve more equitable distribution of quota to fishermen, and allow the states to manage their commercial quota for the greatest benefit of the industry in their state. The Council adopted a system that would allocate the annual quota on a coastwide basis each year. State-specific shares were adopted as follows: Maine and New Hampshire .5%, Connecticut 1%, Delaware 5%, New York 7%, Rhode Island, North Carolina and Maryland 11%, Massachusetts 13%, New Jersey and Virginia 20% (Table 1).

The individual state shares management program was continued in 2005 and 2006 through Addendum XII (2004). Addendum XIX, approved in 2007, extended the state shares of the commercial black sea bass quota indefinitely. No further changes have been made to the black sea bass commercial state shares. Addenda XII and XIX (2004 and 2007, respectively) allowed for the transfer of black sea bass commercial quota, and Addendum XX (2009) established the process for state to state quota transfers. Under the management program established through these Addenda, states have the responsibility of managing their quota to provide the greatest benefit to their commercial black sea bass industry. States designed allocation systems based on state-specific landing patterns using possession limits and seasons to ensure a continuous and steady supply of product over the season for producers and/or a fair and equitable distribution of black sea bass to all fishermen who have traditionally landed black sea bass in their state. The ability to transfer or combine quota further increased the flexibility of the system to respond to annual variations in fishing practices or landings patterns.

The Board formed a Commercial Black Sea Bass Working Group in August 2018 to identify management issues related to changes in stock distribution and abundance, and propose potential management strategies for Board consideration. In February 2018, the Board reviewed the Working Group report, which identified two main issues: (1) state commercial allocations implemented in 2003 do not reflect the current distribution of the resource, which has expanded significantly north of Hudson Canyon, and (2) federal coastwide quota management can limit harvest opportunities for some states if another state's harvest overage results in a coastwide fishery closure. In February 2019, the Board requested the Plan Development Team (PDT) perform additional analyses and further develop proposed management options related to the issue of state commercial allocations. In October 2019, the Board initiated Draft Addendum XXXIII to consider changes to the black sea bass commercial state allocations.

Table 1: State shares of Black Sea Bass as allocated by Addendum XIX to Amendment 13.

State	Percent of Coastwide Quota
Maine	0.5 %
New Hampshire	0.5 %
Massachusetts	13 %
Rhode Island	11 %
Connecticut	1 %
New York	7 %
New Jersey	20 %
Delaware	5 %
Maryland	11 %
Virginia	20 %
North Carolina	11 %

2.3 Status of the Stock

The most recent stock status information comes from the 2019 operational stock assessment, which was peer-reviewed and approved for management use in October 2019 (SARC xx?). The assessment indicated that the black sea bass stock north of Cape Hatteras, North Carolina was not overfished and overfishing was not occurring in 2018, the terminal year of data used in the assessment.

The operational stock assessment updated the Age Structured Assessment Program (ASAP) models used in the 2016 benchmark stock assessment with commercial and recreational catch data, research survey and fishery-dependent indices of abundance, and analyses of those data through 2018[1]. For modeling purposes, the stock was partitioned into two sub-units approximately at Hudson Canyon to account for spatial differences in abundance and size at age. The sub-units are not considered to be separate stocks. Although the stock was assessed by sub-unit, the combined results were used to develop reference points, determine stock status, and recommend fishery specifications.

Spawning stock biomass (SSB), which includes both mature male and female biomass, averaged around 8 million pounds during the late 1980s and early 1990s and then steadily increased from 1997 to 2002 when it reached 22.2 million pounds. From 2007 to 2014, SSB steadily and dramatically increased, reaching a peak in 2014 at 76.5 million pounds; since 2014 SSB has trended back down. After adjusting for retrospective error in the model, SSB in the terminal year (2018) is estimated at 73.6 million pounds, approximately 2.4 times the target SSB

[1] In July 2018, the Marine Recreational Information Program (MRIP) replaced the existing estimates of recreational catch with a calibrated 1981-2017 time series that corresponds to new survey methods that were fully implemented in 2018. The new calibrated recreational estimates are significantly higher than previous estimates, especially in later years of the time series. This change has impacted the understanding of overall biomass levels.

reference point (SSB_{MSY} PROXY= SSB40% = 31.1 million pounds) (Figure X). The (similarly adjusted) fishing mortality rate (F) in 2018 was 0.42, about 91% of the fishing mortality threshold reference point (F_{MSY} PROXY= F40%) of 0.46. F has been below the F_{MSY} PROXY for the last five years except for in 2017. Average recruitment of black sea bass from 1989 to 2018 is 36 million fish at age 1. The 2011 year class was estimated to be the largest in the time series at 144.7 million fish and the 2015 year class was the second largest at 79.2 million fish. Recruitment of the 2017 year class as age 1 in 2018 was estimated at 16.0 million, well below the time series average.

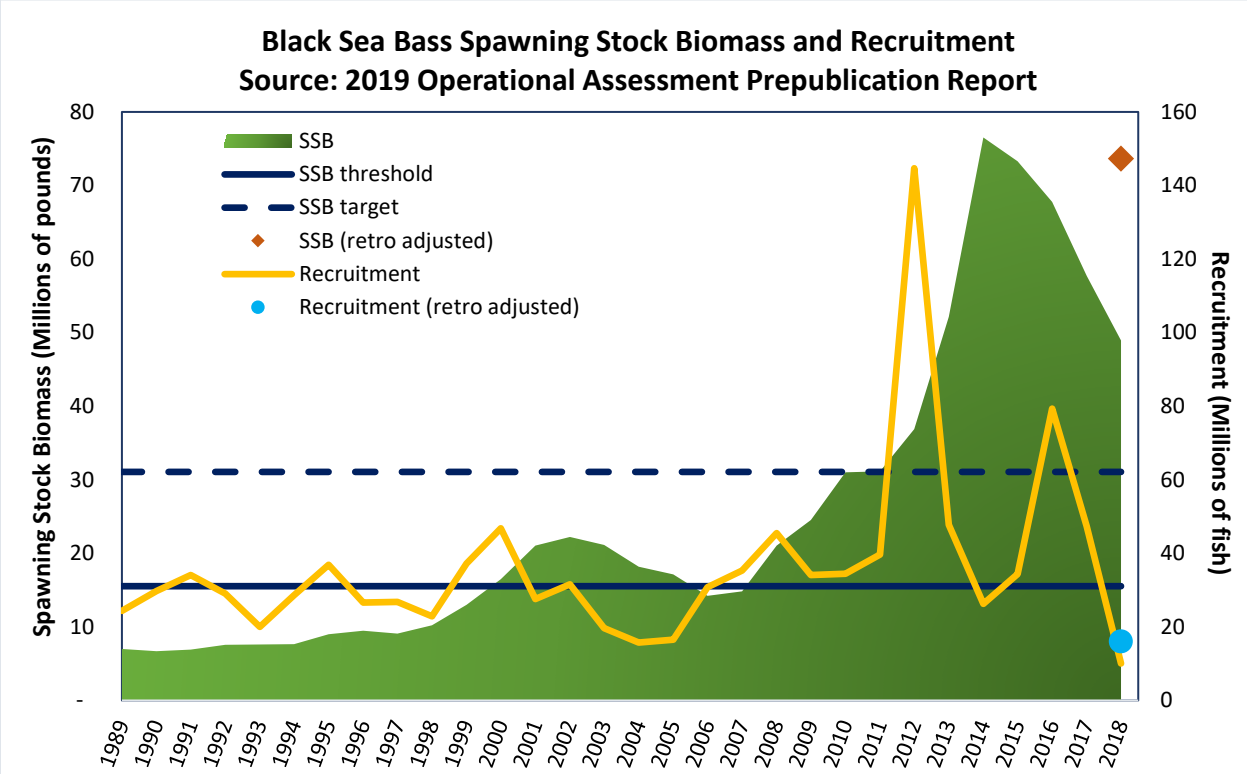

Figure 2: Black sea bass spawning stock biomass and recruitment. Source: 2019 Operational Assessment Prepublication Report, Northeast Fishery Science Center.

2.4 Status of the Fishery

Commercial landings have been constrained by a coastwide (i.e., Maine through Cape Hatteras, North Carolina) commercial quota since 1998, and state allocations were introduced in 2003. From 1998 to 2018, coastwide landings have closely followed quotas, ranging from a low of 1.16 million pounds in 2009 to a high of 3.98 million pounds in 2017. Since the coastwide quota was implemented in 1998, on average commercial discards have constituted 17% of total commercial removals. Over the last five years of the time series (2014-2018) discards were generally higher, averaging 33% of total removals; discards in recent years were likely influenced by high availability coupled with quota and minimum fish size limitations.

ADD SOCIOECONOMIC ANALYSIS (Price-Landings relationships)

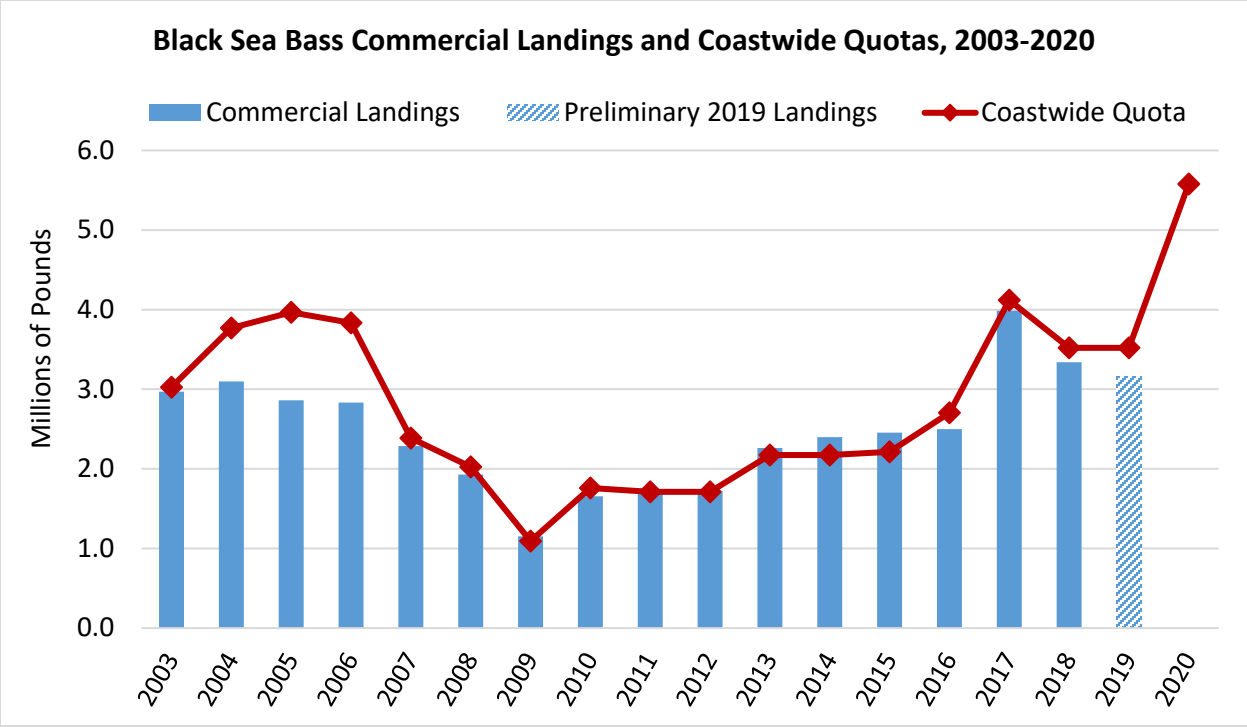

Figure 3: Black sea bass commercial landings and coastwide quotas (2003-2020). 2019 Landings are preliminary. Source: NOAA Fisheries.

3.0 Proposed Management Program

The Board is seeking public comment on each of the options included in the Draft Addendum.

3.1 Management Options

A. Status Quo (Current Commercial State Allocations)

This option would maintain the current state allocation percentages (Table 1).

