



## Mid-Atlantic Fishery Management Council

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# MEMORANDUM

**Date:** November 7, 2019  
**To:** Chris Moore, Executive Director  
**From:** Julia Beaty, Staff  
**Subject:** Black Sea Bass Recreational Management Measures for 2020

### Background and Summary

The information in this memo is intended to assist the Monitoring Committee, Advisory Panels, the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Management Board (Board) in developing recommendations for federal waters black sea bass size limits, possession limits, and open/closed seasons for 2020.

In October 2019, the Council and Board approved a 5.81 million pound black sea bass recreational harvest limit (RHL) for 2020 and 2021. This represents a 59% increase from the 2019 RHL of 3.66 million pounds (Table 1). The 2020-2021 RHL is based on the Scientific and Statistical Committee's (SSC's) acceptable biological catch (ABC) recommendation using an averaged/constant ABC across the two years, the Monitoring Committee's recommendation that the annual catch target be set equal to the annual catch limit (ACL), and an assumption that the proportion of total landings vs. total discards and the proportions of commercial vs. recreational discards, will be the same as in 2016 - 2018.<sup>1</sup>

The SSC's 2020-2021 ABC recommendation is based on biomass projections provided with the 2019 operational stock assessment and application of the Council's ABC control rule and risk policy.<sup>2</sup> The 2019 operational stock assessment concluded that the stock was not overfished and overfishing was not occurring in 2018. Spawning stock biomass in 2018 was 2.4 times the target level. The fishing mortality rate in 2018 was 9% below the fishing mortality threshold reference point.<sup>3</sup>

Each year, the Council and Board agree to federal waters recreational management measures for black sea bass for the upcoming year, consisting of a minimum fish size limit, a possession limit, and open/closed seasons that apply throughout federal waters from Maine through Cape

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<sup>1</sup> This assumption about discards differs from that recommended by the Monitoring Committee. For details on the Monitoring Committee's recommendations, see the September 2019 Monitoring Committee meeting summary, available at: [http://www.mafmc.org/s/Tab11\\_Scup-Specifications\\_2019-10.pdf/](http://www.mafmc.org/s/Tab11_Scup-Specifications_2019-10.pdf/) (pages 2-10)

<sup>2</sup> A summary of the SSC's recommendation is available at: <http://www.mafmc.org/ssc-meetings/2019/september-9-11>

<sup>3</sup> A prepublication copy of the 2019 operational stock assessment is available at: [http://www.mafmc.org/s/Operational-Assessments-for-Black-Sea-Bass\\_Scup\\_Bluefish.pdf](http://www.mafmc.org/s/Operational-Assessments-for-Black-Sea-Bass_Scup_Bluefish.pdf)

Hatteras, North Carolina. State waters recreational management measures are developed through a separate Commission process.

Framework 14/Addendum XXXI is pending approval by the National Marine Fisheries Service (NMFS) and would allow for use of slot limits (i.e., a maximum and minimum size limit) and conservation equivalency for black sea bass starting in 2020. Conservation equivalency would allow federal waters measures to be waived in favor of the measures in the states where anglers land their catch. If conservation equivalency is recommended by the Council and Board, they should also recommend a set of non-preferred coastwide measures and precautionary default measures. If implemented on a coastwide basis (i.e., in both state and federal waters from Maine through Cape Hatteras, North Carolina), the non-preferred coastwide measures should prevent harvest from exceeding the RHL. Individual states or regions would develop measures that, when taken as a whole, are the conservation equivalent of the non-preferred coastwide measures, meaning that they are expected to result in the same level of harvest as the non-preferred coastwide measures. The precautionary default measures are intended to be restrictive enough to deter states/regions from implementing measures which are not approved through the conservation equivalency process.

2020 will be the first year that black sea bass catch and landings limits and management measures will account for changes to the Marine Recreational Information Program (MRIP) data. In July 2018, MRIP released revisions to their time series of recreational catch and harvest estimates based on adjustments for a revised angler intercept methodology and a new effort estimation methodology, namely, a transition from a telephone-based effort survey to a mail-based effort survey. The revised estimates for most years are several times higher than the previous estimates for shore and private boat modes, substantially raising the overall black sea bass catch and harvest estimates (e.g., Table 1).

The revised MRIP estimates were incorporated into the 2019 black sea bass operational stock assessment and contributed to increased biomass estimates compared to the 2016 benchmark assessment. The impact of the MRIP data on the stock assessment is one of multiple factors which resulted in a 59% increase in the RHL in 2020 compared to 2019. However, because the new MRIP data show that black sea bass harvest is much higher than previously thought, this increase in the RHL will not allow for increased recreational harvest. In fact, a 29% reduction in harvest compared to 2019 would be required to prevent an overage of the 2020 RHL. This could be achieved by reducing the federal waters bag limit from 15 to 4 fish or by using an open season of August 15 through December 31 (previously May 15 - December 31). These limits would only apply to harvest in federal waters and in state waters from Delaware through Cape Hatteras, North Carolina. To achieve a coastwide harvest reduction of 29%, Massachusetts through New Jersey would need to also adjust their state waters measures to achieve a similar percent reduction in harvest.

Given challenges associated with transitioning to management based on the new MRIP data, high availability of black sea bass to anglers, and a very healthy stock status, there may be a consideration that recreational management measures remain unchanged in 2020 compared to 2019 to allow more time to gradually transition to a management system that accounts for these new changes in the MRIP data. However, *status quo* recreational management measures could result in a 18% ABC overage and a 7% underage of the overfishing limit (OFL). Given the SSC's concerns about uncertainty in the OFL, maintaining *status quo* recreational measures

could be too risky. Therefore, if an alternative to a 29% reduction in harvest is considered, Council staff recommend that the state and federal waters measures be modified such that recreational harvest is reduced by 15% compared to projected 2019 harvest. A 15% reduction in harvest would be expected to result in overages of the RHL and recreational ACL; however, it would be expected to result in a less than 1% ABC overage and a 22% OFL underage. Therefore, overfishing would not be expected to occur. This would be intended as a short-term approach to allow the Council and Board more time to consider any potential modifications to the current management system in light of the implications of the changes in the MRIP estimates.

