



Mid-Atlantic Fishery Management Council
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MEMORANDUM

Date: November 6, 2017
To: Chris Moore, Executive Director
From: Brandon Muffley, Staff
Subject: Black Sea Bass Recreational Management Measures for 2018

In August 2017, the Council and the Atlantic States Marine Fisheries Commission's (Commission's) Summer Flounder, Scup, and Black Sea Bass Board (Board) recommended no changes to the previously implemented commercial quotas and recreational harvest limits for black sea bass in 2018, based on the July 2017 advice of the Scientific and Statistical Committee (SSC) and Monitoring Committee. The final rule implementing the 2018 landings limits published on May 25, 2017 (82 FR 24078), and includes a 2018 recreational harvest limit (RHL) of 3.66 million pounds.

The 2018 specifications, including commercial quotas and recreational harvest limits, were initially approved in February 2017 based on the recommendations from the SSC following the approval of the 2016 black sea bass benchmark stock assessment. The benchmark stock assessment¹ concluded that the stock was not overfished and overfishing was not occurring in 2015. The estimated spawning stock biomass (SSB) in 2015 was approximately 2.3 times the spawning stock biomass target. The 2018 RHL represents nearly a 15% decline from the 2017 RHL of 4.29 million lb due to the projected declines in SSB in 2018.

The Monitoring Committee must recommend recreational management measures for 2018 that will constrain landings to the recreational harvest limit. The following is a review of recreational catch and landings data for the black sea bass fishery, as well as a staff recommendation.

Recreational Catch and Landings Trends and 2017 Projections

Recreational catch of black sea bass has fluctuated since 1981, from a peak of 28.95 million fish in 1986 to a low of 3.43 million fish in 1984. Landings have fluctuated from a peak of 12.39 million lb in 1986 to a low of 1.15 million lb in 1998. Landings were estimated to be 5.19 million lb in 2016 (Table 3), approximately 83% above the 2016 RHL of 2.82 million lb.

Marine Recreational Information Program (MRIP) data for 2017 are incomplete and preliminary. To date, only the first four waves (January through August) of catch and landings data for the current year are available. Preliminary data indicate that 7.61 million black sea bass have been caught and 1.42 million black sea bass have been landed through wave 4 in 2017 (north of Cape Hatteras, NC). By weight, landings

¹ For SARC reports, see: <http://www.nefsc.noaa.gov/saw/reports.html>.

through wave 4 were 2.61 million lb, with the mean weight at approximately 1.83 lb per landed fish (Table 4). Through wave 4, recreational landings in 2017 are 14% lower in numbers of fish and 22% lower in weight than landings in 2016 during the same time period. These preliminary estimates indicate that 61% of the 2017 RHL of 4.29 million lb has been harvested.

Preliminary wave data can then be used to project catch and landings for the entire year. As conducted in previous years, the preliminary wave 1-4 data for 2017 was used to project catch and landings for the entire year, by assuming the same proportion of catch and landings by wave and state in the previous year. This should be a reasonable approximation since the 2017 recreational regulations in each state are nearly identical to those in place in 2016 (Table 9a & b). Other projection methods were also evaluated that considered multiple years of catch and landings by wave at both the state and coastwide level to account for the inter-annual variability in the recreational estimates. The different projection methods produced similar results with a 6% difference between the lowest and highest 2017 total harvest projection estimates. Staff recommend the Monitoring Committee review the different projection approaches that were evaluated and determine which method might be the most appropriate for future projections. From 2014 – 2016, waves 1-4 accounted for approximately 66% of the annual black sea bass landings. Given that 34% of the landings occur in waves 5 and 6, which can have highly variable harvest estimates, projections using data through wave 4 are likely to change once more information about the 2017 fishery are available. Projected landings by state are given in Table 5 (in pounds) and Table 7 (in number of fish), and trends by state over time are shown in Figure 1 and Figure 2.

The coastwide (north of Cape Hatteras, NC) projected catch for 2017 is 12.78 million fish, and projected landings are 3.79 million lb or 2.11 million fish (Table 3). Projected 2017 landings in numbers of fish and weight are very similar to 2015 and 2014 landings and lower than the 2016 estimates by 17% and 27%, respectively. The 2017 projected harvest estimate is 12% below the 2017 RHL of 4.29 million lb and 3.6% above the 2018 RHL of 3.66 million lb.

Past Harvest Limits and Management Measures

Recreational harvest limits for black sea bass have ranged from a high of 4.29 million lb in 2017 to a low of 1.14 million lb in 2009. The 2017 RHL was a 52% increase from the 2016 RHL of 2.82 million lb (Table 8) and was based on projections developed from the 2016 benchmark stock assessment. The 2018 RHL will decline by approximately 15% to 3.66 million pounds due to the projected declines in SSB.

Until 2010, the black sea bass recreational fishery was managed with coastwide measures as dictated by the FMP, which included an identical minimum fish size, possession limit, and an open season that were implemented in both state and federal waters. Since 2011, the Commission has developed addenda which have enabled state-specific and regional management measures, which in recent years has been known as “ad hoc regional management.” This process essentially results 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 landings from southern states are taken in the EEZ (Table 5). Where state and federal measures differ, federal party/charter permit holders and private anglers fishing in federal waters are bound by whichever regulations are more restrictive. Many federal for-hire permit holders drop their federal permits during periods when state waters are open but federal waters are closed, allowing them to fish in state waters during this time. Most reapply for the permit once this period of inconsistency is complete. In practice under ad hoc regional management, landings in the northern states are constrained by state measures rather than federal.