B. Increase Connecticut Quota to 5%

This option is aimed at addressing Connecticut's disproportionately small allocation of the coastal quota. Connecticut has experienced a substantial increase in abundance of black sea bass in state waters over the last seven years (Figure X). This increased resource availability has rendered Connecticut particularly disadvantaged by its current low allocation of the coastal quota (1%). This option addresses the disparity between abundance of black sea bass in Connecticut waters and Connecticut's quota allocation by increasing Connecticut's allocation to 5%, using the following approach:

1) Hold New York and Delaware allocations constant. New York has experienced a similar substantial increase in black sea bass abundance in state waters; therefore, it would not be appropriate to reduce their allocation. Delaware's current allocation is 5%. This option does not seek to make Connecticut's percent allocation larger than any other state.
2) Move 1/2 of Maine and New Hampshire quotas to Connecticut.

3) Move some allocation from Massachusetts, Rhode Island, New Jersey, Maryland, Virginia, and North Carolina to Connecticut; the amount moved from each state is proportional to that state's current percent allocation.

Table X. Proposed changes in base allocations.

State	Current % Allocation	Change in % Allocation	New % Allocation
ME	0.5%	-0.2500%	0.2500%
NH	0.5%	-0.2500%	0.2500%
MA	13.0%	-0.5291%	12.4709%
RI	11.0%	-0.4477%	10.5523%
CT	1.0%	4.0000%	5.0000%
NY	7.0%	0.0000%	7.0000%
NJ	20.0%	-0.8140%	19.1860%
DE	5.0%	0.0000%	5.0000%
MD	11.0%	-0.4477%	10.5523%
VA	20.0%	-0.8140%	19.1860%
NC	11.0%	-0.4477%	10.5523%

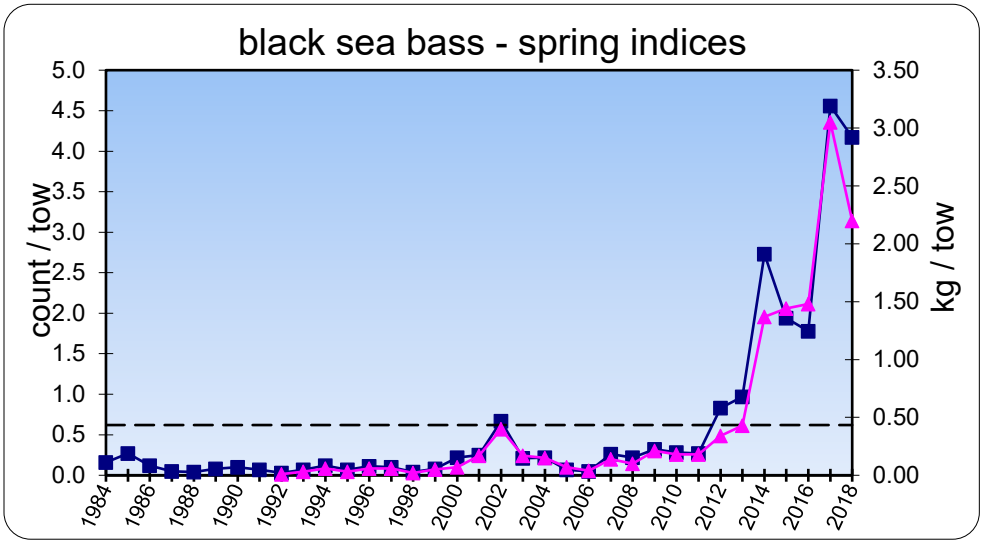

Figure 4: CT Long Island Sound Trawl Survey Spring Black Sea Bass Index.

Please note that this option is proposed for consideration before, or in addition to any of the following allocation options.

C. Dynamic Transboundary Allocation Adjustment

This approach to adjusting the state-by-state allocations is a dynamic approach for gradually adjusting state-specific allocations using a combination of resource utilization

(historical allocations) and current levels of resource distribution. The option is modeled after the Transboundary Management Guidance Committee (TMGC) approach, which was developed and used for the management of Georges Bank resources shared by the United States and Canada (NEFMC, 2003). The approach proposed here for black sea bass allocations differs from the TMGC approach used for Georges Bank, and will be referred to as the Dynamic Transboundary Allocation Adjustment Approach (DTAA Approach).

This strategy sets forth a formulaic approach that balances stability within the fishery, based on historical allocations, with gradual allocation adjustments, based on regional shifts in resource distribution derived from updated stock assessments or surveys. The former recognizes traditional involvement and investment in the development of the fishery since the beginning of black sea bass management, and the latter addresses the changing distribution of the black sea bass resource and the resulting effects within the fishery. Through incremental adjustments over time, the state allocations become less dependent on the historical allocations and more dependent on regional resource distribution.

This option proposes use of the existing state allocations to reflect initial values for historical participation (resource utilization) and proposes use of the 2016 benchmark stock assessment results (NEFSC, 2017) to determine the values for resource distribution; the two values are then integrated in the form of regional allocation shares. An alternative to using the stock assessment would be to use synoptic trawl survey information. Two regions are proposed, as defined in the assessment: (1) ME - NY, (2) NJ - NC. They emanate from the spatial stratification of the stock into subunits that generally align with those used for the assessment, which used Hudson Canyon as the dividing line based on several pieces of evidence that stock dynamics had an important break in this area. The regional allocation shares are then subdivided into state-specific allocations. Appendix X includes a complete description and examples of the DTAA approach retrospectively applied to recent years.

Dynamic Transboundary Allocation Adjustment Approach Sub-options

The DTAA approach affords considerable flexibility, both with regard to initial configuration and application of the allocation formula over time. The overall approach can be modified in various ways to achieve different results. One feature involves the use of control rules to guard against abrupt shifts in allocations. Below are proposed sub-options for various components of the approach.

1. Regional configuration

    Sub-option C1-A: This option would establish two regions, based on the spatial stratification in the assessment as follows: 1) ME-NY, and 2) NJ-NC.

Sub-option C1-B: This option would establish four regions, in order to accommodate key differences in state fisheries: 1) ME-NH; 2) MA-NY; 3) NJ; and 4) DE-NC.

2. Values for historical participation and resource utilization (e.g., current, status quo allocations, or some variant thereof);

Sub-option C2-A: This option would apply the DTAA approach using the current allocations as the starting point.

Sub-option C2-B: This option would apply the DTAA approach using the following allocations as the starting point:

[*Insert table of allocations if desired*]

3. Initial and final weighting values for resource utilization and resource distribution (e.g. 90:10 to 10:90, or some variant thereof);

Sub-option C3-A: This option would apply a transition from initial weights of 90:10 for [resource utilization]:[resource distribution] to final weights of 10:90 for [resource utilization]:[resource distribution].

Sub-option C3-B: This option would apply a transition from initial weights of 90:10 for [resource utilization]:[resource distribution] to final weights of 30:70 for [resource utilization]:[resource distribution].

4. Percent change in the weighting values per year

Sub-option C4-A: Under this option the weighting values for [resource utilization]:[resource distribution] would change by 5% each year.

Sub-option C4-B: Under this option the weighting values for [resource utilization]:[resource distribution] would change by 20% each year.

5. Frequency of adjustments

Sub-option C5-A: Under this option adjustments to the weighting values would occur every year.

Sub-option C5-B: Under this option adjustments to the weighting values would occur every year.

6. Total duration of the transition between starting and ending weights for resource utilization and resource distribution

Sub-option C6-A: Under this option the total transition time from the initial to final weights would be 8 years.

Sub-option C6-B: Under this option the total transition time from the initial to final weights would be 16 years.

7. Control rule (e.g., maximum regional allocation change per year)

Sub-option C7-A: This option would establish a maximum regional allocation change of 3% per year

Sub-option C7-B: This option would establish a maximum regional allocation change of 5% per year

Sub-option C7-C: This option would establish a maximum regional allocation change of 10% per year

Sub-option C7-D: Under this option there would be no maximum limit to annual change in regional allocations.

D. Trigger Approaches

Using a trigger-based approach, a minimum coastwide quota would be established as a trigger for a change in allocations to the states. If the coastwide quota established by NOAA Fisheries in a given year were higher than the established quota trigger amount, then the coastwide quota would be distributed to the states in two steps: 1) the amount of coastwide quota up to and including the trigger is distributed to the states according to "base allocations" (e.g. the current state allocations) which remain the same annually; and 2) the amount of quota in excess of the established trigger amount, hereafter referred to as the surplus quota, is distributed using a different allocation scheme. This method limits fishery disruption or instability by guaranteeing states some minimum level of quota based upon the base allocations.

Trigger Approach Sub-options

The first set of sub-options for the trigger approach relates to the established trigger value above which surplus quota would be redistributed (sub-options D1 and D2). Another set of sub-options relates to how surplus quota will be distributed among the states (sub-options D3, D3, D3-A, and D4-B)

1. Sub-options for trigger value

Sub-option D1: Trigger value of 3 million pounds

A 3 million pound trigger represents approximately the average coastwide commercial quota from 2003 through 2018. Years in which specifications were set using a constant catch approach were excluded from the average (i.e., 2010-2015). Commercial quotas remained essentially the same from 2010 until 2013 when there was a slight change in the coast-wide quota established by the SSC in 2013 however, that was merely an extension of the constant catch that extended until 2016. The average commercial quota from 2003 through 2018 is 3.12 million pounds.

Sub-option D2: Trigger value of 4 million pounds

A 4 million pound trigger represents approximately the highest commercial quota from 2003 through 2017. The highest commercial quota was 4.12 million pounds in 2017. A 3

million pound trigger is lower than 10 out of the last 13 years (2008-2019) of coastwide commercial quotas established by the National Marine Fisheries Service. A 4 million pound trigger is higher than all but one year of coastwide commercial quotas in the last 13 years (Figure 5). Table 2 shows an example of the quota trigger approach using a 3 million pound trigger and the 2017 coastwide quota of 4.12 million pounds. Additional quota trigger examples are provided in Appendix X.

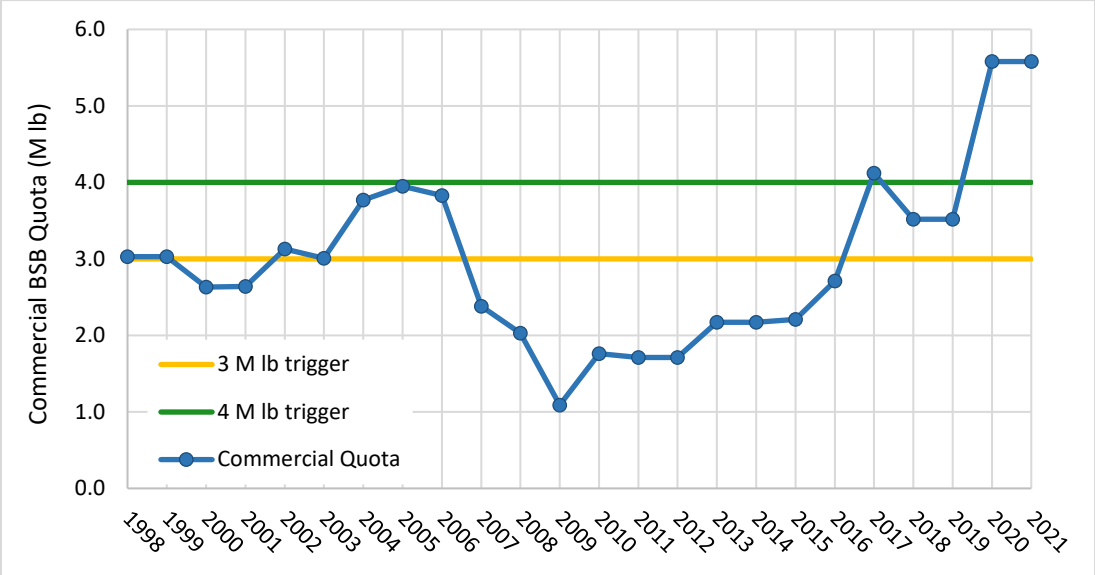

Figure 5: Black sea bass commercial quotas over time compared to 3 million and 4 million pound triggers.