### **Past RHLs and Management Measures**

The black sea bass RHLs have ranged from a low of 1.14 million pounds in 2009 to a high of 4.29 million pounds in 2017 (Table 1). Prior to approval of the 2016 benchmark stock assessment, the RHLs were based on a constant catch approach (the 2010-2015 RHLs) or a data-limited analysis (the 2016 RHL). Since 2017, the RHLs have been based on a peer reviewed and approved stock assessment.

Until 2010, the recreational black sea bass fishery was managed with identical management measures in state and federal waters, as dictated by the Fishery Management Plan. From 2011 through 2018, the Commission developed a series of addenda to enable state-specific and regional management measures to be used in state waters under a process referred to as “ad hoc regional management.” With approval of the Commission’s Addendum XXXII in 2018, an addendum is no longer needed each time the state measures change. The ad hoc approach has essentially resulted in two regions: the northern states of Massachusetts through New Jersey, which set state-specific measures, and the southern states of Delaware through North Carolina (north of Cape Hatteras), which typically set measures consistent with federal measures given that most harvest from those states is taken in federal waters (Table 2). Most recreational harvest in Massachusetts through New York occurs in state waters (Table 2) and the state waters measures in those states have generally been more restrictive than the federal waters measures (Table 3); thus, landings in those states have been constrained primarily by state measures rather than federal measures. Most New Jersey harvest occurs in federal waters (Table 2); however, the state waters measures in New Jersey are more restrictive than the federal measures (Table 3); therefore, anglers landing their catch in New Jersey are constrained more by the state waters measures than the federal measures.

Where state and federal measures differ, federal party/charter permit holders are bound by whichever regulations are more restrictive, regardless of where they fish. However, the federal black sea bass party/charter permit is an open access permit, which enables vessels to drop their federal permit for part of the year and later reapply for the permit. Some vessel owners will drop their federal waters permit when state waters are open but federal waters are closed, allowing them to fish in state waters during federal closures.

The approach used to modify management measures to prevent RHL overages has not been consistent from year to year. Reductions in recreational harvest were required each year from 2013 through 2015, requiring implementation of more restrictive bag, size, and/or season limits in some or all states and in federal waters, depending on the year. Most harvest in recent years (e.g., approximately 95% in weight and 93% in numbers of fish during 2010-2018) came from Massachusetts - New Jersey (Table 4, Figure 1); therefore, these states took greater reductions in 2015 and 2016 compared to Delaware - North Carolina and compared to federal waters. In 2016

and 2017, some minor changes were made to the measures in some states. Some liberalizations took place in 2018 (e.g., removal of the fall federal waters closure and liberalizations in some state waters seasons). State and federal waters measures remained virtually unchanged in 2019 compared to 2018 (Table 3).

In 2018, the Council and Board provided states the opportunity to open their recreational black sea bass fisheries during February for the first time since 2013 under specific constraints. They continued this approach for 2019 and 2020. States must opt in to this fishery. Participating states have a 12.5 inch minimum fish size limit and a 15 fish possession limit during February, identical to the federal waters measures during the rest of the year. Participating states may need to adjust their recreational management measures during the rest of the year to account for expected February harvest to help ensure that the coastwide RHL is not exceeded. Expected February harvest by state is defined as shown in Table 5. At this time, it is not known which states intend to participate in the February 2020 recreational fishery. In 2018 and 2019, only Virginia and North Carolina participated in this fishery. No black sea bass were harvested by recreational anglers off North Carolina in February 2018 and an estimated 55 pounds were harvested in February 2019. Estimated recreational harvest off Virginia in February 2018 was 4,826 - 5,206 pounds (depending on the assumption made about the weight of harvested fish). In February 2019, an estimated 10,082 pounds of black sea bass were harvested off Virginia. Both Virginia and North Carolina adjusted their open seasons later in the year to account for harvest in February 2018 and/or 2019.

### **Recreational Catch and Landings Trends and 2019 Projections**

Between 1981 and 2018, recreational black sea bass catch from Maine through Cape Hatteras, North Carolina was highest in 2017 at 41.00 million fish and lowest in 1984 at 4.73 million fish. Harvest in numbers of fish was highest in 1986 at 19.28 million fish and lowest in 1998 at 1.56 million fish. Harvest in weight was highest in 2016 at 12.05 million pounds and lowest in 1998 at 1.79 million pounds. On average during 2009-2018, 85% of black sea bass caught in the recreational fishery were released (Table 6).

MRIP data for 2019 are currently incomplete and preliminary. To date, only the first four waves (January - August) of data for 2019 are available. These data suggest that, from Maine through Cape Hatteras, North Carolina during January - August 2019, 17.36 million black sea bass were caught and 2.48 million black sea bass were harvested, corresponding to 5.27 million pounds of harvest. The preliminary 2019 wave 1-4 catch estimate is 7% higher than the final 2018 wave 1-4 catch estimate; however, the preliminary 2019 wave 1-4 estimate of harvest in numbers of fish is 7% lower than the final 2018 wave 1-4 estimate and the 2019 preliminary wave 1-4 estimate of harvest in pounds is 8% lower than the final wave 1-4 2018 estimate (Table 7).

Preliminary wave 1-4 data for 2019 were used to project catch and harvest for the entire year by assuming the same proportion of catch and landings by wave and state as in 2018. A single year was used instead of a multiple year average because changes to the open seasons in 2018 in federal waters and in some state waters likely impacted the proportion of harvest by wave compared to previous years (e.g., removal of the fall closure). As previously stated, recreational measures in state and federal waters remained virtually unchanged from 2018 to 2019 (Table 3). The wave 1 estimates for Virginia and North Carolina were modified to account for February harvest not sampled by MRIP (see previous section). Based on this methodology, projected 2019

black sea bass harvest from Maine through Cape Hatteras, North Carolina is 8.17 million pounds and 4.35 million fish.

