



Mid-Atlantic Fishery Management Council
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Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: December 3, 2021
To: Chris Moore, Executive Director
From: Julia Beaty, Staff
Subject: Black Sea Bass Recreational Measures for 2022

On Tuesday, December 14, the Council and Board will consider 2022 recreational management measures for black sea bass. Materials listed below are provided for the Council and Board's discussion of this agenda item.

- 1) Summary of November 10, 2021 Monitoring Committee meeting (*behind Tab 6*)
- 2) Summary of November 18, 2021 Advisory Panel meeting (*behind Tab 6*)
- 3) Email comments from advisors and others on summer flounder, scup and/or black sea bass recreational measures received by December 1, 2021 (*behind Tab 6*)
- 4) Staff memo on 2022 black sea bass recreational measures dated November 5, 2021
- 5) Summary of October 25, 2021 ASMFC Technical Committee Meeting (*behind Tab 6*)

Any additional public comments received by the supplemental comment deadline of December 9, 2021 will be posted separately to the Council's meeting page.

After the November 10 Monitoring Committee meeting, GARFO staff indicated that the Council and Board must follow the federal regulations regarding conservation equivalency for black sea bass in 2022. These regulations were first in place for the 2020 fishing year but have not been followed as the Council and Board maintained a status quo approach to recreational fisheries management in 2020 and 2021 for reasons described in the November 5 staff memo included behind this tab. Specifically, these regulations require the Council and Board to make an annual decision between implementing coastwide measures (i.e., one set of measures that applies uniformly to federal waters and all states) and waiving the federal waters measures. If the federal waters measures are to be waived, the Council and Board must also recommend non-preferred coastwide and precautionary default measures (50 CFR § 648.142 (d)). This was not discussed by the Monitoring Committee. Example non-preferred coastwide and precautionary default measures developed by staff but not reviewed by the Monitoring Committee will be provided in advance of the December 14 Council and Board meeting.



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MEMORANDUM

Date: November 5, 2021
To: Chris Moore, Executive Director
From: Julia Beaty, staff
Subject: Black Sea Bass Recreational Management Measures for 2022

Background and Summary

The information in this memo is intended to assist the Monitoring Committee (MC), 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 size limits, possession limits, and open/closed seasons for the recreational black sea bass fishery 2022.

In August 2021, the Council and Board adopted a 6.74 million pound recreational harvest limit (RHL) for 2022, a 6% increase compared to the 2020 RHL of 6.34 million pounds (Table 1). This RHL is based on the Scientific and Statistical Committee's (SSC's) acceptable biological catch (ABC) recommendation, the Monitoring Committee's recommendation that the annual catch target be set equal to the annual catch limit (ACL), and the Monitoring Committee's recommendation for expected dead discards in 2022.¹

Each year, the MC is tasked with recommending federal waters recreational management measures (possession limits, size limits, and open seasons) for the upcoming year. After considering the advice of the MC, as well as Advisory Panel input, the Council and Board then adopt federal waters recreational management measures for the upcoming year. These measures apply throughout federal waters. State waters measures are determined separately through the Commission process.

This memo summarizes staff recommendations regarding predictions of 2022 harvest under status quo measures and considerations related to RHL overages. As described in more detail on page 9, a 28% reduction in harvest may be needed to prevent an RHL overage in 2022. Pages 12-14 include examples of changes in measures which would be expected to achieve this reduction.

The Council and Board recommended status quo recreational measures despite expected RHL overages in 2020 and 2021 based on considerations related to major revisions in the recreational fishery data, multiple ongoing management actions which may impact the recreational fisheries management in future years (i.e., the Commercial/Recreational Allocation Amendment, the

¹ More information is provided in the staff memo available at: https://www.mafmc.org/s/Tab04_BSB-Specs_2021-08.pdf (see pages 16-32 of the pdf). The SSC, Monitoring Committee, Council, and Board accepted all staff recommendations for variable catch limits across 2022-2023 as outlined in the staff memo.