2. Sub-options for distribution of surplus quota

Sub-option D3: Even distribution of surplus quota

If the coastwide quota established by NOAA Fisheries in a given year were higher than the established quota trigger, then the surplus quota would be distributed to the states in two steps: 1) the amount of coastwide quota up to and including the trigger is distributed to the states according to "base allocations" (e.g. the current state allocations); and 2) the amount of quota exceeding the established trigger is distributed equally to the states of Massachusetts through North Carolina, with Maine and New Hampshire receiving a smaller percentage based on their historically low participation in the fishery. Should the annual coastwide quota be less than or equal to the established quota trigger, allocation percentages would default to the base allocations.

Sub-option D4: Distribution of surplus quota based on regional biomass from stock assessment

This sub-option attempts to address the goal statement of this action by incorporating the regional distribution of biomass. If the coastwide quota established by NOAA Fisheries in a given year were higher than the established quota trigger, then the surplus

quota would be distributed to the states in three steps: 1) the amount of coastwide quota up to and including the trigger is distributed to the states according to a "base allocation" (e.g. the current state allocations); 2) surplus quota would first be allocated to each region based on the regional biomass proportions; and 3) the regional quotas would be distributed to the states within each region. A method for distributing quota to states within each region would need to be specified by selecting sub-option D2A or D2B.

The proposed regional definitions are as follows: 1) A northern region including the states of ME-NY; and 2) a southern region including the states of NJ-NC North of Cape Hatteras. This regional definition is intends to match as closely with the spatial subunits used in the stock assessment as possible. The proportion of coastwide biomass in each region would be informed either by the assessment models or fishery independent survey data, as appropriate. Fishery independent survey data may be required if the benchmark assessment regional model framework cannot produce valid regional results in the future. The terminal year of the assessment can be used if retrospective bias adjustments to the assessment outputs of SSB are required, or the last three years of the assessment can be averaged if no adjustment is necessary. The regional proportions used to distribute quota above the trigger should be updated every time appropriate new data is available. Tables 3-4 in Appendix C show examples of allocation above the trigger based on regional biomass, using the Rho-adjusted regional model outputs from the terminal year of the 2016 benchmark assessment (2015).

Sub-option D4-A: Even distribution of regional surplus quota

In the third step of quota distribution (as described under sub-option D4), regional quota would be distributed to the states within each region as follows: In the northern region, ME and NH would each receive 1% of the northern region surplus quota, and the remaining regional surplus quota would be allocated equally to the states of MA-NY. In the southern region, each state would receive an equal share of the southern region surplus quota.

Sub-option D4-B: Proportional distribution of regional surplus quota

In the third step of quota distribution (as described under sub-option D4), regional quota would be distributed to the states within each region as follows: In the northern region, ME and NH would each receive 1% of this additional quota from the northern region quota, and the remaining northern region surplus quota would be allocated to the states of MA-NY in proportion to their base allocations. In the southern region, the southern region surplus quota would be allocated to each state in proportion to their base allocations.

E. Dynamic Trigger Approach

This option uses a 3 million pound trigger while also incorporating the spirit of the DTAA approach: dynamic adjustment of allocations over time with consideration of resource availability and previous allocation regime. This option uses the following method to allocate quota within a given year:

1) Allocate quota up to and including the 3 million pound trigger using the previous year's state allocation percentages;

2) Allocate any surplus quota above 3 million pounds as follows:

a. Distribute surplus quota to the northern and southern regions according to the proportion of available biomass in each region (northern region = ME-NY; southern region = NJ-NC north of Cape Hatteras).

b. Further distribute regional surplus quotas to the states within each region in proportion to the historic allocations.

F. Hybrid Approach

In addition to the options presented above, a hybrid approach could be developed to allocate the coastwide quota among the states using two or more methods. This could essentially be an extension of the trigger approach (a portion of the quota, either a fixed amount or a percentage, up to the trigger value is distributed using historic allocation, and any remaining quota is distributed using equal allocations or biomass distribution), but could incorporate other options. Use of a hybrid approach may offer flexibility and compromise for different perspectives, but at the cost of increased complexity. For example, a hybrid approach that incorporates a trigger, equal allocation, and regional allocation could be developed that assigns a portion of the coastwide quota using historic allocation to account for existing markets and fishing communities, a portion distributed equally to each state, and a portion to each region based on biomass distribution.

4.0 Compliance

TBD

Literature Cited

[Add]

Amendment 13, NEFMC.

Appendix I.

[Add]

Plan Development Team Report: Black Sea Bass Commercial Management

Prepared by:

Black Sea Bass Plan Development Team
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Emily Gilbert, NOAA Fisheries

Revised September 27, 2019 to correct TMGC figure errors and remove Section II.D. per Board discussion on May 1, 2019

Table of Contents

I. Introduction

The Commission's Summer Flounder, Scup and Black Sea Bass Management Board formed a Commercial Black Sea Bass Working Group in August 2018 to identify management issues related to changes in stock distribution and abundance, and propose potential management strategies for Board consideration. In February 2018, the Board reviewed the Working Group report, which identified two main issues: (1) state commercial allocations implemented in 2003 do not reflect the current distribution of the resource, which has expanded significantly north of Hudson Canyon, and (2) federal coastwide quota management can limit harvest opportunities for some states if another state's harvest overage results in a coastwide fishery closure (Appendix A). In February, the Board requested the Plan Development Team (PDT) perform additional analyses and further develop proposed management options related to the issue of state-by-state commercial allocations. The second issue identified by the working group will be addressed in collaboration with the Mid-Atlantic Council (Council) and NOAA Fisheries.

This document presents the analyses and findings of the PDT. For each of the proposed management strategies, the PDT discussed potential variations of the strategy that could be implemented to achieve different management objectives or outcomes. The PDT also highlighted additional considerations the Board should take into account when evaluating these approaches.

II. Potential Management Strategies for Adjusting Commercial Allocations

A. Status Quo

One potential management option is to maintain the current state allocation percentages. The current allocations were originally implemented by the Commission in 2003 as part of Amendment 13, loosely based on historical commercial landings by state from 1980-2001 (Table 1). In a complementary action, the Council adopted an annual coastwide quota system to facilitate the state-by-state quota system adopted by the Commission. Each state sets measures to achieve, but not exceed, their annual state-specific quotas. The annual coastwide quota is implemented and administered by NOAA Fisheries. The fishery is closed when the coastwide quota is projected to be taken, regardless of whether individual states still have unutilized quota.

Table 1. Current black sea bass commercial state-by-state allocations.

State	% Allocation
ME	0.5
NH	0.5
MA	13.0
RI	11.0
CT	1.0
NY	7.0
NJ	20.0
DE	5.0
MD	11.0
VA	20.0
NC	11.0

B. TMGC Approach

The first approach to adjusting the state-by-state allocations discussed by the Black Sea Bass Commercial Working Group, and then the PDT, is a dynamic approach for gradually adjusting state-specific allocations using a combination of resource utilization (historical allocations) and current levels of resource distribution. The alternative is modeled after the Transboundary Management Guidance Committee (TMGC) approach, which was developed and used for the management of Georges Bank resources shared by the United States and Canada. Though the approach proposed here for black sea bass differs from the TMGC approach used for Georges Bank, in this document the black sea bass allocation approach will also be referred to as TMGC.

This new strategy sets forth a formulaic approach that balances stability within the fishery, based on historical allocations, with gradual allocation adjustments, based on regional shifts in resource distribution derived from updated stock assessments or surveys. The former recognizes traditional involvement and investment in the development of the fishery since the beginning of black sea bass management, and the latter addresses the changing distribution of the black sea bass resource and the resulting effects within the fishery. Through incremental adjustments over time, the state allocations become less dependent on the historical allocations and more dependent on regional resource distribution.

This option proposes use of the existing state-by-state allocations to reflect initial values for historical participation (resource utilization) and proposes use of the 2016 benchmark stock assessment results (NEFSC 2017) to determine the values for resource distribution; the two values are then integrated in the form of regional allocation shares. An alternative to using the stock assessment would be to use synoptic trawl survey information. Two regions are proposed, as defined in the assessment: (1) ME - NY, (2) NJ - NC. They emanate from the spatial stratification of the stock into subunits that generally align with those used for the assessment, which used Hudson Canyon as the dividing line based on several pieces of evidence that stock dynamics had an important break in this area. The regional allocation shares are then subdivided into state-specific allocations. Appendix B includes a complete description and examples of the TMGC approach retrospectively applied to recent years.

1. TMGC Variations

The TMGC approach affords considerable flexibility, both with regard to initial configuration and application of the allocation formula over time. A key feature involves the use of control rules to guard against abrupt shifts in allocations. The overall approach can be modified by the Board and Council in various ways. For example, sub-alternatives can be developed for:

- the regional configuration (e.g., alternative regions to those proposed here);
- the values for historical participation/resource utilization (e.g., current, status quo allocations, or some variant thereof);
- the starting and ending weighting values for resource utilization and resource distribution (e.g. 90:10 to 10:90, or some variant thereof);
- the increment of change in the weighting values per year (10%/year, or some variant thereof;)
- the periodicity of adjustments (e.g., annually vs. biannually);
- the overall time horizon for the transition between starting and ending weights for resource utilization and resource distribution (e.g., 8 years vs. 16 years).
- control rule (e.g., maximum regional allocation change of 3% per year, or some variant thereof)

Of the numerous potential configurations that could be created by adjusting these parameters, the PDT focused on four examples to evaluate potential effects on state-by-state allocations. In these examples, the resource distribution information is derived from the unadjusted regional spawning stock biomass proportions from the 2016 benchmark stock assessment. The other parameters of the formula vary in each example, as follows:

1. The first example represents a configuration resulting in a more liberal change in state allocations. The parameters are set as follows: 2 regions (ME - NY; NJ - NC); resource utilization = status quo allocations; transition from 90:10 to 10:90; 10% per year change in the transition from utilization to distribution; annual adjustments; the transition time to 90% weight on the resource distribution is 9 years; 10% control rule; regional distribution assumption is based on the spawning stock biomass by region from the assessment for the time period of 2004 - 2012; distribution of adjustments to states within a region based on historic allocations.
    a. Any TMGC configuration could also be modified to distribute the allocation adjustments equally to the states within each region, instead of distributing those adjustments proportionally to the historic state allocations. An example of this modification applied to the above configuration is shown in Figure 2 below.

2. This example represents a more conservative configuration, with more limited changes to state allocations. The parameters are set as follows: 2 regions (ME - NY; NJ - NC); resource utilization = status quo allocations; transition from 90:10 to 30:70; 5% per year change in the transition from utilization to distribution; annual adjustments; the transition time to 70% weight on the resource distribution is 12 years; 3% control rule; regional distribution assumption is based on the spawning stock biomass by region from the assessment for the time period of 2004 - 2015; distribution of adjustments to states within a region based on historic allocations.

3. The last example is intended to showcase a number of additional modifications that could be made to the approach to achieve certain objectives. In discussions amongst the PDT (and previously the Board regarding recreational black sea bass) it has been noted that it may be appropriate to treat New Jersey as an individual region due to its geographic position straddling the division of the Northern and Southern regions adjacent to Hudson Canyon. Additionally, some Board members have suggested modifying the "resource utilization" part of the equation to increase the allocations for Connecticut and New York due to their disproportionate allocations compared to their current resource availability. Lastly, the PDT discussed the option of holding Maine and New Hampshire's current allocations static throughout the transition.

    To demonstrate these modifications, the parameters are set as follows: 4 regions (ME and NH remaining as a non-dynamic region with static allocations; MA - NY; NJ as a stand-alone region; and DE - NC); resource utilization = CT and NY base allocations increased by 1% in each of the first three years; transition from 90:10 to 10:90; 10% per year change in the transition from utilization to distribution; annual adjustments; the transition time to 90% weight on the resource distribution is 9 years; 10% control rule; regional distribution assumption is based on spawning stock biomass by region from the assessment for the time period of 2004 - 2012, and assumes NJ is consistently 60% of the southern region distribution; distribution of adjustments to states within a region based on historic allocations.

The changes to the state allocations resulting in each of these examples are shown in Figures 1-4. A more detailed description of the methods applied in each example is included in Appendix B. It is important to note that the TMGC approach continually adjusts the state-by-state allocations beyond the time period over which the transition of the weights of resource utilization and resource distribution occurs. These adjustments would be made according to updated regional resource distribution information from either the stock assessment or synoptic trawl survey information as it becomes available, depending on which data source is selected.