For comparison purposes, annual 2019 harvest was also projected using the coastwide (i.e., Maine through Cape Hatteras, North Carolina) proportions of harvest by wave in 2018, rather than projecting by state. This resulted in a projected 2019 harvest of 7.33 million pounds and 3.79 million fish. This methodology does not account for varying proportions of harvest by wave by state.

Neither the preliminary 2019 wave 1-4 estimates nor the projected values should not be compared to the 2019 RHL as the 2019 RHL did not account for the revisions to the MRIP data. These projections should be used as a starting point for discussion of potential 2020 recreational management measures.

### **Predicting 2020 Harvest and the Impacts of Management Measures**

When developing recommendations for 2020 recreational management measures, it is typically assumed that if regulations remain unchanged, harvest in the upcoming year will be similar to harvest in the current year. It is also assumed that regulation changes will have direct and linear impacts on harvest. These assumptions do not always hold true. Harvest is impacted by many interacting factors including management measures, fish availability, fishing effort, weather, economic conditions, angler demographics, and availability and management measures for other recreational species. The impacts of these factors on harvest in future years can be difficult to accurately predict.

The number of directed recreational black sea bass trips estimated by MRIP has been generally increasing since 2011 but remained relatively stable during 2016-2018 (Table 9). During 2016-2018, availability of legal-sized black sea bass likely varied due to variations in year class strength. For example, according to the 2019 operational stock assessment, the 2011 year class was about four times the 1989-2018 average and was more prevalent off Massachusetts through New York than off the states of New Jersey south. This year class had a major impact on the fisheries over the past several years, though its contribution to recreational catch will have greatly diminished by 2020. The 2015 year class was more than double the 1989-2018 average and is more evenly distributed from Massachusetts through Cape Hatteras, North Carolina than the 2011 year class. As individuals in the 2015 year class increase in size, availability of fish larger than the recreational minimum size limits may continue to be high in 2020 despite the diminished influence of the 2011 year class. The 2016 year class was about 30% above average and the 2017 year class was about 72% below average; therefore, availability of black sea bass smaller than the minimum size limits may decline in 2020 compared to past years. These varying year class strengths may collectively result in an increase in recreational harvest and a decrease in recreational discards in 2020 compared to previous years. According to the 2016 benchmark stock assessment, black sea bass of both sexes reach 12.5 inches in length (the recreational minimum fish size in federal waters and in state waters in Delaware through Cape Hatteras, North Carolina) around age 4. They reach 15 inches in length (the recreational minimum fish size in state waters from Massachusetts through New York) around age 5.

The Monitoring Committee should consider these and other potentially relevant factors when discussing expected 2020 recreational harvest and any potential changes in management measures.

## Accountability Measures

Federal regulations include accountability measures (AMs) for when the recreational black sea bass ACL is exceeded as well as proactive AMs to help prevent the ACL from being exceeded. Proactive AMs include adjustments to the management measures (bag limits, size limits, and season) for the upcoming fishing year, if necessary, to prevent the RHL and ACL from being exceeded. The regulations do not allow for in-season closure of the recreational fishery if the RHL or ACL is expected to be exceeded. Paybacks of ACL overages may be required in a subsequent fishing year, depending on stock status and the scale of the overage, as described below. ACL overages in the recreational fishery are evaluated by comparing the most recent 3-year average recreational ACL against the most recent 3-year average of recreational catch (i.e., landings and dead discards). If average catch exceeds the average ACL, then the appropriate AM is determined based on the following criteria:

1. If the stock is overfished ( $B < \frac{1}{2} B_{MSY}$ ), under a rebuilding plan, or the stock status is unknown: The exact amount, in pounds, by which the most recent year's recreational ACL has been exceeded, will be deducted in the following fishing year, or as soon as possible once catch data are available.
2. If biomass is above the threshold, but below the target ( $\frac{1}{2} B_{MSY} < B < B_{MSY}$ ), and the stock is not under a rebuilding plan:
  - a. If only the recreational ACL has been exceeded, then adjustments to the recreational management measures (bag, size, and seasonal limits) would be made in the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measure and conditions that precipitated the overage.
  - b. If the ABC is exceeded in addition to the recreational ACL, then a single year deduction will be made as a payback, scaled based on stock biomass. The calculation for the payback amount is: (overage amount) \*  $(B_{msy} - B) / \frac{1}{2} B_{msy}$ .
3. If biomass is above the target ( $B > B_{MSY}$ ): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be considered for the following year, or as soon as possible once catch data are available. These adjustments would take into account the performance of the measures and conditions that precipitated the overage.

The 2016-2018 recreational ACLs did not account for the recent revisions to the MRIP estimation methodology; therefore, it is necessary to use catch estimates based on the old MRIP estimation methodology to compare recreational catch to the ACLs. According to these estimates, recreational catch in 2016-2018 averaged 6.86 million pounds, about 52% higher than the average recreational ACL of 4.50 million pounds (Table 10). This overage is driven by 2016, when the RHL was set based on a data limited methodology and not a peer reviewed and approved stock assessment, as was the case for the 2017 and 2018 RHLs. Previous Monitoring Committee comments on this issue indicated that the 2016 overage occurred when the stock was rapidly expanding and availability to anglers was very high. At the same time, due to the lack of an approved stock assessment, the RHLs were set at levels that were not reflective of actual stock abundance. The results of the 2016 benchmark stock assessment suggest that the 2016 recreational ACL could have been much higher if a peer reviewed and approved stock

assessment had been available at the time, and recreational overages would likely not have occurred to the same degree.<sup>4</sup>

When considering only 2017-2018, when RHLs were set based on a peer reviewed and approved stock assessment, average recreational catch exceeded the average recreational ACL by 4%. Given that biomass is currently above the target, the AM regulations require consideration of adjustments to the recreational bag, size, and/or season limits in response to the ACL overage, taking into account the performance of the measures and conditions that precipitated the overage. The Monitoring Committee should consider this when developing recommendations for 2020 recreational measures.