In 2017, federal and southern states measures included a 12.5-inch TL minimum size, a 15-fish possession limit, and an open season of May 15-September 21 and October 22-December 31 (Table 8; Table 9). The Commission's Addendum XXVII, approved February 2016, allowed for ad hoc regional management in 2016 with the option to extend this management strategy into 2017. The estimated recreational harvest in 2016 of 5.19 million lb was approximately 21% higher than the 2017 RHL of 4.29 million lb. However, given the positive results of the 2016 benchmark stock assessment, which found the stock to be 2.3 times higher than the target biomass and low fishing mortality, and concern over the uncertainty in the wave 6 harvest estimate for New York, state recreational management measures remained relatively unchanged from 2016. The northern states implemented state-specific measures in 2017 with minimum fish sizes ranging from 12.5 to 15 inches TL, possession limits from 1 to 10 fish, and various seasons (Table 9).

The ad-hoc regional management provisions outlined under Addendum XXVII expire at the end of 2017. Therefore, the Board is currently considering draft Addendum XXX for recreational management in 2018. The addendum will contain options for regional allocations, consider approaches with uniform regulations (e.g., number of days) and other alternatives to the current North/South regional delineation (MA-NJ/DE-NC) such as those applied for summer flounder, i.e., one-state regions. Given the uncertainty in how the Board will manage the recreational black sea bass fishery in 2018, any adjustments to the federal recreational measures should be considered adjustments primarily to the measures for those states that have been in the southern region. Depending upon the outcomes of Addendum XXX, federal measures could be used as a baseline or as reference measures for other state(s)/region(s) in which to draft state specific measures (see Staff Recommendation).

The last year in which a liberalization to recreational measures was allowed was in 2012. Reductions in the recreational fishery were required each year from 2013 – 2016; while status quo measures were implemented in 2017. Annual reductions have ranged from a low of 8% in 2014 to a high of 36% in 2015. Since the Commission began state-specific or ad-hoc regional management approaches to establishing recreational measures in 2011, there has not been a consistent application of how reductions or liberalizations should be applied. Since the majority of the harvest (approximately 96%) comes from the northern states of New Jersey – Massachusetts, a greater proportion of the reductions have been applied to this region; while measures in the southern region states of Delaware through North Carolina have remained relatively consistent during this time period. In 2013 and 2014, reductions were taken in both the northern states and the southern states/federal waters; while in 2015 and 2016, reductions were taken only in the northern states.

Accountability Measures

In 2013, the Council modified the recreational accountability measures (AMs) for Mid-Atlantic species through an Omnibus Recreational Accountability Measures Amendment. This amendment removed the in-season closure authority for the black sea bass recreational fishery that was previously held by the NMFS Regional Administrator. Additionally, in the event of an Annual Catch Limit (ACL) overage, recreational AMs will no longer necessarily include a direct pound-for-pound payback of the overage amount in a subsequent fishing year. Instead, AMs are now tied to stock status, and though paybacks may be required in some circumstances, any potential payback amounts would be scaled relative to biomass, as described below.

The modified recreational AMs are as follows: the 3-year recreational sector ACL is evaluated against a 3-year moving average of total catch. Both landings and dead discards are evaluated in determining if the

3-year average recreational sector ACL has been exceeded. If the recreational ACL is exceeded, the appropriate AM will be 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 Acceptable Biological Catch ($ABC = \text{recreational ACL} + \text{commercial ACL}$) 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 in this case is: $(\text{overage amount}) * (B_{msy} - B) / \frac{1}{2} B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be 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.

Based on a comparison of the 3-year average ACL to the 3-year average of catch, as described above, recreational AMs would typically be triggered for application given the current circumstances (Table 1). The 2014-2016 average recreational catch (5.34 million lb) exceeded the 2014-2016 average recreational ACL (3.11 million lb). The AM triggered in this case would include adjustments to the recreational management measures (bag, size, and season) with additional considerations for the performance of recent recreational adjustments and the conditions that resulted in overages. However, these ACLs were implemented prior to the updated information provided in the benchmark assessment regarding the current stock status and condition of the resource and staff recommend that applying additional constraints of an AM is unnecessary in this case. The 2015 terminal year estimates from the stock assessment indicate SSB is 2.3 times higher than the target and 4.6 times higher than the threshold and fishing mortality is 25% below the $F_{MSYPROXY}$. In addition, the high recreational catch estimates from 2012 – 2015 were incorporated in the stock assessment and the population continued to grow and stock status did not change. The 2017 recreational ACL and RHL are 53% and 52% higher, respectively, than those implemented in 2016 and are more reflective of the current stock condition. As part of evaluating the AMs, the Monitoring Committee is responsible for considering the “conditions that precipitated the overage”. In January 2017, Monitoring Committee comments² on this issue indicated the 2012 – 2016 recreational overages occurred when the black sea bass stock was rapidly expanding and availability to recreational anglers was very high. At the same time, due to the lack of an approved stock assessment for black sea bass the recreational harvest limits were set at levels not reflective of the large and increasing stock abundance. Had the benchmark assessment been available to set specifications, recreational harvest limits would likely have been significantly higher, and overages would likely not have occurred to the same degree. All of these reasons support the staff recommendation that no additional constraints are needed at this time.

Table 1: Accountability Measures evaluation for the black sea bass recreational fishery, comparing 2014-2016 average recreational catch vs. 2014-2016 average recreational ACL. Source for total recreational catch: 2017 black sea bass data update.³

Year	Rec. ACL (mil lb)	Rec. Catch (mil lb)	% Over/Under
2014	2.90	4.69	+62%
2015	2.90	4.93	+70%
2016	3.52	6.40	+82%
Average	3.11	5.34	+72%

The Monitoring Committee should continue to build upon its work in January and the recent efforts of the ASMFC Technical Committee regarding alternative approaches to evaluate terminal year harvest to the RHL and smoothing techniques to account for variable and uncertain harvest estimates. The Committee should also consider any recommended changes to the Fishery Management Plan that simplify and clarify the recreational process. These approaches should strive to achieve improving equity and consistency in recreational management measures while improving the understanding of how management adjustments will affect recreational performance.