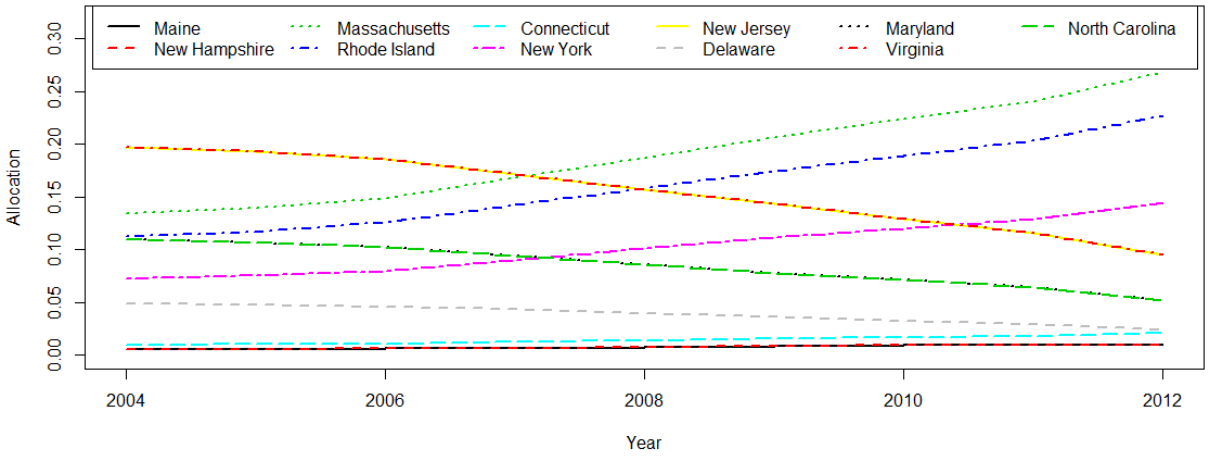

Figure 1. Allocation trajectory for all states under the parameters outlined in example 1 above. The control rule is not triggered in any year in this example. This is a retrospective analysis as if this method were in place beginning in 2004.

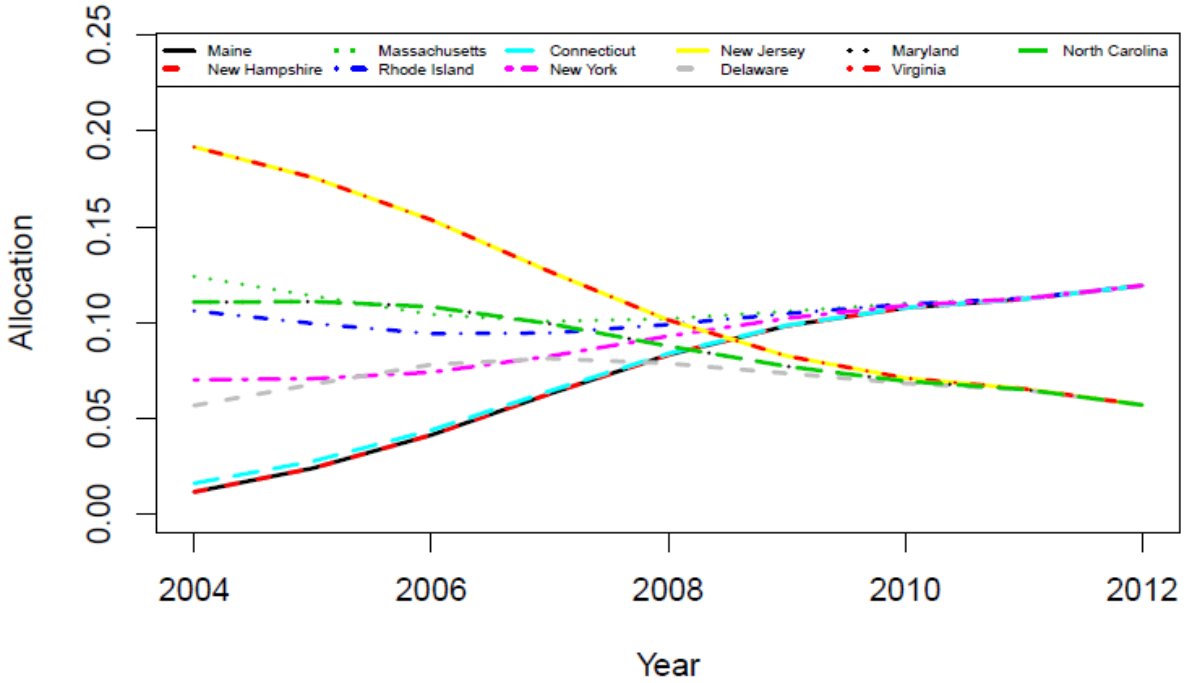

Figure 2. Updated September 27, 2019. Allocation trajectory for all states under the parameters outlined in example 1a above (equal distribution to the states of regional allocation adjustments). The control rule is not triggered in any year in this example. This is a retrospective analysis as if this method were in place beginning in 2004.

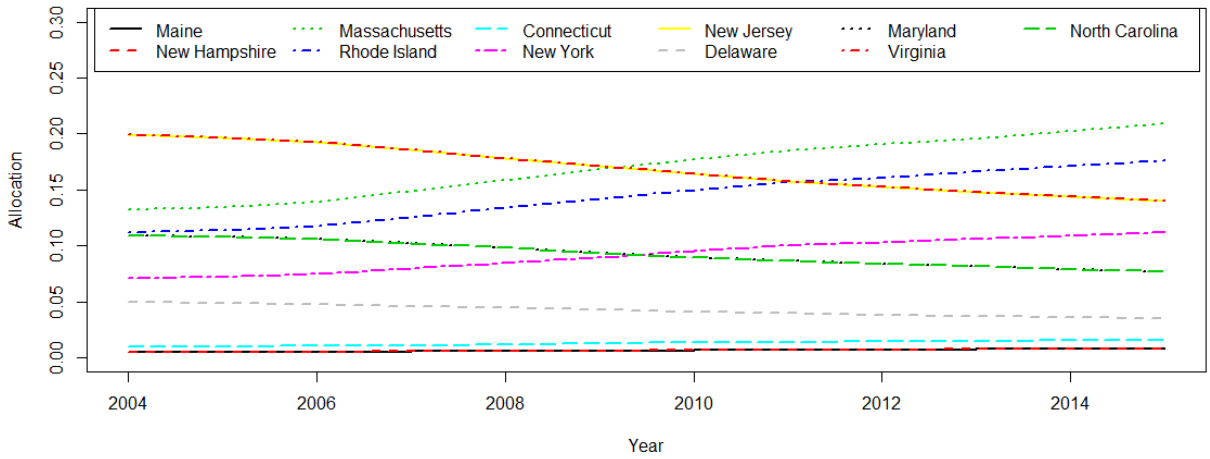

Figure 3. Allocation trajectory for all states under the parameters outlined in example 2 above. The control rule is triggered in each year from 2012 through 2015 in this example. This is a retrospective analysis as if this method were in place beginning in 2004.

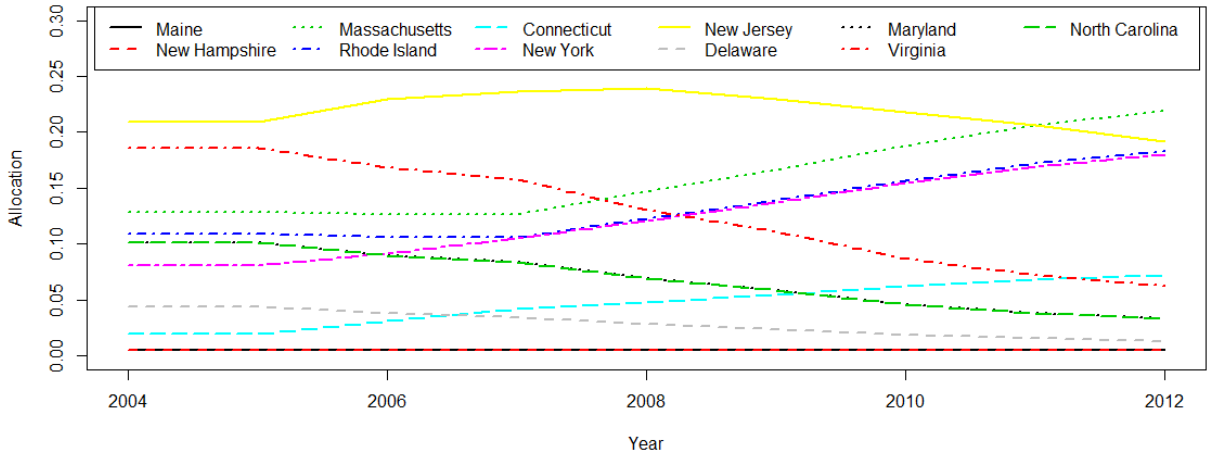

Figure 4. Allocation trajectory for all states under the parameters outlined in example 3 above. The control rule is not triggered in any year in this example. This is a retrospective analysis as if this method were in place beginning in 2004.

2. TMGC Considerations

There are two options for calculating the resource distribution. The first option is to use the spatial stock assessment to determine the amount of resource in each region (north = NY, CT, RI, MA, NH, ME; south = NJ, DE, MD, VA, NC). The spatial stock assessment calculates north and south spawning stock biomass values, which can then be turned in to a proportion. The benefit of this approach is the regional biomass values are calculated through a synthesis of many biological parameters and represent the best available science for the population. The drawback is that the assessment is updated periodically (not every year); thus updated resource distribution could not be produced annually but would depend on

the assessment cycle[1]. Additionally, if the spatial stock assessment were to fail at some point in the future, this could impact the ability to implement the dynamic allocation calculations.

As an alternative to using the stock assessment information, values for resource distribution could be obtained and calculated using scientific surveys, with results apportioned into regions. Since surveys are undertaken annually, the values for regional resource distribution could be recalculated and updated annually, biannually, or upon whatever timeframe is deemed most appropriate, affording an opportunity to regularly adjust allocations in sync with shifts in resource distribution. Such shifts may, or may not, follow consistent trends. Accordingly, the technique affords a dynamic approach, consistent with actual changes in resource distribution as defined by the survey information. There are more options with regard to the regional configurations that could be established with this approach, whereas a two-region configuration is the only option with the assessment. The overall benefit of this approach is that it could be performed annually with the most contemporary data. The drawback is that survey data are prone to variability. Smoothing techniques and the proposed control rule are designed to account for some of this variability and prevent it from causing unreasonable changes in a single year.

C. Trigger Approach

The second approach the PDT discussed is a quota trigger approach. In this approach, a minimum coastwide quota would be established as a trigger for a change in allocations to the states. If the coastwide quota established by NOAA Fisheries in a given year were higher than the established quota trigger, then the quota would be distributed to the states in two steps: 1) the amount of coastwide quota up to and including the trigger is distributed to the states according to the current state-by-state allocations, as set forth in Amendment 13 in 2003; and 2) the amount of quota exceeding the established trigger is distributed equally to the states of Massachusetts through North Carolina, with Maine and New Hampshire receiving a smaller percentage based on their historically low participation in the fishery. Should the annual coastwide quota be less than or equal to the established quota trigger, allocation percentages would default to the current state-by-state allocations. This method limits fishery disruption by guaranteeing states some minimum level of quota based upon the 2003 allocations.

Two potential quota trigger options have been proposed: 3 million pounds, or 4 million pounds. The 3 million pound trigger represents approximately the average coastwide commercial quota from 2003 through 2018. Years in which specifications were set using a constant catch approach were excluded from the average (i.e., 2010-2015). Commercial quotas remained essentially the same from 2010 until 2013 when there was a slight change in the coast-wide quota established by the SSC in 2013 however, that was merely an extension of the constant catch that extended until 2016. The average commercial quota from 2003 through 2018 is 3.12 million pounds.