### **Staff Recommendation for 2020 Federal Recreational Measures**

As previously stated, projected 2019 recreational harvest from Maine through Cape Hatteras, North Carolina is 8.17 million pounds. The 2020 RHL is 5.81 million pounds. If it is assumed that 2020 harvest will equal projected 2019 harvest if no changes are made to the management measures, then recreational harvest would need to be reduced by 29% to prevent the 2020 RHL from being exceeded.

A 29% reduction in harvest could be achieved by closing the federal season during all of wave 3 and 45 days in wave 4, resulting in an open season of August 15 through December 31 (Table 11). A 29% reduction could also be achieved by reducing the federal waters bag limit from 15 to 4 fish and leaving the season and minimum size limit unchanged (Table 12).

The analysis supporting these measures assumes that the state waters measures in Delaware through Cape Hatteras, North Carolina will continue to match the federal waters measures and the state waters measures in Maine through New Jersey will continue to be more restrictive than the federal waters measures. For this reason, only the impacts to harvest off Delaware through Cape Hatteras, North Carolina were considered when developing these measures. To achieve a coastwide 29% reduction in harvest, Maine through New Jersey would need to modify their measures to achieve a similar reduction in harvest. As previously stated, state waters measures will be developed through a separate Commission process. If the Council and Board approve changes to the federal waters measures to achieve a certain percentage reduction in harvest, they could also consider approving a set of backstop measures to be implemented coastwide if the states do not take action through the Commission process to address the needed reduction.

Additionally, the analysis supporting these measures relies on assumptions of full compliance with the season regulations, no shift in effort from newly closed days to days that remain open, evenly distributed harvest throughout each wave, and identical levels of non-compliance with a revised bag limit as under the 2016-2018 federal bag limit of 15 fish. These assumptions are necessary given the available data and the difficulty in predicting changes in fishing behavior.

Information on the length frequencies of harvested black sea bass is provided for informational purposes (Figure 2); however, changes in the minimum fish size were not analyzed and are not recommended, given strong opposition to increases in minimum fish sizes in the past.

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<sup>4</sup> For example, see January 26, 2017 Monitoring Committee meeting summary, available at: [http://www.mafmc.org/s/Tab06\\_BSB-Specifications.pdf](http://www.mafmc.org/s/Tab06_BSB-Specifications.pdf), pages 2-9.

The need for any reduction in harvest is challenging to communicate given that the 2020 RHL is 59% higher than the 2019 RHL, biomass was more than double the target level in 2018, and availability to anglers is expected to continue to be high in 2020. The need for a 29% reduction in harvest despite a 59% increase in the RHL is driven in large part by the transition to the new MRIP estimation methodology which resulted in a major change in our understanding of the scale of recreational harvest (e.g., Table 1). The increased harvest estimates are not due to changes in fishing effort, but rather due to changes in the estimation methodology. Now that the new MRIP estimates have been incorporated into a stock assessment, they must be used in the management process. The scale of these impacts (i.e., the percent change in the RHL compared to the reduction in harvest needed) could not be accurately predicted prior to completion of the operational stock assessment in the summer of 2019. This left the Council and Board with little time to consider how to most appropriately respond to these changes before the new MRIP estimates must be used in management.

For all these reasons, there may be a consideration that the 2020 recreational management measures in state and federal waters remain unchanged from 2019 to allow the Council and Board time to transition to a management system that accounts for the new MRIP estimates in a more gradual fashion. However, status quo recreational management measures in 2020 could pose an unacceptably high risk of exceeding the OFL. As previously stated, 2020 recreational harvest under *status quo* management measures is expected to be 8.17 million pounds. Recreational discards can only be projected in numbers of fish. Using the projection methodology described on pages 4-5, projected 2019 discards are 24.36 million fish. This is 16% greater than the final 2018 discard estimate in numbers of fish. MRIP does not estimate the size or weight of discarded fish. The black sea bass stock assessment estimates recreational dead discards in weight based on discard length frequencies derived from a variety of sources and an assumed 15% discard mortality rate. If the 2018 recreational dead discard estimate in weight from the 2019 operational stock assessment is increased by 16% to account for the 16% difference between 2019 projected discards in numbers of fish compared to final 2018 estimated discards, this results in 2.64 million pounds of dead discards in the recreational fishery in 2020. Commercial landings closely follow the commercial quota;<sup>5</sup> therefore, it can be assumed that 2020 commercial landings will be approximately 5.58 million pounds (i.e., the 2020 commercial quota). In October 2019, the Council and Board recommended an expected commercial discards value of 1.40 million pounds for calculating the commercial ACL and quota, though the Monitoring Committee agreed that this is likely an underestimate. Based on these assumptions, total 2020 catch is projected to be 17.79 million pounds under *status quo* recreational management measures. The 2020 OFL is 19.39 million pound and the ABC is 15.07 million pounds. Therefore, under status quo recreational management measures, total catch in 2020 could exceed the ABC by 18% and could be 7% below the OFL.

The SSC recommended the 2020 ABC after considering uncertainty in the OFL. They agreed that the greatest sources of uncertainty include the strong retrospective bias in the assessment

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<sup>5</sup> For example, see Table 1 in the 2019 Black Sea Bass Fishery Information Document, available at: <http://www.mafmc.org/sf-s-bsb>.



results, differing directions of retrospective bias between the two spatial sub-areas in the model, and the degree to which the model relies on MRIP estimates.<sup>6</sup>

The 2019 operational stock assessment concluded that spawning stock biomass was 2.40 times the target level in 2018, though it is projected to decline to 1.68 times the target in 2020 if catch in 2019 and 2020 is equal to the ABCs in those years. If catch exceeds the ABC, biomass could decline further towards the target level. The stock has withstood multiple years of ABC overages in the past and has maintained a high biomass level; however, the 2011, 2015, and 2016 year classes were all at least 30% above the 1989-2017 average. The 2017 year class was 72% below average. It cannot be assumed that future year class strengths will be above average. Therefore, it is not appropriate to assume that because the stock has maintained a high biomass despite several past ABC overages it will continue to do so if 2020 catch exceeds the ABC. For these reasons, maintaining *status quo* recreational management measures in 2020 poses a conservation concern.