² See January 26, 2017 Monitoring Committee meeting memo at: https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/5893a752579fb35d028370e1/1486071639873/Tab06_B_SB-Specifications.pdf. Pages 2-9.

³ https://static1.squarespace.com/static/511cdc7fe4b00307a2628ac6/t/596667b9b11be1960406283b/1499883450612/4-black+sea+bass+SSC+report-2016_updated.pdf

Methodology

The Monitoring Committee must consider and recommend measures that will ensure the 2018 RHL will not be exceeded. The RHL for 2017 is 3.66 million pounds, a decline of nearly 15% from the 2017 RHL. The coastwide 2017 projections of recreational black sea bass harvest with data through wave 4 is estimated to be 3.79 million lb. The 2017 projected harvest estimate is 12% below the 2017 RHL of 4.29 million lb and 3.6% above the 2018 RHL of 3.66 million lb.

Table 2 provides the distribution of landings by wave in 2015-2016 from the southern region of Delaware through Cape Hatteras, North Carolina which are aligned with federal measures. Previously, a similar table with 2006-2008 landings was used on a coastwide basis to calculate the expected effects of seasonal adjustments on landings. Data from 2006-2008 were used because it is the most recent period when the minimum size, season, and possession limit were consistent across all states and federal waters. The Monitoring Committee has determined that the data used to calculate seasonal adjustments should be updated in order to more effectively predict the effects of recreational adjustments. However, updating this table for the northern states would not be informative given confounding effects of recent northern states regulations, which are complex and variable by state, wave, and fishing mode. Therefore, the table has been updated for the southern region only. The Monitoring Committee should continue to improve on the methods of calculating seasonal adjustments, using recent data and taking into consideration the variations in measures by state and fishing mode.

Table 2: a) Average percent of black sea bass landed (in number) by wave over 2015-2016 for Delaware through Cape Hatteras, North Carolina, and b) projected percent liberalization/reduction in black sea bass landings (in number) associated with closing one day per wave for the federal/southern states measures, based on MRIP landings data and the number of open days in each wave for 2016-2016.⁴

a.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
DE	0.00%	0.00%	41.27%	22.31%	5.56%	30.86%
MD	0.00%	0.00%	11.87%	18.73%	53.78%	15.61%
VA	0.00%	0.00%	48.28%	42.85%	7.39%	1.47%
NC ^a	0.00%	20.18%	27.83%	20.47%	26.75%	4.17%
Total : Southern Region	0.00%	0.27%	29.47%	27.81%	29.60%	12.84%

^a North of Hatteras.

b.

State	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5	Wave 6
DE	0.000	0.000	0.878	0.360	0.179	0.506
MD	0.000	0.000	0.253	0.302	1.735	0.256
VA	0.000	0.000	1.027	0.691	0.239	0.024
NC ^a	0.000	0.331	0.592	0.330	0.863	0.068
Total: Southern Region	0.000	0.004	0.627	0.449	0.955	0.210

^a North of Hatteras.

⁴ Average landings from 2015-2016 were used to develop in the information in Table 1a and b is smooth out the variability in the landings from one year and one state to the next.

Fishing Trips and Year Class Effects

Predicting the number of trips that might be taken in 2018 is complicated. The number of directed recreational black sea bass trips more than doubled from 2011 to 2015 and have averaged 463,000 trips from 2014-2016 (Table 10). Changes in fishing site characteristics (travel costs, catch rates, available species, water quality, etc.), fishery management policies (possession limits, size restrictions, closed seasons), and angler demographics can affect the demand for angler fishing trips. Changes in angler behavior may result in a violation of the assumptions associated with specific sets of regulations and their anticipated results.

Year-class effects in terms of fish availability can influence recreational catch and the expected impacts of management measures and should be considered. The Monitoring Committee has previously noted year class effects from the large 2011 year class of black sea bass, which is highlighted by the continued increase in recreational black sea bass catch from 2012 – 2016. The benchmark assessment indicated that recruitment has been average from 2012 – 2014. The 2017 data update indicates that the 2015 year class is above average. Unlike the 2011 year class which was primarily observed in the northern sub-unit of the stock (i.e. New York and north), the 2015 year class appears to be strong in both the north and south sub-units. The 2015 year class will be available to the recreational fishery in 2018. The Monitoring Committee should continue to review year class information and determine potential impacts on management actions.

2018 Staff Recommendation

When evaluating the projected 2017 landings to the 2018 RHL of 3.66 million pounds, an approximate 3.5% reduction in landings would be needed in 2018 using the traditional protocol of evaluating the prior year harvest to the following year RHL. Further evaluation will be necessary once the 2017 entire year recreational harvest estimates are available to determine if any adjustments will be required. The Monitoring Committee should continue to refine and finalize protocols necessary to utilize alternative methods for calculating recreational adjustments to help improve and stabilize the recreational specification setting process. These alternative methods include accounting for the uncertainty in the recreational harvest point estimates, data smoothing to account for highly uncertain estimates at the regional, state or wave level and methods to account for projected changes in availability for black sea bass and associated implications for recreational catch.