The 4 million pound trigger represents approximately the highest commercial quota from 2003 through 2017. The highest commercial quota was 4.12 million pounds in 2017. A 3 million pound trigger is lower than 10 out of the last 13 years (2008-2019) of coastwide commercial quotas established by the National Marine Fisheries Service. A 4 million pound trigger is higher than all but one year of coastwide

[1] The Northeast Region Coordinating Council approved an assessment prioritization process and management assessment track schedule in November 2018 that would provide management assessments for black sea bass every two years. Following the upcoming operational assessment, the next assessment would be available in 2021, with information available for management in 2022-2023.

commercial quotas in the last 13 years (Figure 5). Table 2 shows an example of the quota trigger approach using a 3 million pound trigger and the 2017 coastwide quota of 4.12 million pounds. Additional quota trigger examples are provided in Appendix C.

Figure 5. Commercial BSB Quota over Time Compared to 3M Pound and 4M Pound Triggers

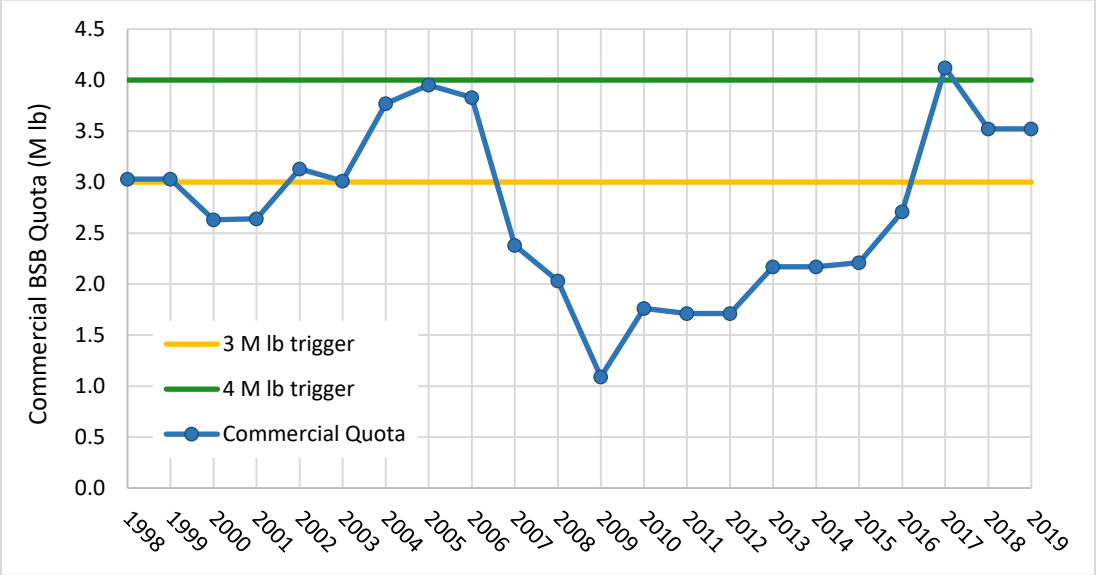

Table 2. Reallocation of black sea bass commercial quota above a 3 million pound trigger, based on the 2017 coastwide quota of 4.12 million pounds.

3 Million Pound Trigger					
State	**Current allocation (%) of quotas up to and including 3 million lbs**	**Status Quo distribution of first 3 million lbs of quota**	**Allocation (%) of additional quota beyond 3 million lb**	**Example state allocations (lbs) under a 4.12 million lb quota**	**Example state allocations (%) under a 4.12 million lb quota**
ME	0.5%	15,000	1.00%	26,200	0.64%
NH	0.5%	15,000	1.00%	26,200	0.64%
MA	13.0%	390,000	10.89%	511,956	12.43%
RI	11.0%	330,000	10.89%	451,956	10.97%
CT	1.0%	30,000	10.89%	151,956	3.69%
NY	7.0%	210,000	10.89%	331,956	8.06%
NJ	20.0%	600,000	10.89%	721,956	17.52%
DE	5.0%	150,000	10.89%	271,956	6.60%
MD	11.0%	330,000	10.89%	451,956	10.97%
VA	20.0%	600,000	10.89%	721,956	17.52%
NC	11.0%	330,000	10.89%	451,956	10.97%
Total	**100.0%**	**3,000,000**	**100%**	**4,120,000**	**100.00%**

1. Trigger Approach Variations

The PDT noted that the initial trigger approach proposals do not directly address the first problem identified in the Working Group's Report: the distribution of biomass has changed significantly since the state allocations were established in 2003, and the allocations do not reflect these changes. Changes in biomass distribution are supported by the 2016 stock assessment and peer reviewed literature.

To better address these changes within a trigger approach, the PDT discussed a modification that would distribute quota above the trigger based upon the proportion of coastwide biomass in each region, as informed either by the assessment models or fishery independent survey data. Fishery independent survey data may be required if the benchmark assessment regional model framework cannot produce valid regional results after inclusion of the updated MRIP estimates. The terminal year of the assessment can be used if retrospective bias adjustments to the assessment outputs of SSB are required, or the last three years of the assessment can be averaged if no adjustment is necessary. Tables 3-4 in Appendix C show examples of allocation above the trigger based on regional biomass, using the Rho adjusted regional model outputs from the terminal year of the 2016 benchmark assessment (2015). It should be noted that if this approach were selected, the Board would need to specify which regional biomass values to use. In the event that regional assessment outputs cannot or should not be used, a method to use fishery independent survey data must be developed – preferably one that utilizes a multi-year average or a smoothing approach (for instance, the approach described in the TMGC methods in Appendix B). The regional proportions used to distribute quota above the trigger should be updated every time appropriate new data is available.

Within the regions, quota above the trigger can also be distributed to individual states in different ways. One approach is to distribute quota above the trigger in equal shares to all states within the region (ME and NH receive a flat 1% of this additional quota from the northern region pool; this could be modified if they express increased interest in participating in the fishery) (Table 3, Appendix C). A second method would be to distribute quota above the trigger to all states within the region in proportion to their 2003 allocations (Table 4, Appendix C).

2. Trigger Approach Considerations

If a trigger-based approach is of interest, the Board would need to consider the most appropriate configuration based on the objective of reallocating black sea bass commercial quota. First, a quota trigger should be selected based on the amount of quota the Board feels should be distributed under the current allocations, versus the amount of quota that should be made available to the states using an alternative allocation scheme. The Board should also choose an allocation method for quota above the trigger that best addresses the issues facing the fishery (i.e. equal distribution of additional quota or distribution based on regional resource availability).

While the trigger approach as proposed establishes a hard quota of three or four million pounds, the PDT discussed the possibility of using a soft trigger, which would allocate a percentage of the quota using historical allocation, rather than a set number of pounds. Fluctuations in annual quota values would result in similar fluctuations in the poundage being allocated using historical values. For example, if a trigger is set at 50% of the quota, the historical allocations would apply to two million pounds of a 4 million pound quota, and 3 million pounds of a 6 million pound quota. Using a hard trigger, if the annual coastwide quota is below the trigger, then the full quota is allocated using the historic allocations. With

a soft trigger, lower quotas would still allow some portion of the quota to be allocated using a distribution other than the historic allocations.

The PDT has explored several options for potential quota triggers, and allocation schemes for additional quota above the trigger. However, the Board may wish to consider alternative trigger levels or allocation schemes that are deemed more appropriate. Additionally, the size of the population and subsequent quota amounts may change due to the 2019 operational assessment for black sea bass. This should also be considered before selecting a trigger value if this method is eventually adopted.

D. Auctioned Seasonal Quota – *REMOVED per May 1, 2019 Board discussion*

E. Hybrid Approaches

In addition to the individual methods presented above, the PDT discussed hybrid approaches where the coastwide quota is allocated among the states using two or more methods. This could essentially be an extension of the trigger approach (a portion of the quota, either a fixed amount or a percentage, up to the trigger value is distributed using historic allocation, and any remaining quota is distributed using equal allocation or biomass distribution), but could incorporate other options as the Board wishes. Use of a hybrid approach may offer flexibility and compromise for different perspectives, but at the cost of increased complexity. For example, a hybrid approach that incorporates a trigger, equal allocation, and regional allocation could be developed that assigns a portion of the coastwide quota using historic allocation to account for existing markets and fishing communities, a portion distributed equally to each state, and a portion to each region based on biomass distribution. Considerations and decision points for any hybrid approach would include all the considerations and decision points of each of the individual methods being combined. Additionally, depending on how a hybrid approach is developed, the drivers behind allocation adjustments could become unclear and difficult to track. Consideration of transparency is needed if selecting a hybrid approach, and additional work by the PDT may be required to clearly identify the impacts of each element of the approach.

III. Discussion

Throughout their discussions of each management strategy described above, the PDT highlighted a number of decision points the Board may need to consider in selecting the appropriate management programs for continued development. To come to a decision on some of these issues, it may be helpful to first define the Board's intention in considering changes to the black sea bass state-by-state allocations. Agreeing on a clear intention may guide the Board in focusing on the management strategies that best align with the objectives the Board seeks to meet.

Thus, the first general decision point would be to determine what the Board's goals are with regard to considering reallocation of the state-by-state commercial quotas. The key issue identified by the Commercial Working Group is that state commercial allocations implemented in 2003 do not reflect the current distribution of the resource. If the Board's goal is to address this issue by adjusting state-by-state commercial allocations to be more reflective of the current distribution of the resource, then the Board may want to focus on those strategies that incorporate regional information on resource

distribution. If the Board's primary goal is to maintain historic access to the fishery, then it could consider options that place more weight on historic landings.

When considering approaches that address changes in resource distribution, another decision point arises in both the TMGC approach and the modified trigger approach: how to distribute quota to states within regions. Two general methods were discussed: equal distribution of regional quota, or distribution based on historic allocation. Though the PDT did not explore additional methods, it may be appropriate to consider distributing quota to states within the regions in a different way, depending on the purpose of reallocation. For example, if the Board aims to create more equality within the regions with regard to state quotas, then equal allocations of additional quota to the states in each region may be more appropriate (see TMGC Example 1a, and trigger Table 3, Appendix C). Alternatively, if the Board aims to maintain state access based on historic landings, it may be preferable to distribute quota to the states within each region based on their current allocations (see TMGC Examples 1 and 2, and trigger Table 4, Appendix C). Some compromises between these two goals could be addressed through a hybrid approach.

As mentioned in the considerations for the TMGC and modified trigger approaches, the ability to use regional biomass information from the stock assessment may change. It is uncertain whether incorporation of the new MRIP data will still produce biomass estimates for the northern and southern stock subareas. If not, it may be necessary to use survey information to do any resource distribution based approach. The Board should consider the implications of using either source of information to adjust allocations according to regional biomass. If regional biomass information from the stock assessment is available, the Board may need technical guidance on the most appropriate method for calculating regional proportions.

Another decision point the PDT discussed is regional configuration. In particular the group focused on how to incorporate Maine and New Hampshire, considering their historically low participation in the fishery, and how to incorporate New Jersey, as its geographic location adjacent to Hudson Canyon makes it difficult to place it in either the northern or southern spatial subarea of the stock. The PDT analyzed options that maintain static or proportionally lower allocations for Maine and New Hampshire, but these could be modified if the states were to express an interest in increased participation. The PDT also discussed potential methods for treating New Jersey as a stand-alone region, if deemed more appropriate than including it in the Southern Region. If a regional approach is taken, the Board should determine the most appropriate regional configuration.

The PDT also discussed the issue of stability in state commercial allocations. In prior discussions at the Working Group and Board level, some states expressed concerns about abrupt allocation changes that could disrupt the fishery. To better understand what constitutes abrupt change in order to avoid such disruptions, it may be helpful to define minimum quotas, or the maximum percent change per year with which the states would be comfortable. For comparison, Table 3 shows the coastwide quotas, and magnitude of change in quotas from year to year since 2003. On average, the coastwide quotas (and therefore the state quotas) have changed by 22% per year, excluding years where the constant catch approach was applied. It is important to bear in mind that state-by-state and coastwide quotas will

continue to vary depending on the status of the stock, regardless of whether state-by-state allocations are modified.

Lastly, the PDT noted it could be important to establish a better understanding of where the fishery is occurring, and whether that has changed over time. Due to time limitations, the PDT was only able to analyze estimated commercial landings by state, year, and statistical area provided by the ACCSP. Preliminary results of this analysis are provided in Appendix D. If desired, the Board may request additional analysis of spatial data on black sea bass landings and or trips.