Taking all this information into consideration, if an alternative to a 29% reduction in harvest is considered, Council staff recommend that recreational management measures in state and federal waters be modified to achieve a 15% reduction in harvest in 2020. This would address concerns about negative socioeconomic impacts driven by changes in the MRIP estimation methodology rather than a conservation need, while also preventing an OFL overage. Based on the assumptions about catch described above, a 15% reduction in recreational harvest would be expected to result in an ABC overage of less than 1% and a 22% underage of the OFL. Staff recommend that a 15% reduction in harvest in federal waters be achieved by reducing the federal waters bag limit from 15 to 8 fish (Table 12). Alternatively, a 15% reduction in federal waters harvest could be achieved by closing at least 38 days in wave 3, resulting in an open season of June 8 (or later) to December 31. Staff also recommend that states work through the Commission process to develop 2020 recreational management measures to achieve a 15% reduction in state waters harvest.

Pending NMFS approval of Framework 14/Addendum XXXI, the 2020 federal recreational measures for black sea bass fishery could include a maximum fish size, which would allow for use of a slot limit, and the Council and Board could also have the option of recommending that the federal waters measures be waived in favor of state measures through conservation equivalency. Council staff do not recommend use of a slot limit for black sea bass in 2020 due to concerns raised by Advisory Panel, Council, and Board members about barotrauma of larger discarded fish. If the Council and Board wish to recommend conservation equivalency, they must also approve a set of non-preferred coastwide measures which would be expected to prevent harvest from exceeding the RHL if they were implemented in federal waters and in all state waters. Analysis of potential non-preferred coastwide measures is complicated by the wide variations in minimum fish sizes, bag limits, and open seasons across different states and federal waters (Table 3). The Monitoring Committee should discuss the appropriate way to calculate a set of non-preferred coastwide measures for black sea bass. An appropriate set of precautionary default measures could include a minimum fish size of 15 inches, a 5 fish bag limit, and an open season of June 1 to August 31. These measures are more restrictive than any of the existing state measures (Table 3).

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<sup>6</sup> See the September 2019 SSC meeting summary, available at: <http://www.mafmc.org/ssc-meetings/2019/september-9-11>

Table 1: ABCs, recreational ACLs, RHLs, recreational harvest based on old and revised MRIP data, and federal waters management measures for the black sea bass recreational fishery, 1997-2020. All measures are in millions of pounds, unless otherwise noted.

Year	ABC	Rec. ACL	RHL <sup>a</sup>	Harvest (old MRIP) <sup>b</sup>	% over/under RHL (old MRIP)	Harvest (revised MRIP) <sup>c</sup>	Bag limit (# fish)	Size limit	Open season
1997	-	-	-	4.4	-	6.34	-	9"	1/1-12/31
1998	-	-	3.15	1.29	-59%	1.77	-	10"	1/1-7/30 8/16-12/31
1999	-	-	3.15	1.7	-46%	2.16	-	10"	1/1-12/31
2000	-	-	3.15	4.12	+31%	4.65	-	10"	1/1-12/31
2001	-	-	3.15	3.6	+14%	6.24	25	11"	1/1-2/28 5/10-12/31
2002	-	-	3.43	4.44	+29%	5.67	25	11.5"	1/1-12/31
2003	-	-	3.43	3.45	+1%	5.67	25	12"	1/1-9/1 9/16-11/30
2004	-	-	4.01	1.97	-51%	3.09	25	12"	1/1-9/7 9/22-11/30
2005	-	-	4.13	1.88	-54%	3.21	25	12"	1/1-9/7 9/22-11/30
2006	-	-	3.99	1.8	-55%	2.74	25	12"	1/1-12/31
2007	-	-	2.47	2.17	-12%	3.34	25	12"	1/1-12/31
2008	-	-	2.11	2.03	-4%	3.57	25	12"	1/1-12/31
2009	-	-	1.14	2.56	+125%	5.70	25	12.5"	1/1-12/31
2010	4.50	-	1.83	3.19	+74%	8.07	25	12.5"	1/1-10/5
2011	4.50	-	1.84	1.17	-36%	3.27	25	12.5"	5/22-10/1 11/1-12/31
2012	4.50	-	1.32	3.18	+141%	7.04	15 or 25 <sup>d</sup>	12.5"	1/1-2/29 5/19-10/14 11/1-12/31
2013	5.50	2.90	2.26	2.46	+9%	5.68	20	12.5"	5/19-10/14 11/1-12/31
2014	5.50	2.90	2.26	3.67	+62%	6.93	15	12.5"	5/19-9/21 10/18-12/31
2015	5.50	2.90	2.33	3.79	+63%	7.82	15	12.5"	5/15-9/21 10/22-12/31
2016	6.67	3.52	2.82	5.19 <sup>e</sup>	+84%	12.05	15	12.5"	5/15-9/21 10/22-12/31
2017	10.47	5.38	4.29	4.16 <sup>e</sup>	-3%	11.48	15	12.5"	5/15-9/21 10/22-12/31
2018	8.94	4.59	3.66	3.82	+4%	7.92	15	12.5"	5/15-12/31
2019	8.94	4.59	3.66	-	-	8.17 <sup>f</sup>	15	12.5"	5/15-12/31
2020	15.07	8.09	5.81	-	-	-	TBD	TBD	TBD

<sup>a</sup> RHLs for 2006-2014 are adjusted for Research Set Aside.

<sup>b</sup> Values prior to 2004 are for ME-NC and for 2004-2018 are for Maine through Cape Hatteras, North Carolina.

<sup>c</sup> All values are for Maine through Cape Hatteras, North Carolina.

<sup>d</sup> 15 fish from 1/1-2/29; 25 fish from 5/19-10/14 and 11/1-12/31.

<sup>e</sup> The Technical Committees agreed that the 2016 and 2017 estimates are outliers driven by the impact of implausible estimates for New York in wave 6 in 2016 (all modes) and the private/rental mode in New Jersey in wave 3, 2017.