Recreational Harvest Control Rule Framework/Addendum, and other Recreational Reform Initiative Actions), biomass that is more than double the target level, and negative socioeconomic impacts from notably restricting harvest without a perceived conservation need. The Council and Board emphasized that this was a temporary approach to allow more time to consider how to best respond to the revisions in the recreational data and to further develop the Commercial/Recreational Allocation Amendment and the Recreational Reform Initiative topics. The Council and Board have not yet taken final action on these management actions; therefore, their impacts on fisheries management in future years is unknown. The MC, Advisory Panels, Council, and Board should consider that it may not be appropriate to recommend a third year of status quo measures despite expected RHL overages as this was intended as a temporary approach, it does not follow the FMP requirements, and it may pose a risk to the stock.

Data Considerations

In July 2018, the Marine Recreational Information Program (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. Recreational data included in this memo reflect revised MRIP data except where otherwise stated.

MRIP estimates for 2020 were impacted by the COVID-19 pandemic. The mail-based Fishing Effort Survey (FES), continued uninterrupted in 2020; however, the Access Point Angler Intercept Survey (APAIS), which serves as the basis for catch estimates, was suspended starting in late March or April and resumed between May and August 2020, depending on the state. MRIP staff used imputation methods to fill the resulting 2020 data gaps with data collected in 2018 and 2019. These proxy data match the time, place, and fishing modes that would have been sampled had APAIS sampling continued uninterrupted. Proxy data were combined with observed data to produce 2020 estimates using the standard estimation methodology. When complete 2021 data are available in 2022, MRIP staff will evaluate the effects of including 2021 data (e.g., alongside 2019 data and instead of 2018 data) in the imputation. Because these effects are unknown, the agency cannot predict whether it will seek to revise the 2020 estimates in 2022.

Estimates of recreational dead discards in weight in 2020 are not currently available. The method for generating these estimates relies on age and length information that is not complete at this time. Estimates of dead discards through 2019 are available in the draft 2021 management track stock assessment report.²

² Available at: <https://www.mafmc.org/ssc-meetings/2021/july21-23>

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

Year	ABC	Rec. ACL	RHL ^a	Harvest (old MRIP) ^b	Harvest (revised MRIP) ^c	% over/under RHL ^d
1998	-	-	3.15	1.29	1.77	-59%
1999	-	-	3.15	1.7	2.16	-46%
2000	-	-	3.15	4.12	4.65	+31%
2001	-	-	3.15	3.6	6.24	+14%
2002	-	-	3.43	4.44	5.67	+29%
2003	-	-	3.43	3.45	5.67	+1%
2004	-	-	4.01	1.97	3.09	-51%
2005	-	-	4.13	1.88	3.21	-54%
2006	-	-	3.99	1.8	2.74	-55%
2007	-	-	2.47	2.17	3.34	-12%
2008	-	-	2.11	2.03	3.57	-4%
2009	-	-	1.14	2.56	5.70	+125%
2010	4.50	-	1.83	3.19	8.07	+74%
2011	4.50	-	1.84	1.17	3.27	-36%
2012	4.50	-	1.32	3.18	7.04	+141%
2013	5.50	2.90	2.26	2.46	5.68	+9%
2014	5.50	2.90	2.26	3.67	6.93	+62%
2015	5.50	2.90	2.33	3.79	7.82	+63%
2016	6.67	3.52	2.82	5.19 ^e	12.05 ^e	+84%
2017	10.47	5.38	4.29	4.16 ^e	11.50 ^e	-3%
2018	8.94	4.59	3.66	3.82	7.93	+4%
2019	8.94	4.59	3.66	3.46 ^f	8.62	-5%
2020	15.07	8.09	5.81	-	9.06	+56%
2021	17.45	7.93	6.34	-	11.98 projected	+89%
2022 ^g	18.86	8.76	6.74	-	-	-
2023 ^g	16.66	7.74	5.95	-	-	-

^a RHLs for 2006-2014 are adjusted for Research Set Aside. The 2010-2015 RHLs were based on a constant catch approach and a data-limited analysis was used to set the 2016 RHL. Since 2017, the RHLs have been based on a peer reviewed and approved stock assessment.