From 2014 – 2016, the recreational harvest from the southern region states of Delaware through North Carolina have averaged 4.1% of the total coastwide recreational black sea bass landings. Given the projected 2017 harvest and current condition of the black sea bass resource which indicates the spawning stock biomass to be nearly 230% of the target, low fishing mortality and a strong coastwide 2015 year class, staff recommend no reduction in recreational management measures in 2018. As mentioned above, further evaluation will be needed once additional 2017 harvest information becomes available and then utilize the Monitoring Committee's alternative methods to evaluate harvest in reference to the RHL.

The recommendation of no reduction in management measures does not necessarily require *status quo* management measures. The current federal water and southern states measures are a 12.5 inch minimum size, a 15 fish possession limit, and an open season from May 15-September 21 and October 22-December 31. Alternative management measures should be given consideration to more appropriately align state and federal water measures and provide for increased fishing opportunities while constraining harvest to the landing limit. For example, the current September 22-October 21 closure occurs at a time when many northern states are open which results in angler confusion and non-compliance, state/federal water transit issues (eg. Block Island) and permitting problems for federal party/charter permit holders. This closure

also takes place when sea bass are available to anglers in the states from New Jersey through North Carolina and likely concentrates fishing effort right before the closure in September and then when the fishery re-opens in October. For federal waters, staff recommend a continuous season length, a possession limit of 10 fish and a 12.5 inch minimum size limit. The reduction in possession limit and any changes to the current federal season start or end dates are needed to account for liberalization associated with the additional days gained in September/October and constrain harvest to that observed in 2017 under the current federal measures. Staff will work with the Monitoring Committee to determine the specific season start and end dates.

These federal water measures would apply to those states currently in southern region (DE-NC). As mentioned in the “Past Harvest Limits and Management Measures” section, the Board is currently developing draft Addendum XXX to set recreational black sea bass management measures in 2018. This addendum is considering various regional and state alignments with specific recreational allocation options. Depending upon the outcome of the addendum, these federal measure recommendations could be used as a baseline for other states or regions including the southern region if its composition changes. Those states whose harvest primarily occurs in state waters, could also consider changes to management measures while striving to achieve greater consistency in regulations while constraining harvest to the allocations determined by Addendum XXX.

In addition to the considerations provided above, states also need to consider and account for their potential participation in the 2018 wave 1 fishery. The Council and Board recently approved allocating 100,000 pounds to a 2018 wave 1 fishery with a season from February 1 – 28, 15 fish possession limit and a 12.5 inch minimum size limit. Those states that participate in the fishery, even if they follow federal water measures, will need to adjust their management measures to account for their harvest within the wave 1 fishery. Which states will participate and how the 100,000 pounds will be allocated and accounted for by each state still needs to be determined by the Board. The Council and Board are also considering options for a wave 1 fishery in 2019. The Monitoring Committee should consider biological and management implications and data collection needs of a wave 1 fishery in 2018 and beyond.

Lastly, there were a couple of significant black sea bass law enforcement actions recently encountered on party vessels in New York. These egregious violations could have biological and management implications and impose additional uncertainty for MRIP estimates. The Monitoring Committee should consider the implications of these non-compliance events and if future adjustments to the ACT are warranted to account for this management uncertainty.

Information on recreational fishery trends, through wave 4 of 2017, is provided in the tables and figures below to facilitate initial discussions of options for 2018.

Table 3: Black sea bass recreational catch and landings by year, 1982 to 2016, and projected catch and landings for 2017, Maine to Cape Hatteras, NC. The number of fish released is presented as a proportion of the total catch (% Released).

Year	Catch ^a ('000 fish)	Landings ^a ('000 fish)	Landings ^a ('000 lb)	% Released	Mean weight of landed fish (lb)
1982	11,386	10,045	9,894	12%	0.98
1983	7,561	4,537	4,079	40%	0.90
1984	3,428	1,780	1,447	48%	0.81
1985	6,047	3,388	2,097	44%	0.62
1986	28,946	21,742	12,392	25%	0.57
1987	5,052	2,883	1,924	43%	0.67
1988	8,186	3,088	2,869	62%	0.93
1989	6,427	4,239	3,289	34%	0.78
1990	9,135	3,881	2,761	58%	0.71
1991	10,829	5,269	4,186	51%	0.79
1992	7,722	3,592	2,706	53%	0.75
1993	9,023	6,007	4,842	33%	0.81
1994	7,166	3,430	2,948	52%	0.86
1995	14,059	6,747	6,207	52%	0.92
1996	8,143	3,624	3,993	55%	1.10
1997	10,646	4,739	4,268	55%	0.90
1998	5,146	1,148	1,152	78%	1.00
1999	7,400	1,378	1,664	81%	1.21
2000	16,927	3,629	3,988	79%	1.10
2001	13,869	2,841	3,421	80%	1.20
2002	14,703	3,351	4,349	77%	1.30
2003	12,128	3,251	3,289	73%	1.01
2004	7,238	1,531	1,973	79%	1.29
2005	7,041	1,263	1,883	82%	1.49
2006	7,602	1,286	1,800	83%	1.40
2007	8,727	1,528	2,175	82%	1.42
2008	10,653	1,294	2,031	88%	1.57
2009	9,224	1,806	2,558	80%	1.42
2010	9,964	2,207	3,190	78%	1.45
2011	4,737	817	1,171	83%	1.43
2012	12,536	1,874	3,185	85%	1.70
2013	9,807	1,282	2,464	87%	1.92
2014	10,870	2,118	3,667	81%	1.73
2015	9,429	2,215	3,790	77%	1.71
2016	14,139	2,543	5,187	82%	2.04
2017 (proj.) ^b	12,777	2,107	3,792	84%	1.80

^a 1982-2003 data are from MRFSS, 2004-2016 data are from MRIP. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 24, 2017.