<sup>f</sup> Projected using the methodology described on pages 4-5.

Table 2: Average proportion of black sea bass recreational harvest from federal waters, 2014-2018. Maine and New Hampshire had no estimated black sea bass harvest during 2014-2018.

State	Proportion of harvest from federal waters (numbers of fish)	Proportion of harvest from federal waters (weight of fish)
MA	9%	11%
RI	21%	21%
CT	8%	8%
NY	45%	49%
NJ	68%	66%
DE	94%	93%
MD	75%	74%
VA	63%	74%
NC <sup>a</sup>	87%	87%
ME-NC <sup>a</sup>	39%	37%
ME-NJ	36%	35%
DE-NC <sup>a</sup>	77%	79%

<sup>a</sup> Through Cape Hatteras

Table 3: State waters black sea bass recreational measures in 2018 and 2019. All measures remained unchanged from 2018 to 2019 except for the season in Massachusetts.

State	Min. Size	Possession Limit	Open Season
ME	13"	10 fish	May 19 - Sept 21; Oct 18 - Dec 31
NH	13"	10 fish	Jan 1 - Dec 31
MA	15"	5 fish	2018: May 19 - Sept 12
			2019: May 18 - Sept 8
RI	15"	3 fish	Jun 24 - Aug 31
		7 fish	Sept 1 - Dec 31
CT private & shore	15"	5 fish	May 19 - Dec 31
CT authorized party/charter monitoring program vessels	15"	5 fish	May 19 - Aug 31
		7 fish	Sept 1 - Dec 31
NY	15"	3 fish	Jun 23 - Aug 31
		7 fish	Sept 1 - Dec 31
NY	12.5"	10 fish	May 15 - Jun 22
		2 fish	Jul 1 - Aug 31
		10 fish	Oct 8 - Oct 31
	13"	15 fish	Nov 1 - Dec 31
DE	12.5"	15 fish	May 15 - Dec 31
MD	12.5"	15 fish	May 15 - Dec 31
VA	12.5"	15 fish	Feb 1-28; May 15- Dec 31
NC, North of Cape Hatteras (35° 15'N)	12.5	15 fish	Feb 1-28; May 15- Dec 31

Table 4: Proportion of total coastwide black sea bass harvest from Maine through New Jersey or Delaware through North Carolina (through Cape Hatteras) each year, 2010-2019.

Year	% of ME-NC harvest (lb)		% of ME-NC harvest (numbers of fish)	
	ME-NJ	DE-NC	ME-NJ	DE-NC
2010	96%	4%	96%	4%
2011	85%	15%	83%	17%
2012	94%	6%	92%	8%
2013	97%	3%	95%	5%
2014	96%	4%	95%	5%
2015	96%	4%	95%	5%
2016	95%	5%	93%	7%
2017	95%	5%	93%	7%
2018	94%	6%	92%	8%
2019 (proj)	87%	13%	81%	19%
2010-2018	95%	5%	93%	7%

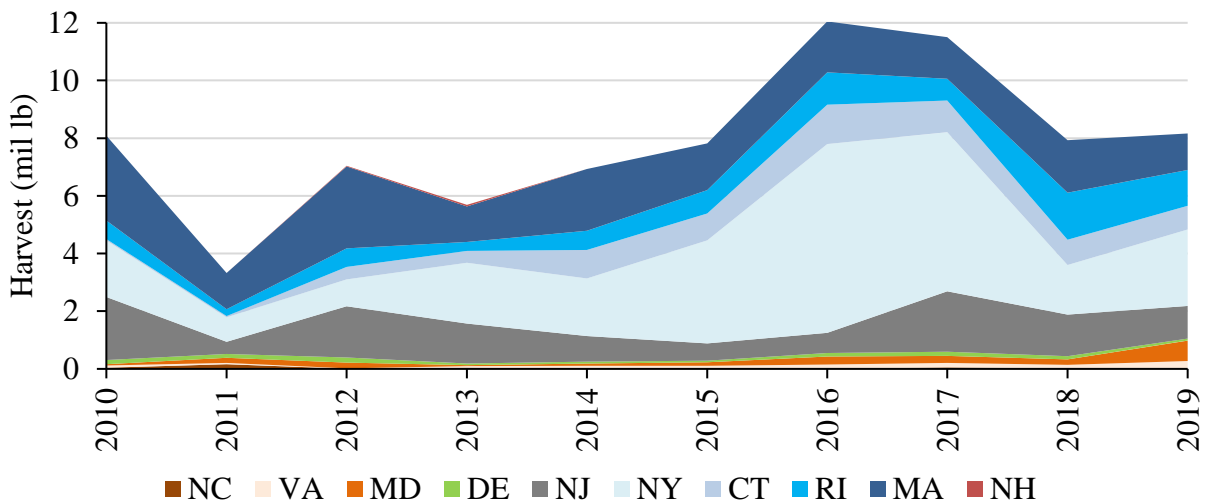


Figure 1: Percentage of coastwide recreational black sea bass harvest by state, 2010-2019. 2019 values are projected.

Table 5: State allocations of 100,000 pounds of expected February black sea bass harvest.

State	Proportion of Wave 1 Catch	Allocation of 100,000 pounds
RI	0.29%	288
CT	0.06%	57
fNY	9.41%	9,410
NJ	82.85%	82,850
DE	1.30%	1,297
MD	0.54%	541
VA	5.50%	5,496
NC <sup>a</sup>	0.06%	62
<b>Total</b>	<b>100.00%</b>	<b>100,000</b>

<sup>a</sup> North of Cape Hatteras

Table 6: Recreational black sea bass catch and harvest by year, Maine through Cape Hatteras, NC, 1982-2019. 2019 values are preliminary and are for waves 1-4 only.