^b Values prior to 2004 are for Maine through North Carolina and for 2004-2021 are for Maine through Cape Hatteras, North Carolina.

^c All values are for Maine through Cape Hatteras, North Carolina based on MRIP data downloaded October 29, 2021. Values for 2018-2020 account for February harvest in Virginia that was not sampled by MRIP.

^d Based on a comparison to harvest in “old” MRIP units through 2019 and “new” MRIP units for 2021.

^e The Technical Committee 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.

^f Provided to the NMFS Greater Atlantic Regional Fisheries Office by the Northeast Fisheries Science Center.

^g Pending approval and implementation by NMFS.

Past RHLs and Management Measures

Joint Council and Board management of the recreational black sea bass fishery began in 1998. RHLs have ranged from a low of 1.14 million pounds in 2009 to a high of 6.74 million pounds in 2022 (pending approval by the National Marine Fisheries Service, Table 1). The 2010-2015 RHLs were based on a constant catch approach and a data-limited analysis was used to set the 2016 RHL. Since 2017, the RHLs have been based on a peer reviewed and approved stock assessment. This assessment was last updated in August 2021 with data through 2019.

Until 2010, the recreational black sea bass fishery was managed with identical bag, size, and season limits in state and federal waters, as dictated by the Fishery Management Plan (FMP). 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 to modify the state measures. Under the ad hoc approach, the states of Massachusetts through New Jersey have set state-specific measures, while Delaware through North Carolina (north of Cape Hatteras) have set measures that were generally consistent with federal measures (Table 2, Table 3). Most harvest in Massachusetts through New York occurs in state waters (Table 4) and the measures in those states have generally been more restrictive than the federal waters measures (Table 2, Table 3); thus, harvest in those states has been constrained primarily by state measures rather than federal measures. Most harvest in New Jersey through North Carolina is taken in federal waters (Table 4). The state waters measures in New Jersey are more restrictive than the federal measures (Table 2, Table 3); therefore, anglers landing their catch in New Jersey are constrained more by the state waters measures than the federal measures. As previously stated, the measures in Delaware through North Carolina generally match the federal waters measures.

The approach used to modify management measures is not specified in the FMP and has not been consistent from year to year. Reductions in recreational harvest were required each year from 2013 through 2015 to prevent RHL overages, 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 94% during 2011-2020) came from Massachusetts - New Jersey (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 unchanged during 2018-2021 with the exception of minor season adjustments in Massachusetts to allow for a Saturday opening without meaningfully impacting overall harvest, and in Virginia and North Carolina to account for harvest during the special February recreational opening (Table 2, Table 3).

Starting 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. 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 measures during the rest of the year to account for February harvest to help ensure that their participation in this opening does not increase the chances of the coastwide RHL being exceeded. At this time, it is not known

which states intend to participate in the February 2022 opening. Virginia has participated in this opening each year starting in 2018. In previous years, the Monitoring and Technical Committees agreed that Virginia has a sufficient monitoring program in place for this opening and has expressed no opposition to Virginia continuing to participate in this opening. North Carolina also participated in this optional opening in 2018-2020; however, they did not participate in 2021 and indicated that they do not intend to participate in the future. North Carolina had relied on MRIP estimates for monitoring harvest and considering season adjustments, which posed challenges given the fine scale seasonal adjustments that must be considered.