^b Projected using proportion by wave from 2016 MRIP data and 2017 MRIP wave 1-4 data.

Table 4: Black sea bass recreational catch and landings for waves 1-4 (January – August), Maine through Cape Hatteras, North Carolina, 2006-2017.^a

Year	Catch ('000 fish)	Landings ('000 fish)	Landings ('000 lb)	Mean Weight (lb)
2006	3,491	710	1,075	1.51
2007	4,440	1,090	1,547	1.42
2008	6,261	618	996	1.61
2009	6,765	1,470	2,030	1.38
2010	4,693	1,284	1,897	1.48
2011	2,524	478	689	1.44
2012	7,534	1,252	2,280	1.82
2013	5,954	928	1,792	1.93
2014	6,341	1,287	2,456	1.91
2015	6,137	1,505	2,590	1.72
2016	8,189	1,653	3,356	2.04
2017	7,613	1,424	2,612	1.83

^a Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.

Table 5: Landings of black sea bass (in lb) by state and area (state vs. federal waters), 2015 and 2016, Maine through North Carolina, and projected landings for 2017 by state. Area information is self-reported based on the area where most fishing activity occurred per angler trip.

State	2015 Landings (lb)	2016 landings (lb)	2017 projected landings (lb)	Avg. % of Coastwide Landings (lb) 2015-2016	Proj. % of coastwide landings in 2017	% from State Waters (<= 3 mi), 2015-2016	% from EEZ (> 3 mi), 2015-2016
ME	0	0	0	0.0%	0.0%	--	--
NH	0	0	0	0.0%	0.0%	--	--
MA	718,108	891,449	608,267	17.9%	16.0%	97%	3%
RI	444,341	564,375	498,142	11.2%	13.1%	79%	21%
CT	495,679	914,022	634,807	15.7%	16.7%	96%	4%
NY	1,531,507	2,211,311	480,801	41.7%	12.7%	59%	41%
NJ	428,323	398,484	1,192,194	9.2%	31.4%	27%	73%
DE	26,893	31,939	62,771	0.7%	1.7%	6%	94%
MD	78,053	103,997	265,203	2.0%	7.0%	38%	62%
VA	63,695	70,188	23,158	1.5%	0.61%	6%	94%
NC	3,887 ^a	1,249	26,659	0.1% ^a	0.70% ^a	7% ^b	93% ^b
Total	3,790,487	5,187,015	3,792,002	100.0%	100.0%	68%	32%

^a Landings data shown are through Cape Hatteras, NC.

^b Landings by area (state vs. federal waters) includes data from all of North Carolina (north and south of Cape Hatteras).

Table 6: Black sea bass recreational landings (in thousands of fish) by state for waves 1-4, Maine through Cape Hatteras, NC, 2008-2017.

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
ME	-	-	-	-	-	-	-	-	-	-
NH	-	-	-	-	3	12	-	-	-	-
MA	154	367	641	159	454	190	349	338	361	221
RI	12	23	133	12	55	51	110	99	125	115
CT	60	0	15	3	87	96	187	143	367	244
NY	111	429	227	105	271	256	277	635	525	116
NJ	203	483	210	129	314	243	308	228	203	602
DE	18	34	16	14	33	34	18	12	17	31
MD	22	24	18	38	31	25	32	13	31	62
VA	29	109	17	13	3	12	4	36	24	17
NC	9	2	7	6	2	8	<1	1	<1	16

Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.

Table 7: Black sea bass recreational landings (in thousands of fish) by state for all waves, Maine through Cape Hatteras, NC, 2008-2017.^a

State	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017 (proj.) ^b
ME	-	-	-	-	-	-	-	-	-	
NH	-	-	-	-	3	12	-	-	-	
MA	246	431	702	195	520	292	457	343	392	241
RI	52	36	160	50	103	75	214	234	255	234
CT	60	0	16	8	111	110	397	331	436	290
NY	260	566	543	274	322	353	469	877	1,033	228
NJ	580	583	687	148	735	345	468	310	294	872
DE	23	37	21	43	40	37	24	23	24	44
MD	26	33	36	47	33	30	68	58	80	162
VA	38	115	30	19	4	21	19	39	29	20
NC	9	3	11	31	4	8	<1	2	<1	17

^a Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.

^b Projected using proportion by wave from 2016 MRIP data and 2017 MRIP wave 1-4 data (Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017).

Table 8: Summary of management measures for the black sea bass recreational fishery, 1997-2018.

Measure	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
ABC (m lb)	-	-	-	-	-	-	-	-	-	-	-
Recreational ACL (m lb)	-	-	-	-	-	-	-	-	-	-	-
Harvest Limit (m lb)^a	-	3.15	3.15	3.15	3.15	3.43	3.43	4.01	4.13	3.99	2.47
Landings (m lb)^b	4.3	1.2	1.7	4.0	3.4	4.4	3.3	2.0	1.9	1.8	2.17
Possession Limit	-	- ^c	- ^c	- ^c	25	25	25	25	25	25	25
Size Limit (TL in)	9	10	10	10	11	11.5	12	12	12	12	12
Open Season	1/1-12/31	1/1-7/30 and 8/16-12/31	1/1-12/31	1/1-12/31	1/1-2/28 and 5/10-12/31	1/1-12/31	1/1-9/1 and 9/16-11/30	1/1-9/7 and 9/22-11/30	1/1-9/7 and 9/22-11/30	1/1-12/31	1/1-12/31
Measure	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
ABC (m lb)			4.50	4.50	4.50	5.50	5.50	5.50	6.67	10.47	8.94
Recreational ACL (m lb)	-	-	-	-	-	2.90	2.90	2.90	3.52	5.38	4.59
Harvest Limit (m lb)^a	2.11	1.14	1.83	1.84	1.32	2.26	2.26	2.33	2.82	4.29	3.66
Landings (m lb)^b	2.03	2.56	3.19	1.17	3.19	2.46	3.67	3.79	5.19	3.79 ^e	-
Possession Limit	25	25	25	25	15 or 25 ^d	20	15	15	15	15	-
Size Limit (TL in)	12	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5	-
Open Season	1/1-12/31	1/1-12/31	1/1-10/5	5/22-10/1 and 11/1-12/31	1/1-2/29, 5/19-10/14 and 11/1-12/31	5/19-10/14 and 11/1-12/31	5/19-9/21 and 10/18-12/31	5/15-9/21 and 10/22-12/31	5/15-9/21 and 10/22-12/31	5/15-9/21 and 10/22-12/31	-