<b>Year</b>	<b>Catch</b> (millions of fish)	<b>Harvest</b> (millions of fish)	<b>Harvest</b> (millions of lb)	<b>% Released</b>	<b>Avg. weight of landed fish (lb)</b>
1982	12.90	10.72	10.36	17%	0.97
1983	9.05	5.16	5.03	43%	0.97
1984	4.73	2.51	1.97	47%	0.79
1985	9.33	4.53	3.73	51%	0.82
1986	29.71	19.28	11.07	35%	0.57
1987	5.59	2.57	1.88	54%	0.73
1988	10.29	3.51	3.73	66%	1.06
1989	11.65	6.66	5.48	43%	0.82
1990	14.46	5.12	3.97	65%	0.78
1991	15.14	6.16	5.03	59%	0.82
1992	11.92	4.70	3.90	61%	0.83
1993	12.22	7.11	5.70	42%	0.80
1994	10.74	4.18	3.82	61%	0.91
1995	19.27	6.88	5.33	64%	0.78
1996	14.05	7.20	7.99	49%	1.11
1997	15.65	6.56	6.35	58%	0.97
1998	8.42	1.56	1.79	81%	1.15
1999	14.49	1.64	2.21	89%	1.34
2000	25.65	4.26	4.66	83%	1.09
2001	20.86	4.27	6.25	80%	1.46
2002	24.98	4.58	5.68	82%	1.24
2003	18.28	4.08	5.71	78%	1.40
2004	12.90	2.35	3.09	82%	1.32
2005	12.50	2.00	3.20	84%	1.60
2006	13.09	1.80	2.76	86%	1.53
2007	14.58	2.14	3.32	85%	1.55
2008	24.19	2.46	3.59	90%	1.46
2009	23.12	3.92	5.70	83%	1.45
2010	26.42	5.10	8.09	81%	1.59
2011	12.47	1.78	3.32	86%	1.86
2012	34.95	3.69	7.04	89%	1.91
2013	25.71	3.01	5.69	88%	1.89
2014	23.29	3.81	6.94	84%	1.82
2015	23.17	4.39	7.82	81%	1.78
2016	35.80	5.84	12.05	84%	2.06
2017	41.00	5.70	11.50	86%	2.02
2018	24.99	3.99	7.93	84%	1.99
2019 (w1-4 only)	17.36	2.48	4.87	86%	1.97

Table 7: Recreational black sea bass catch and harvest, waves 1-4 (January - August), 2015-2019, Maine through Cape Hatteras, North Carolina. 2019 values are preliminary.

<b>Year</b>	<b>Wave 1-4 catch (millions of fish)</b>	<b>Wave 1-4 harvest (millions of fish)</b>	<b>Wave 1-4 harvest (millions of pounds)</b>
<b>2015</b>	14.61	2.84	5.03
<b>2016</b>	18.30	3.11	6.27
<b>2017</b>	21.24	3.31	6.34
<b>2018</b>	16.24	2.61	5.27
<b>2019</b>	17.36	2.48	4.87

Table 8: 2019 harvest projections by state in pounds. All projections were based on preliminary 2019 wave 1-4 estimates and the proportion of harvest by wave and state in 2018. Virginia and North Carolina harvest in 2018 and 2019 was adjusted to account for February harvest not sampled by MRIP (see page 4). Average annual harvest during 2016-2018 is provided for comparison purposes only.

<b>State</b>	<b>Avg 2016-2018 w1-6 harvest</b>	<b>2018 w1-6 harvest</b>	<b>2018 w1-4 harvest</b>	<b>2018 w1-4 as % of annual harvest</b>	<b>2019 w1-4 harvest</b>	<b>2019 projected w1-6 harvest</b>	<b>% of projected 2019 w1-6 harvest</b>
<b>ME</b>	0	0	0	N/A	0	0	0%
<b>NH</b>	0	0	0	N/A	0	0	0%
<b>MA</b>	1,676,189	1,818,682	1,730,559	95%	1,203,200	1,264,469	15%
<b>RI</b>	1,167,752	1,628,876	789,314	48%	602,352	1,243,050	15%
<b>CT</b>	1,113,340	873,056	660,635	76%	620,517	820,038	10%
<b>NY</b>	4,596,494	1,726,553	856,552	50%	1,315,315	2,651,282	32%
<b>NJ</b>	1,407,732	1,440,762	1,086,432	75%	853,298	1,131,593	14%
<b>DE</b>	129,026	109,365	40,039	37%	26,501	72,386	1%
<b>MD</b>	234,622	189,712	21,503	11%	79,918	705,083	9%
<b>VA</b>	144,924	129,143	81,872	63%	171,585	270,654	3%
<b>NC<sup>a</sup></b>	6,708	4,307	1,882	44%	3,700	8,467	0%
<b>Total</b>	<b>10,476,788</b>	<b>7,920,456</b>	<b>5,268,788</b>	<b>67%</b>	<b>4,876,386</b>	<b>8,167,024</b>	<b>100%</b>

<sup>a</sup>Through Cape Hatteras

Table 9: Number of recreational fishing trips for which black sea bass was the primary target species, Maine - North Carolina.

<b>Year</b>	<b>Number of Directed Black Sea Bass Trips</b>	<b>Directed Black Sea Bass Trips As Percent of All Recreational Trips</b>
<b>2009</b>	886,770	0.9%
<b>2010</b>	1,105,355	1.1%
<b>2011</b>	464,202	0.5%
<b>2012</b>	705,492	0.7%
<b>2013</b>	675,330	0.8%
<b>2014</b>	831,222	0.9%
<b>2015</b>	1,263,828	1.5%
<b>2016</b>	1,115,446	1.3%
<b>2017</b>	1,173,894	1.4%
<b>2018</b>	1,170,462	1.7%

Table 10: AM evaluation for the recreational black sea bass fishery, comparing recreational catch from Maine through Cape Hatteras, North Carolina based on the old MRIP estimates to the recreational ACL. All values are in millions of pounds. All values shown in this table may differ from those ultimately used by NMFS for ACL evaluation.<sup>7</sup>

<b>Year</b>	<b>Rec. ACL</b>	<b>Rec. landings</b>	<b>Rec. dead discards</b>	<b>Rec. Catch</b>	<b>% Over/Under ACL</b>
2016	3.52	5.19	3.45	8.64	+145%
2017	5.38	4.16	1.27	5.43	+1%
2018	4.59	3.82	1.10	4.92	+7%
Average	4.50	4.39	1.94	6.86	+52%

<sup>7</sup> Recreational harvest is based on “pre-calibration” 2016-2017 MRIP estimates downloaded in July 2018 and back-calibrated 2018 estimates provided by MRIP staff. Recreational dead discard estimates were calculated by NMFS staff by applying the ratio of new to old MRIP estimates in each year to the dead discard estimates provided with the 2019 operational stock assessment. These discard values should be considered rough estimates.