Table 3. Magnitude of annual change in black sea bass commercial quotas.

Year	Coastwide Quota (pounds)	% Change from Previous Year (absolute value)
2003	3,024,545	-
2004	3,768,575	25%
2005	3,966,345	5%
2006	3,832,312	3%
2007	2,385,390	38%
2008	2,025,763	15%
2009	1,093,190	46%
2010	1,758,610	61%
2011	1,711,080	3%
2012	1,710,000	0%
2013	2,174,312	27%
2014	2,174,312	0%
2015	2,212,923	2%
2016	2,702,867	22%
2017	4,120,000	52%
2018	3,520,000	15%
2019	3,520,000	0%
Average (excl. constant catch years)**		**22%**
Average (2016-2019)		**22%**

* Final adjusted quota after RSA

**Constant catch approach was used from 2010 to 2015

Appendix A. Black Sea Bass Commercial Working Group Report, February 2019

Working Group Members: David Borden (Chair, RI), Nichola Meserve (MA), Matthew Gates (CT), Joe Cimino (NJ), Rob O'Reilly (VA)

ASMFC Staff: Caitlin Starks, Toni Kerns

Additional Attendees: Julia Beaty (MAFMC), Greg Wojcik (CT), Jason McNamee (RI), Tiffany Vidal (MA)

Statement of the Problem

The working group has identified two problems associated with the current FMP. First, the commercial black sea bass allocations to the states were originally implemented in 2003 as part of Amendment 13, loosely based on historical landings from 1980-2001. The state shares in Amendment 13 allocated 67% of the coast-wide commercial quota among the states of New Jersey through North Carolina (North of Cape Hatteras) and 33% among the states of New York through Maine. These state commercial allocations have been unchanged for 15 years. Meanwhile, the resource has experienced shifts in distribution and abundance, and changes in fishing effort and fishing behaviors have occurred.

There is scientific information to support these shifts. For example, according to the last black sea bass stock assessment, which modeled fish north and south of Hudson Canyon separately, the majority of the stock occurred in the south prior to the mid-2000s. Since then the biomass in the north has grown considerably and currently accounts for the majority of spawning stock biomass (Figure 1). While the region specific models created for the assessment were never intended to be stand-alone, this shift in black sea biomass distribution has been supported by peer reviewed journal articles (e.g., Bell et al., 2015).

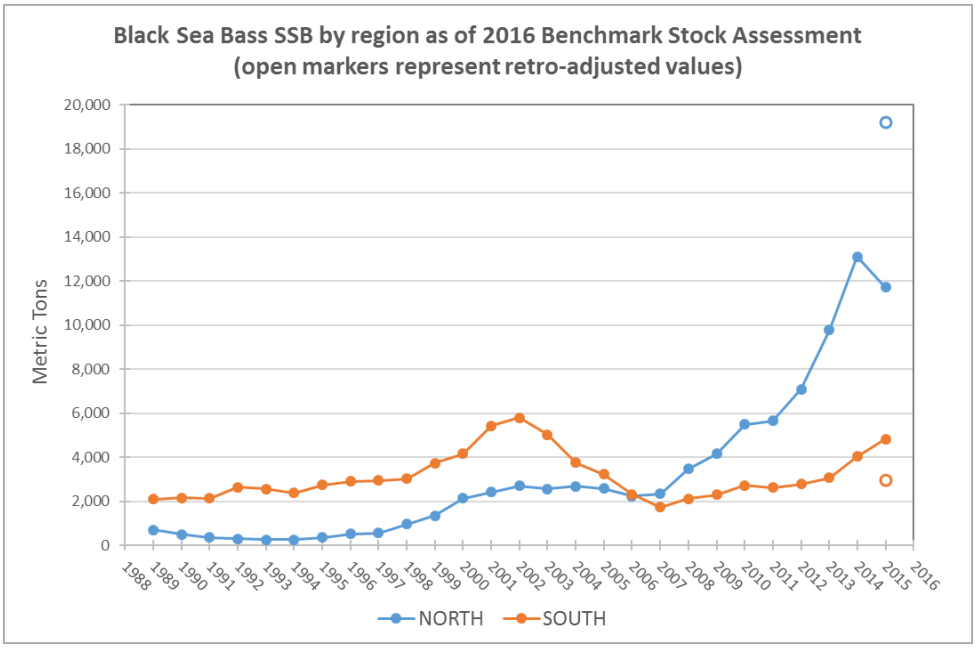

Figure 1: Black Sea Bass SSB by Region, 1989-2016. Source: 2016 Black Sea Bass Stock Assessment.

In some cases, expansion of the black sea bass stock into areas with historically minimal fishing effort has created significant disparities between state allocations and current abundance and resource availability. The most noteworthy example is Connecticut, which has experienced significant increases in black sea bass abundance and fishery availability in Long Island Sound in recent years but was only allocated 1% of the coastwide commercial quota based on landings from 1980-2001.

Any consideration of management changes by the Commission should be responsive to shifts in in black sea bass distribution, abundance, behavior, fishing effort and harvest by gear type. However, there are many additional factors requiring rigorous discussion and evaluation should reallocation be considered. Changes in allocations should take into account the following considerations and issues:

1. Allocations should be reviewed and revised on a regular basis to ensure equity of access and improve fishery efficiency (human safety, fuel use, and discards), using the latest and most appropriate data sources.
2. Changes in allocations should be linked to stock assessments to the extent practicable, or use other peer reviewed data sources. If such sources are unavailable, other scientific information such as state and federal survey indices could be used.
3. The relatively recent shift in spawning stock biomass does not mean that future abundance dynamics will proceed in the same manner, especially since a strong or weak year-class can provide an increase or decrease in abundance throughout the range or a portion of the range.
4. For states where resource availability has shifted significantly in recent years, the current allocations may provide either a disproportionate advantage or disadvantage if used as the basis for allocation adjustments (e.g. Connecticut's 1% allocation). Small changes to the original allocations may not reflect resource abundance, thus, adjustments may need to be made using a formula other than a simple percent change.
5. Participants in different areas have invested in the commercial fishery based on historic landing patterns as well as state management programs. For example, some mid-Atlantic states have adopted management through Individual Transferrable Quotas (ITQs), and the industry has invested in these fishing rights and infrastructure. To avoid unnecessary economic hardships and enhance the ability of the industry to respond and make long term business decisions, slow or gradual implementation of allocation changes should be considered.
6. Due to the high abundance relative to current allocations in the northern area, some states have lengthy closures that promote discards. Any reallocation formula should consider these factors and attempt to reduce closures and discards.
7. Review and reevaluation of commercial quota allocations should not occur in a vacuum and should take into account changes in recreational information. In particular, new recreational harvest estimates should be incorporated into the stock assessment before commercial changes are adopted.

A second problem relates to the provision in the FMP that prescribes a coastwide black sea bass quota managed by NOAA Fisheries. Under the current regulations, all states in the management unit are subject to fishery closures if a coastwide quota overage occurs, despite state-by-state quota management by the ASMFC. These closures can leave states with remaining commercial quota, especially ITQ, unable to utilize their full allocation of the resource. Management should aim to reduce impacts of state-specific commercial quota overages to other states. The working group recommends that the Mid-Atlantic Council consider actions to address this issue. For example, the working group

suggested the Council consider allowing conservation equivalency for the commercial fishery, similar to what is allowed for recreational black sea bass and summer flounder.

Objectives and Goals to Address the Problem

The WG identified the following as management objectives for commercial black sea bass:

- Ensure fishing mortality and spawning stock biomass are maintained within established thresholds and targets, and the stock is not overfished nor experiencing overfishing
- Improve equity in access to the fishery among the states
- Improve fishery efficiency (e.g. use of time, fuel and other resources; reducing discards)

The WG discussed the need to determine what metric(s) would be used to evaluate equity in access to the fishery. Some ideas discussed were socioeconomic benefits or opportunities, as well as resource availability related to the distribution of exploitable biomass and abundance. The WG noted discard reductions and increased efficiency would likely result from allocations based on more current information on the resource's distribution along the coast. However it was noted that fishery efficiency may also be impacted by factors other than resource allocation (e.g., allowances to possess multiple states' limits in the same trip).

The WG proposed the following information, particularly for recent years, should guide further development of management objectives and strategies.

- Descriptions of each state's fishery including but not limited to: management program, participation, effort, landings by gear, distribution of landings and trips, commercial size distribution, and socioeconomic information
- A comprehensive review of survey data for black sea bass to inform understanding of stock biomass/abundance distribution and availability to state commercial fisheries
- Current scientific information on the geographic shifts in black sea bass biomass

Potential Management Strategies

The WG agreed a wide range of options should be considered, and that some management strategies may require coordination with the Mid-Atlantic Fishery Management Council. Some of the ideas the WG supported exploring further included:

1. Adjustments to the state-by-state allocations. Potential options include:
    a. Status quo
    b. Dynamic approach modeled after the Transboundary Management Guidance Committee (TMGC) approach (Appendix I)
2. Defined timeline or trigger for reevaluation of allocations
    a. Future consideration of a strategy similar to the scup model to increase equitability in access for federal vessels (i.e. winter coastwide quota management and summer state-by-state quota management) (Appendix II)

As indicated in the problem statement, consideration should be given to how management approaches may impact fishery stakeholders in each region, and efforts made to balance negative economic impacts with enhanced equity and efficiency of the fishery along the coast.

Appendix B. TMGC Approach

(Insert the 14 PDF pages from Jason here)

Appendix C. Trigger Approach

Table 1. Reallocation of black sea bass commercial quota above a 3 million pound trigger, based on the 2017 coastwide quota of 4.12 million pounds. Quota up to and including 3 million pounds is distributed according to the status quo state allocations. Quota above the trigger is distributed equally to the states of Massachusetts through North Carolina, while Maine and New Hampshire are each allocated 1% of the quota above the trigger.

3 Million Pound Trigger					
State	**Current Allocation (%) of quotas up to and including 3 million lbs**	**Status Quo distribution of first 3 million lbs of quota**	**Allocation (%) of additional quota above 3 million lb**	**Example state allocations (lbs) under a 4.12 million lb quota**	**Example state allocations (%) under a 4.12 million lb quota**
ME	0.5%	15,000	1.00%	26,200	0.64%
NH	0.5%	15,000	1.00%	26,200	0.64%
MA	13.0%	390,000	10.89%	511,956	12.43%
RI	11.0%	330,000	10.89%	451,956	10.97%
CT	1.0%	30,000	10.89%	151,956	3.69%
NY	7.0%	210,000	10.89%	331,956	8.06%
NJ	20.0%	600,000	10.89%	721,956	17.52%
DE	5.0%	150,000	10.89%	271,956	6.60%
MD	11.0%	330,000	10.89%	451,956	10.97%
VA	20.0%	600,000	10.89%	721,956	17.52%
NC	11.0%	330,000	10.89%	451,956	10.97%
Total	100.0%	3,000,000	100%	4,120,000	100.00%

Note: Should an annual coastwide quota be equal to or less than 3 million pounds, allocation percentage defaults to current allocation percentage.

Table 2. Reallocation of black sea bass commercial quota above a 4 million pound trigger, based on the 2017 coastwide quota of 4.12 million pounds. Quota up to and including 3 million pounds is distributed according to the status quo state allocations. Quota above the trigger is distributed equally to the states of Massachusetts through North Carolina, while Maine and New Hampshire are each allocated 1% of the quota above the trigger.

4 Million Pound Trigger					
State	**Current Allocation (%) of quotas up to and including 4 million lbs**	**Status Quo distribution of first 4 million lbs of quota**	**Allocation (%) of additional quota above 4 million lb**	**Example state allocations (lbs) under a 4.12 million lb quota**	**Example state allocations (%) under a 4.12 million lb quota**
ME	0.5%	20,000	1.00%	21,200	0.51%
NH	0.5%	20,000	1.00%	21,200	0.51%
MA	13.0%	520,000	10.89%	533,067	12.94%
RI	11.0%	440,000	10.89%	453,067	11.00%
CT	1.0%	40,000	10.89%	53,067	1.29%
NY	7.0%	280,000	10.89%	293,067	7.11%
NJ	20.0%	800,000	10.89%	813,067	19.73%
DE	5.0%	200,000	10.89%	213,067	5.17%
MD	11.0%	440,000	10.89%	453,067	11.00%
VA	20.0%	800,000	10.89%	813,067	19.73%
NC	11.0%	440,000	10.89%	453,067	11.00%
Total	100.0%	4,000,000	100%	4,120,000	100.00%

Note: Should an annual coastwide quota be equal to or less than 4 million pounds, allocation percentage defaults to current allocation percentage.