^a For 2006-2014, recreational harvest limits are adjusted for Research Set Aside (RSA). Quotas and harvest limits for 2015-2018 do not reflect an adjustment for RSA due to the suspension of the program in 2014.

^b Landings for Maine through Cape Hatteras, NC. 1997-2003 data are from MRFSS, 2004-2016 data are from MRIP.

^c There was no federal possession limit but some states implemented a 20 fish possession limit in these years.

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

^e Projected using preliminary data from waves 1-4, 2017, and proportions of landings by wave and state from 2016.

Table 9: Black sea bass recreational management measures by state, 2016 (a) and 2017 (b).

a) 2016 measures by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19-September 21; October 18- December 31
New Hampshire	13	10 fish	January 1-December 31
Massachusetts	15	5 fish	May 21-August 31
Rhode Island	15	3 fish	June 24- August 31
		7 fish	September 1-December 31
Connecticut (Private & Shore)	15	5 fish	May 1-December 31
CT (Authorized party/charter monitoring program vessels)		8 fish	
New York	15	3	June 27 – August 31
		8 fish	September 1-October 31
		10 fish	November 1-December 31
New Jersey	12.5	10 fish	May 23-June 19
	13	2 fish	July 1-August 31
			15 fish
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

b) 2017 measures by state.

State	Minimum Size (inches)	Possession Limit	Open Season
Maine	13	10 fish	May 19 - September 21; October 18 - December 31
New Hampshire	13	10 fish	January 1 - December 31
Massachusetts	15	5 fish	May 21 - August 31
Rhode Island	15	3 fish	May 25 - August 31
		7 fish	October 22 - December 31
Connecticut (Private & Shore)	15	5 fish	May 1 - December 31
CT (Authorized party/charter monitoring program vessels)		8 fish	
New York	15	3	June 27 – August 31
		8 fish	September 1 - October 31
		10 fish	November 1 - December 31
New Jersey	12.5	10 fish	May 26 - June 18
		2 fish	July 1-August 31
		15 fish	October 22 - December 31
Delaware	12.5	15 fish	May 15-September 21; October 22-December 31
Maryland	12.5	15 fish	May 15-September 21; October 22-December 31
Virginia	12.5	15 fish	May 15-September 21; October 22-December 31
North Carolina, North of Cape Hatteras (N of 35° 15'N)	12.5	15 fish	May 15-September 21; October 22-December 31

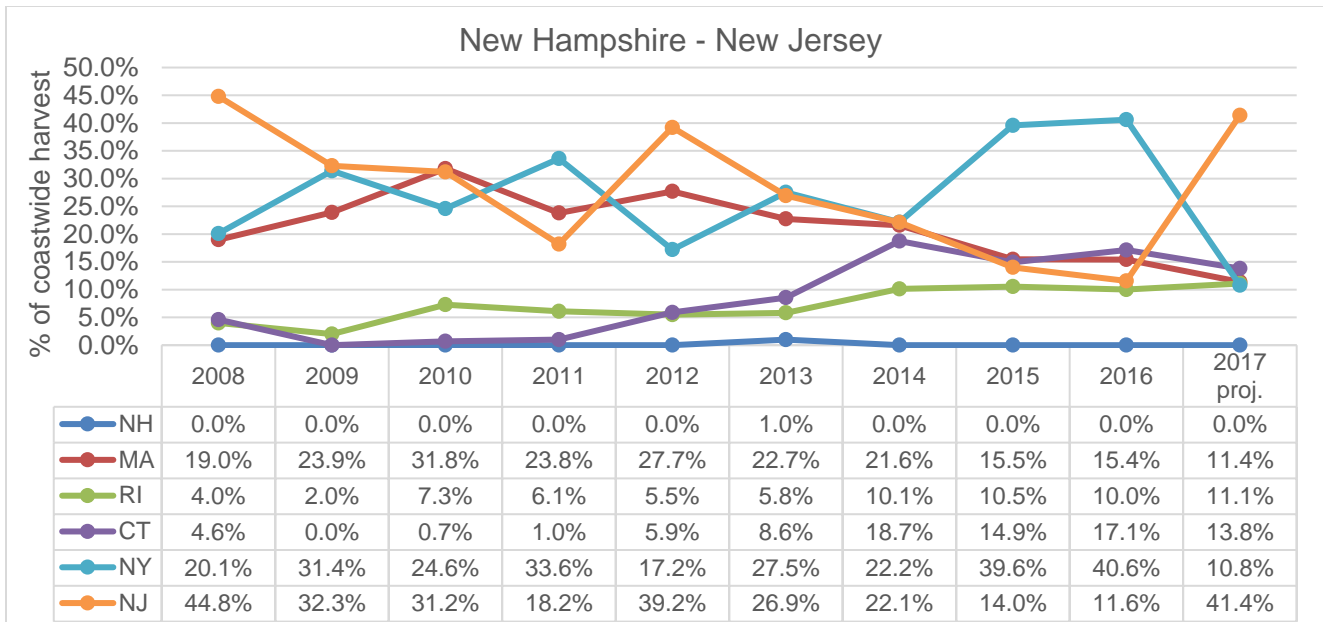


Figure 1: Percentage of coastwide black sea bass harvest (in number of fish) by state, 2008-2017 (projected) for New Hampshire-New Jersey.