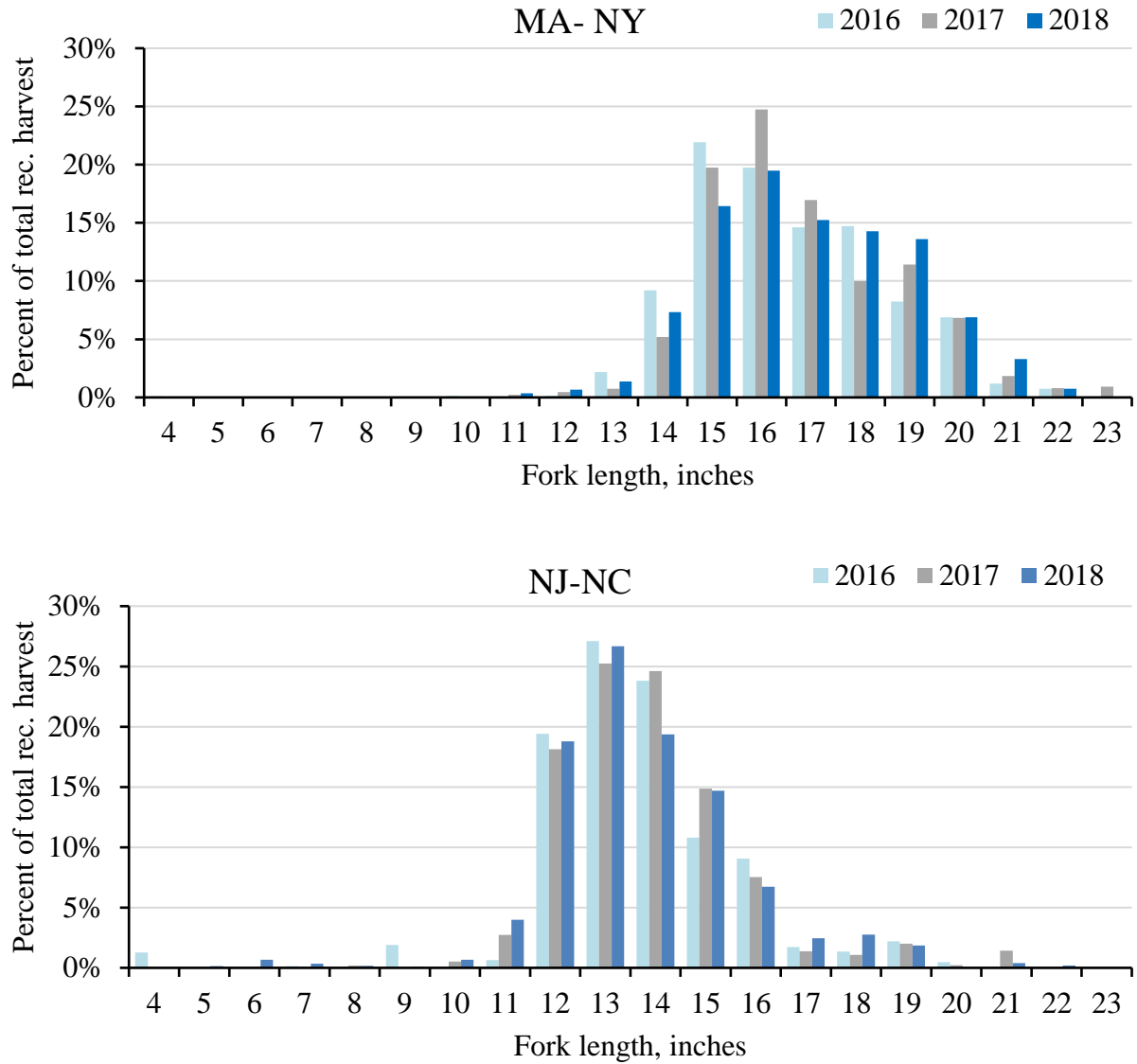


Figure 2: Expanded length frequencies of harvested black sea bass during 2016-2018 as a percent of landed fish. MA-NY had a minimum size limit of 15 inches during 2016-2018 and NJ-NC (north of Cape Hatteras) had a minimum size limit of 12.5 inches, with the exception of a 13 inch size limit in NJ during wave 6.



Table 11: Percent of Delaware through North Carolina (north of Cape Hatteras) black sea bass harvest (in weight) by wave and day per wave, in 2018.

Wave	Days open in 2018	% of 2018 DE-NC harvest	% of 2018 DE-NC harvest per day in wave
1 Jan-Feb	DE & MD: 0 VA & NC: 28	1.2%	0.0%
2 Mar-Apr	0	0.0%	0.0%
3 May-Jun	47	20.2%	0.4%
4 Jul-Aug	62	12.3%	0.2%
5 Sept-Oct	61	51.1%	0.8%
6 Nov-Dec	61	15.2%	0.2%

Table 12: Percent reduction in recreational harvest in numbers of fish under bag limits of 1-10 black sea bass, compared to the current 15 fish bag limit, from Delaware through Cape Hatteras, North Carolina.

Bag Limit	2016	2017	2018	Average
10	1%	11%	16%	9%
9	2%	13%	19%	11%
8	2%	15%	23%	13%
7	3%	18%	27%	16%
6	4%	21%	32%	19%
5	7%	26%	38%	24%
4	10%	34%	44%	29%
3	13%	43%	52%	36%
2	28%	55%	61%	48%
1	49%	73%	79%	67%