Table 3. Reallocation of black sea bass commercial quota above a 3 million pound trigger according to the Rho adjusted regional biomass proportions produced by the 2015 stock assessment, applied to the 2017 coastwide quota of 4.12 million pounds. Quota up to and including 3 million pounds is distributed according to the status quo state allocations**. Quota above the trigger is distributed to the northern and southern regions according to their respective biomass proportions, and then equally to the states within each region, except Maine and New Hampshire which are each allocated 1% of the quota allocated to the northern region.**

3 Million Pound Trigger – Allocations of Additional Quota Based on Regional Biomass Proportions						
State	**Current Allocation (%) of quotas up to and including 3 million lbs**	**Status Quo distribution of first 3 million lbs of quota**	**2015 Assessment Rho Adjusted Regional Biomass Proportion**	**Allocation (%) of additional quota above 3 million lb**	**Example state allocations (lbs) under a 4.12 million lb quota**	**Example state allocations (%) under a 4.12 million lb quota**
ME	0.5%	15,000	0.86	1.0%	26,200	0.64%
NH	0.5%	15,000		1.0%	26,200	0.64%
MA	13.0%	390,000		21.0%	625,200	15.17%
RI	11.0%	330,000		21.0%	565,200	13.72%
CT	1.0%	30,000		21.0%	265,200	6.44%
NY	7.0%	210,000		21.0%	445,200	10.81%
NJ	20.0%	600,000	0.14	2.8%	631,360	15.32%
DE	5.0%	150,000		2.8%	181,360	4.40%
MD	11.0%	330,000		2.8%	361,360	8.77%
VA	20.0%	600,000		2.8%	631,360	15.32%
NC	11.0%	330,000		2.8%	361,360	8.77%
Total	100.0%	3,000,000	100.0%	100.0%	4,120,000	100.0%

Note: Should an annual coastwide quota be equal to or less than 3 million pounds, allocation percentage defaults to current allocation percentage.

Table 4. Reallocation of black sea bass commercial quota above a 3 million pound trigger according to the Rho adjusted regional biomass proportions produced by the 2015 stock assessment, applied to the 2017 coastwide quota of 4.12 million pounds. Quota up to and including 3 million pounds is distributed according to the status quo state allocations. **Quota above the trigger is distributed to the northern and southern regions according to their respective biomass proportions, and then distributed to the states within each region based on their current allocation proportions.** The highlighted state allocations for quota above the trigger are the product of multiplying each state's share of the regional biomass proportion by the regional biomass proportion.

3 Million Pound Trigger – Allocations of Additional Quota Based on Regional Biomass Proportions							
State	**Current Allocation (%) of quotas up to and including 3 million lbs**	**Status Quo distribution of first 3 million lbs of quota**	**2015 Assessment Rho Adjusted Regional Biomass Proportion**	**State Share of Regional Biomass Proportion Based on current allocations**	**Allocation (%) of additional quota above 3 million lb**	**Example state allocations (lbs) under a 4.12 million lb quota**	**Example state allocations (%) under a 4.12 million lb quota**
ME	0.5%	15,000	0.86	1.52%	1.30%	29,594	0.72%
NH	0.5%	15,000		1.52%	1.30%	29,594	0.72%
MA	13.0%	390,000		39.39%	33.88%	769,442	18.68%
RI	11.0%	330,000		33.33%	28.67%	651,067	15.80%
CT	1.0%	30,000		3.03%	2.61%	59,188	1.44%
NY	7.0%	210,000		21.21%	18.24%	414,315	10.06%
NJ	20.0%	600,000	0.14	29.85%	4.18%	646,806	15.70%
DE	5.0%	150,000		7.46%	1.04%	161,701	3.92%
MD	11.0%	330,000		16.42%	2.30%	355,743	8.63%
VA	20.0%	600,000		29.85%	4.18%	646,806	15.70%
NC	11.0%	330,000		16.42%	2.30%	355,743	8.63%
Total	100.0%	3,000,000	100.0%	100.0%	100.0%	4,120,000	100%

Note: Should an annual coastwide quota be equal to or less than 3 million pounds, allocation percentage defaults to current allocation percentage.

Appendix D. Spatial Distribution of Black Sea Bass Harvest, 2010-2017

The PDT examined data on the location of commercial black sea bass harvest during 2010-2017. Commercial landings by state, year, and statistical area were provided by the ACCSP. Landings by area were estimated based on a combination of state and federal VTR and dealer data.

Black Sea Bass landings in pounds prepared by year, state, and gear were validated with the states, with the exception of CT. Reported quantity of landings from the federal VTR data and state fishermen reports was queried and proportions by gear type and statistical area by year and state were calculated. These proportions were applied to the validated landings for all states with the exception of NY and NC, as these two states provided validated landings by gear and area. The PDT was provided with the original landings, the VTR and fishermen data, the calculated proportions, final landings with proportions applied, and a comparison of pounds by year and state.

In the most recent benchmark stock assessment, the NEFSC commercial statistical areas were partitioned into northern and southern spatial subunits, as defined in Table 1. The data suggest the proportion of total coastwide (i.e., ME-NC) commercial black sea bass landings caught in northern region statistical areas increased by about 11% between 2010-2013 and 2014-2017 (Figures 1-3, Table 2). This proportional increase was greater when considering just landings in the southern region (i.e., 19.56% if the southern region is defined as NJ-NC and 13.22% if the southern region is defined as DE-NC; Tables 5-6). Although the proportion of southern region landings caught in northern region statistical areas increased from 2010-2013 to 2014-2017, the pounds of southern region landings from southern region statistical areas increased over that time period.

New Jersey commercial harvest was close to evenly distributed between northern and southern region statistical areas during 2010-2017. A greater proportion of New Jersey harvest occurred in southern region statistical areas compared to northern region statistical areas during 2010-2013. Northern region statistical areas accounted for a greater proportion of New Jersey harvest, compared to southern region statistical areas, during 2014-2017 (Table 3).

Figures

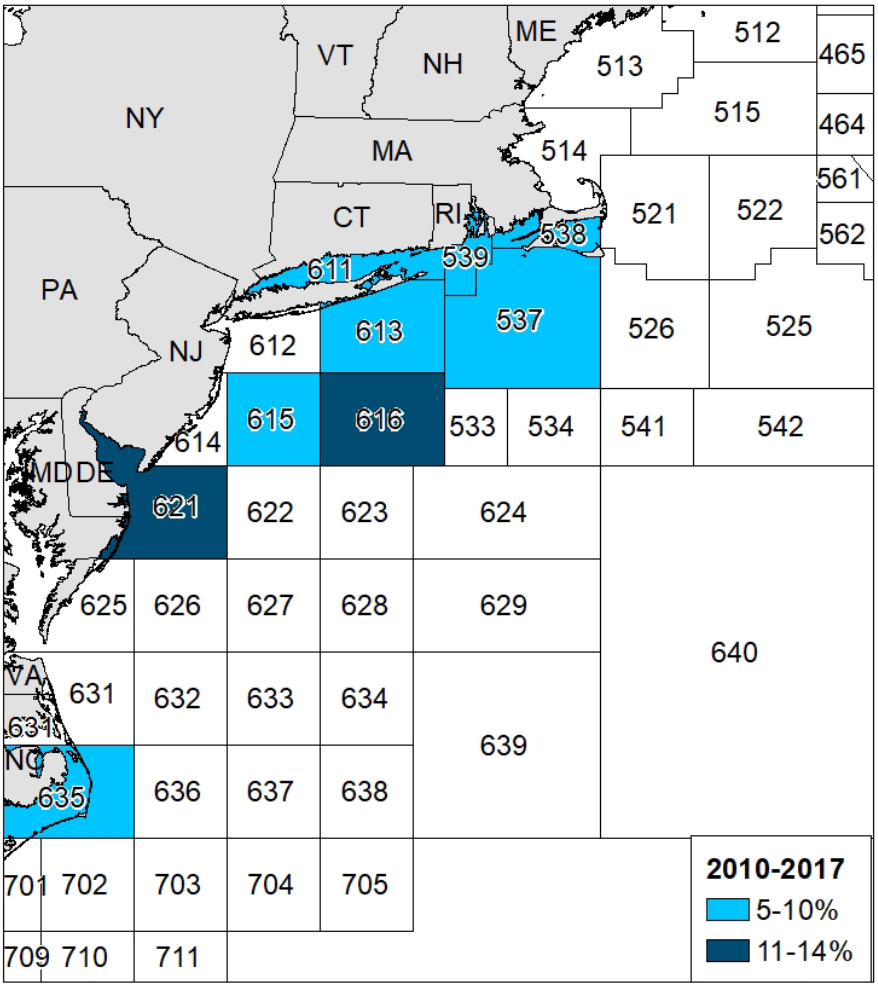

Figure 2. Proportion of commercial black sea bass landings, MA-NC, by statistical area, 2010-2017. Statistical areas accounting for less than 5% of total landings are not shown and collectively accounted for 22.79% of total landings. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

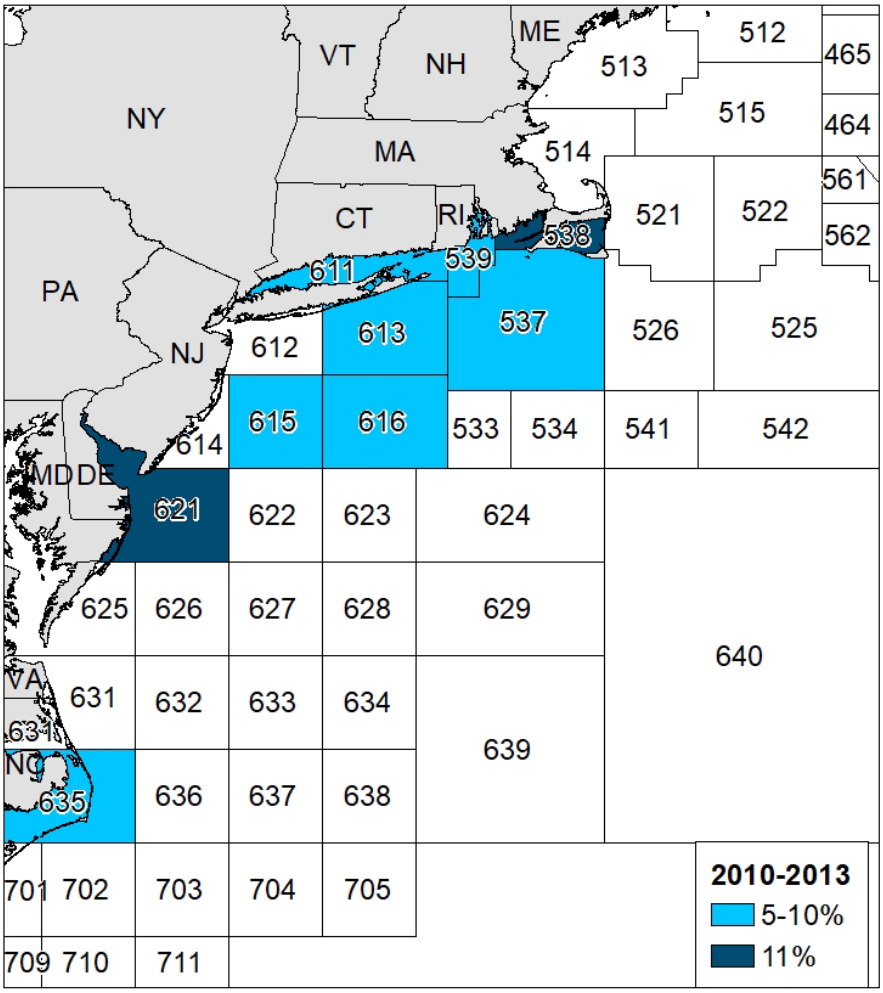

Figure 3. Proportion of commercial black sea bass landings, MA-NC, by statistical area, 2010-2013. Statistical areas accounting for less than 5% of total landings are not shown and collectively accounted for 17.20% of total landings. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