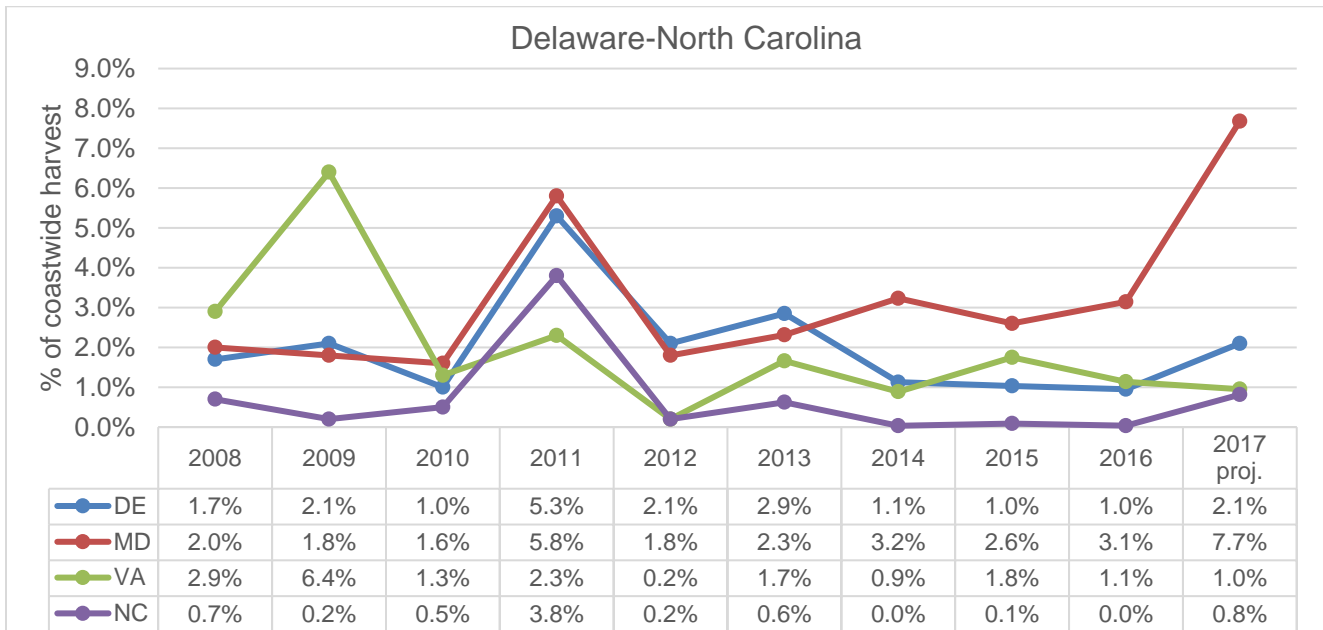


Figure 2: Percentage of coastwide black sea bass landings (in number of fish) by state, 2008-2017 (projected) for Delaware-North Carolina.

Table 10: Number of directed black sea bass recreational fishing trips (Maine through North Carolina), recreational harvest limits, recreational landings, and fishery performance from 1995 to 2017.

Year	Number of Directed Fishing Trips ^a	Percentage of Directed Trips relative to Total Trips ^b	Recreational Harvest Limit (million lb) ^c	Recreational Landings of BSB (million lb) ^{d,e}	Percentage Overage (+%)/ Underage (-%)
1995	313,537	1.2	None	6.34	None
1996	231,090	0.8	None	3.99	None
1997	310,898	1.0	None	4.26	None
1998	137,734	0.5	3.15	1.14	-64%
1999	136,452	0.5	3.15	1.64	-48%
2000	255,789	0.7	3.15	3.98	+26%
2001	293,191	0.8	3.15	3.41	+8%
2002	283,537	0.9	3.43	4.37	+27%
2003	285,861	0.8	3.43	3.30	-4%
2004	149,670	0.4	4.01	1.97	-51%
2005	199,603	0.5	4.13	1.88	-54%
2006	253,040	0.7	3.99	1.80	-55%
2007	368,042	1.0	2.47	2.18	-12%
2008	256,341	0.7	2.11	2.03	-4%
2009	393,389	1.3	1.14	2.56	+125%
2010	417,663	1.4	1.83	3.19	+74%
2011	193,655	0.7	1.83	1.17	-36%
2012	267,932	0.8	1.32	3.19	+142%
2013	261,582	1.0	2.26	2.46	+9%
2014	403,624	1.0	2.26	3.67	+62%
2015	505,571	2.3	2.33	3.79	+63%
2016	483,604	1.9	2.82	5.19	+83%
2017	NA	NA	4.29	NA	NA

^a Estimated number of recreational fishing trips (expanded) where the primary target species was black sea bass, Maine through North Carolina. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 27, 2016.

^b Source of total trips (Maine through North Carolina) for all species combined: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.

^c Harvest limits for 2002 through 2014 are adjusted for research set-aside.

^d Maine through Cape Hatteras, NC.

^e 1994-2003 data are from MRFSS, 2004-2016 data are from MRIP. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.

NA = Data not available.