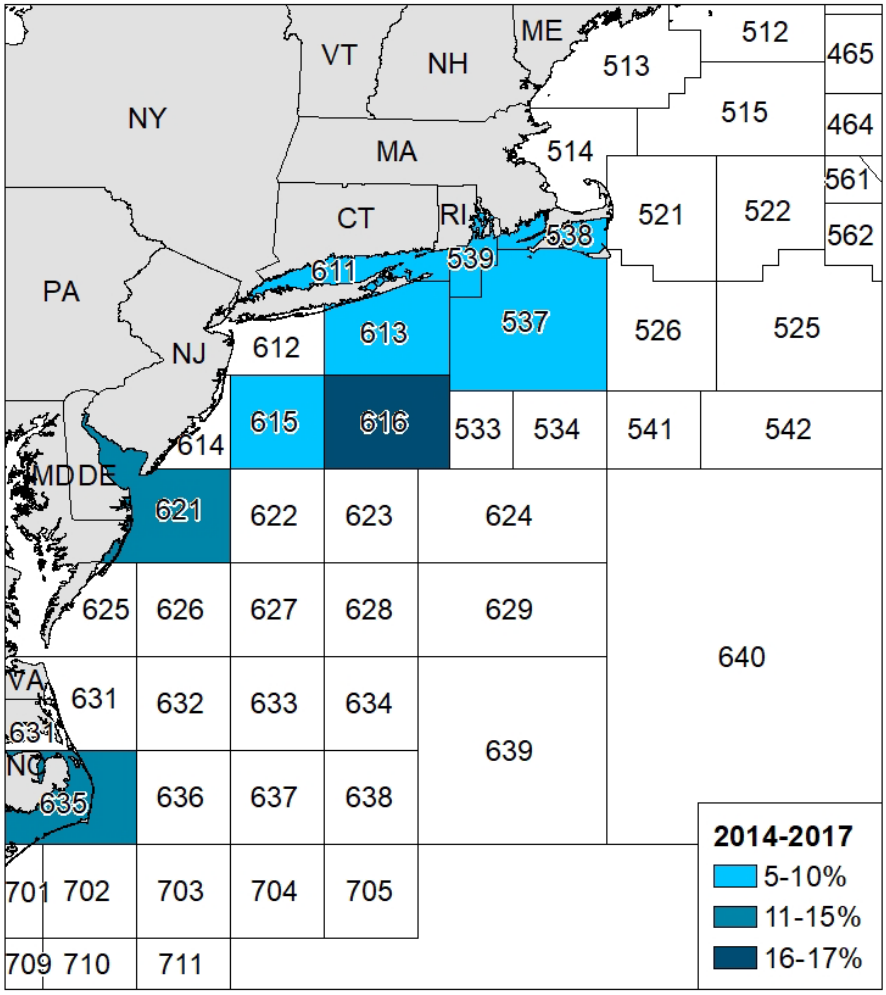

Figure 4. Proportion of commercial black sea bass landings, MA-NC, by statistical area, 2014-2017. Statistical areas accounting for less than 5% of total landings are not shown and collectively accounted for 12.87% of total landings. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

Tables

Table 1. Regional partitioning of statistical areas for the black sea bass spatial stock assessment.

Statistical Areas in Northern Region	511, 513, 514, 515, 521, 522, 525, 526, 533, 534, 537, 538, 539, 541, 542, 543, 561, 562, 611, 612, 613, 616
Statistical Areas in Southern Region	614, 615, 621, 622, 623, 624, 625, 626, 627, 628, 631, 632, 633, 634, 635, 636

Table 2. Proportion of black sea bass commercial harvest, MA-NC, from northern and southern region statistical areas. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

MA-NC Landings by Statistical Area						
	2010-2017		2010-2013		2014-2017	
	Proportion	Pounds	Proportion	Pounds	Proportion	Pounds
Total N areas	57.82%	9,805,213	51.54%	3,554,769	62.13%	6,250,444
Total S areas	42.18%	7,152,885	48.46%	3,342,576	37.87%	3,810,309
Total	100%	16,958,098	100%	6,897,345	100%	10,060,753

Table 3. Proportion of New Jersey black sea bass commercial harvest from northern and southern region statistical areas. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

NJ Landings by Statistical Area			
	2010-2017	2010-2013	2014-2017
Total N areas	52.04%	34.40%	61.87%
Total S areas	47.96%	65.59%	38.13%
Total	100%	100%	100%

Table 4. Proportion of black sea bass commercial harvest, MA-NY, from northern and southern region statistical areas. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

MA-NY Landings by Statistical Area						
	2010-2017		2010-2013		2014-2017	
	Proportion	Pounds	Proportion	Pounds	Proportion	Pounds
Total N areas	98.94%	6,270,079	98.66%	2,650,281	99.15%	3,619,799
Total S areas	1.06%	67,062	1.34%	35,970	0.85%	31,093
Total	100%	6,337,142	100%	2,686,251	100%	3,650,891

Table 5. Proportion of black sea bass commercial harvest, NJ-NC, from northern and southern region statistical areas. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

NJ-NC Landings by Statistical Area						
	2010-2017		2010-2013		2014-2017	
	Proportion	Pounds	Proportion	Pounds	Proportion	Pounds
Total N areas	33.28%	3,535,133	21.48%	904,488	41.04%	2,630,645
Total S areas	66.72%	7,085,823	78.52%	3,306,606	58.96%	3,779,217
Total	100%	10,620,956	100%	4,211,094	100%	6,409,862

Table 6. Proportion of black sea bass commercial harvest, DE-NC, from northern and southern region statistical areas. Only landings associated with valid northeast region statistical areas were included in the calculations. Data were provided by the ACCSP. Landings by area were estimated by applying VTR proportions of landings by area to dealer data.

DE-NC Landings by Statistical Area						
	2010-2017		2010-2013		2014-2017	
	Proportion	Pounds	Proportion	Pounds	Proportion	Pounds
Total N areas	23.24%	1,606,816	15.53%	448,024	28.75%	1,158,791
Total S areas	76.76%	5,308,566	84.47%	2,436,253	71.25%	2,872,314
Total	100%	6,915,382	100%	2,884,277	100%	4,031,105

Options for consideration by Black Sea Bass Commercial PDT

CT DEEP
5/13/2019

****Updated 7/28/2019 Table 1****

Option 1: Address Connecticut's disproportionately small allocation of the coastal quota

Connecticut has experienced a substantial increase in abundance of black sea bass in state waters over the last seven years (see Fig. 1 below). This increased resource availability has rendered Connecticut particularly disadvantaged by its current low allocation of the coastal quota (1%). This option addresses the disparity between abundance of black sea bass in Connecticut waters and Connecticut's quota allocation by increasing Connecticut's allocation to 5%, using the following approach:

1) Hold NY and DE allocations constant
    a. NY has experienced a similar substantial increase in black sea bass abundance in state waters; therefore, it would not be appropriate to reduce their allocation.
    b. DE current allocation is 5 %. As a "control rule", this option does not seek to make CT percent allocation larger than any other state.
2) Move 1/2 of ME and NH quotas to CT.
3) Move MA, RI, NJ, MD, VA, and NC allocation to CT. The amount moved from each state is proportional to that state's current percent allocation.

Figure 1 CT Long Island Sound Trawl Survey Spring Black Sea Bass Index.

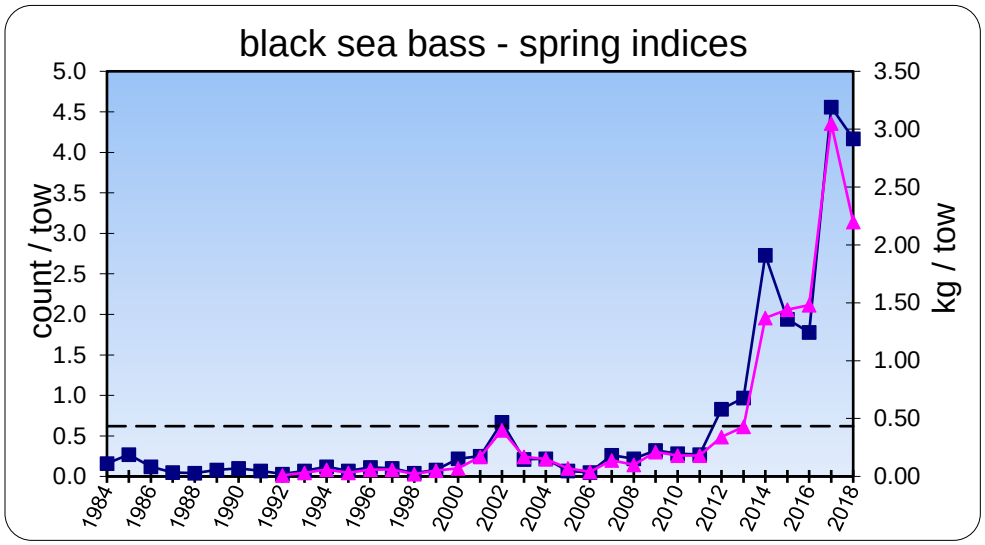

Table 1. Proposed changes in base allocations

State	Current % Allocation	Change in % Allocation	New % Allocation
ME	0.5%	-0.2500%	0.2500%
NH	0.5%	-0.2500%	0.2500%
MA	13.0%	-0.5291%	12.4709%
RI	11.0%	-0.4477%	10.5523%
CT	1.0%	4.0000%	5.0000%
NY	7.0%	0.0000%	7.0000%
NJ	20.0%	-0.8140%	19.1860%
DE	5.0%	0.0000%	5.0000%
MD	11.0%	-0.4477%	10.5523%
VA	20.0%	-0.8140%	19.1860%
NC	11.0%	-0.4477%	10.5523%

Option 2: Trigger option with adjustment of "base" allocations on an annual basis

This option uses a 3 million pound "trigger" while also incorporating the spirit of the TMGC approach (dynamic adjustment of allocations over time with consideration of resource availability and previous allocation regime). This option uses the following decision tree to allocate quota within a given year:

1) If the coastal quota is less than or equal to 3 million pounds:
    a. Allocate quota using the previous year's state allocation percentages.
2) If the coastal quota is greater than 3 million pounds:
    a. Allocate 3 million pounds of quota or "base" quota using the previous year's state allocation percentages.
    b. Allocate the remaining quota or "surplus" (amount above 3 million pounds) as follows:
        i. Split surplus quota to north vs. south region according to proportion of available biomass in each region (ME-NY = north region; NJ-NC = south region).
        ii. Further sub-divide surplus quota within each region according to existing intra-regional proportional allocation.

This option provides the following benefits:

1) By employing a 3 million pound trigger approach, ensures that there will not be substantial decrease to southern region state-by-state allocations in immediate future.
2) This option directly incorporates data on distribution of the resource. The proportions of available biomass in each region could be obtained from a periodic stock assessment, or could be determined annually using fishery-independent survey data.
3) This option allows state-by-state allocations to evolve over time as resource availability shifts (either north to south, or south to north). The rate of allocation shift is accelerated during periods of high resource availability (high quotas), and effectively "pauses" during periods of low resource availability (quotas below 3 million pounds).
4) Overall, year-year changes in state allocations will be moderate – only the "surplus" quota above 3 million pounds will be "shifted" in any one year. The allocation of the "base" quota of 3 million pounds will be the same as the previous year.

The attached Excel spreadsheet can be used to model outcomes during 2021-25 under various scenarios of regional resource distribution, coastal quota, and trigger points. The spreadsheet assumes 2021 implementation of the new regime; the 2020 quota is allocated according the existing state-by-state allocations.

- Use cells I3 through I7 to adjust annual north vs south biomass distribution.
- Use cells K3 through K7 to adjust annual coastwide commercial quota.
- Use cells L3 through L7 to adjust the trigger.