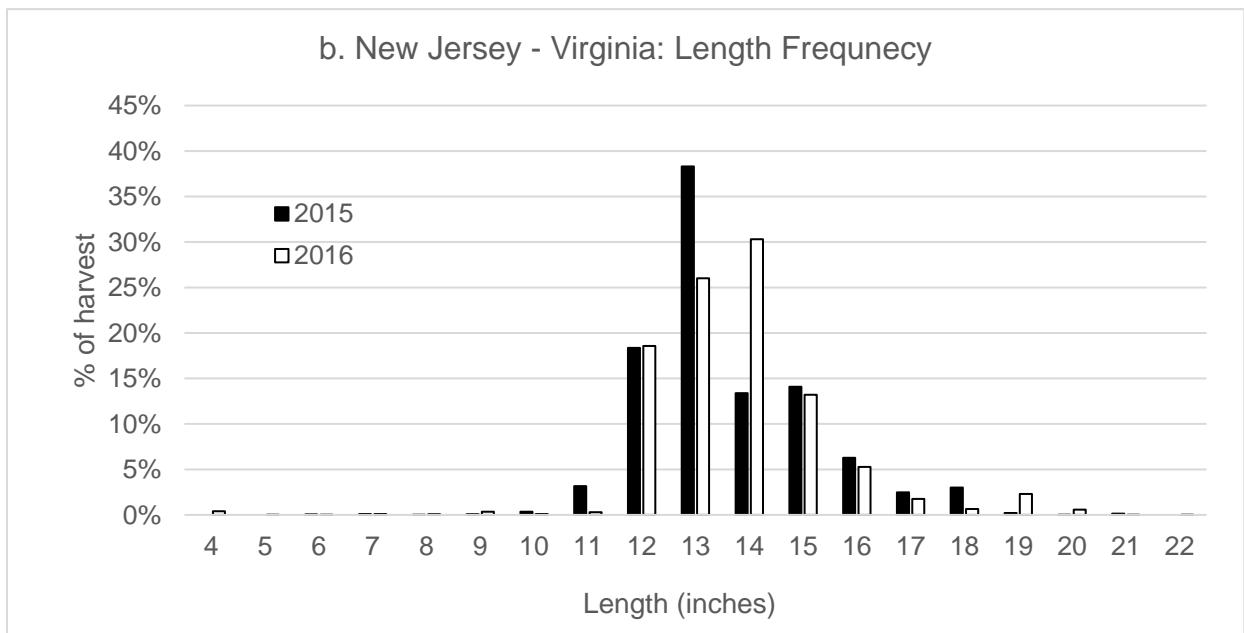
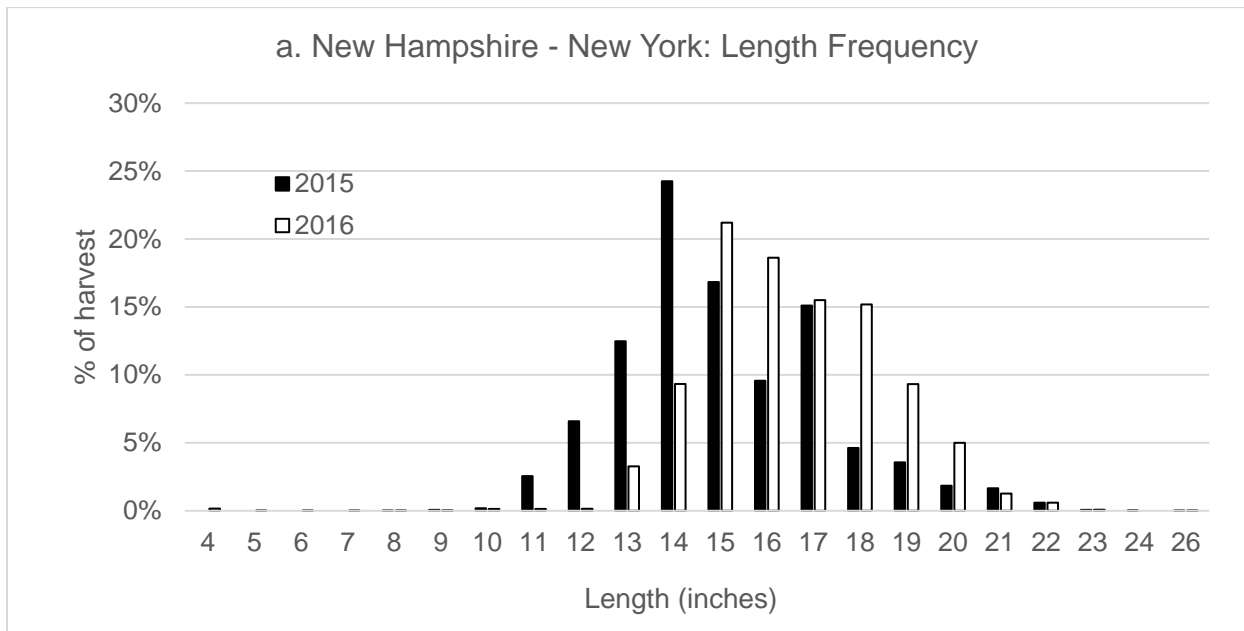


Figure 3: Expanded length frequencies of landed black sea bass from 2015 and 2016 MRIP data, as a percent of total landed fish, for a) New Hampshire through New York (13 or 15-inch size limits) and b) New Jersey through North Carolina (generally 12.5-inch size limit, except for New Jersey fall season). Each length bin contains fish from X.0 to X.99 inches. Source: Pers. Comm. with the National Marine Fisheries Service, Fisheries Statistics Division, October 23, 2017.