In the fall of 2019, available data suggested that a 20% reduction in harvest was needed to prevent an overage of the 2020 RHL, despite a 59% increase in the RHL from 2019 to 2020 (Table 1). This challenging situation was largely driven by the transition to the new MRIP estimation methodology (described on page 2), combined with a commercial/recreational allocation that remains based on older MRIP data and cannot be revised without an FMP amendment. The revisions to the MRIP harvest estimates were not due to changes in fishing effort, but rather due to changes in the estimation methodology. The new MRIP estimates were incorporated into the black sea bass stock assessment in 2019 and were used to inform catch and landings limits for 2020 and beyond. The magnitude of the difference between the 2020 RHL and expected harvest 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 recommending 2020 management measures. At the time, the Commercial/Recreational Allocation Amendment was under development, and the Council and Board were also considering several improvements to recreational fisheries management through the Recreational Reform Initiative. These actions are still ongoing and are not expected to be implemented for use in management until the 2023 fishing year at the earliest. Given these ongoing actions, the very healthy black sea bass stock status (e.g., spawning stock biomass more than double the target level), and the negative economic impacts associated with restricting the recreational fishery by 20% without a perceived conservation need, the Council and Board decided to leave the recreational measures unchanged in 2020 and 2021 compared to 2019, despite expected RHL overages. This was intended as a temporary solution to allow the Council and Board more time to fully transition to use of the new MRIP data (e.g., through the ongoing Commercial/Recreational Allocation Amendment) and to consider other improvements to recreational fisheries management (e.g., through the Harvest Control Rule Framework/Addendum and other Recreational Reform Initiative topics).

Table 2: Federal waters black sea bass recreational management measures, 2007-2021.

Year	Min. size	Bag limit	Open season
2007-2008	12"	25	Jan 1 - Dec 31
2009	12.5"	25	Jan 1 - Oct 5
2010-2011	12.5"	25	May 22 - Oct 11; Nov 1 - Dec 31
2012	12.5"	25	May 19 - Oct 14; Nov 1 - Dec 31
2013	12.5"	20	Jan 1 - Feb 28; May 19 - Oct 14; Nov 1 - Dec 31
2014	12.5"	15	May 19 - Sept 18; Oct 18 - Dec 31
2015-2017	12.5"	15	May 15 - Sept 21; Oct 22 - Dec 31
2018-2021	12.5"	15	Feb 1 - 28; May 15 - Dec 31

Table 3: State waters black sea bass recreational measures in 2018-2021. Measures were the same across all years unless otherwise noted. All changes were intended to maintain similar levels of harvest.

State	Min. Size	Bag Limit	Open Season
Maine	13"	10	May 19 - Sept 21; Oct 18 - Dec 31
New Hampshire	13"	10	Jan 1 - Dec 31
Massachusetts	15"	5	2018: May 19 - Sept 12
			2019 & 2020: May 18 - Sept 8
			2021: May 18 - Sept 8
Rhode Island	15"	3	Jun 24 - Aug 31
		7	Sept 1 - Dec 31
Connecticut private & shore	15"	5	May 19 - Dec 31
CT authorized party/charter monitoring program vessels	15"	5	May 19 - Aug 31
		7	Sept 1 - Dec 31
New York	15"	3	Jun 23 - Aug 31
		7	Sept 1 - Dec 31
New Jersey	12.5"	10	May 15 - Jun 22
		2	Jul 1 - Aug 31
		10	Oct 8 - Oct 31
	13"	15	Nov 1 - Dec 31
Delaware	12.5"	15	May 15 - Dec 31
Maryland	12.5"	15	May 15 - Dec 31
Virginia	12.5"	15	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1-28; May 15-31; June 22-Dec 31
			2020: Feb 1 - 29; May 29 - Dec 31
			2021: Feb 1-28; May 15-May 31; Jun 16-Dec 31
North Carolina, North of Cape Hatteras (35° 15'N)	12.5	15	2018: Feb 1 - 28; May 15 - Dec 31
			2019: Feb 1 - 28; May 17 - Dec 31
			2020: Feb 1 - 29; May 17 - Nov 30
			2021: May 15 - Dec 31

Table 4: Average proportion of black sea bass recreational harvest in weight from federal and state waters, 2018-2020. Maine and New Hampshire had no estimated black sea bass harvest during 2018-2020.

State	Federal waters	State waters
MA	8%	92%
RI	26%	74%
CT	7%	93%
NY	39%	61%
NJ	70%	30%
DE	92%	8%
MD	99%	1%
VA	80%	20%
NC	83%	17%

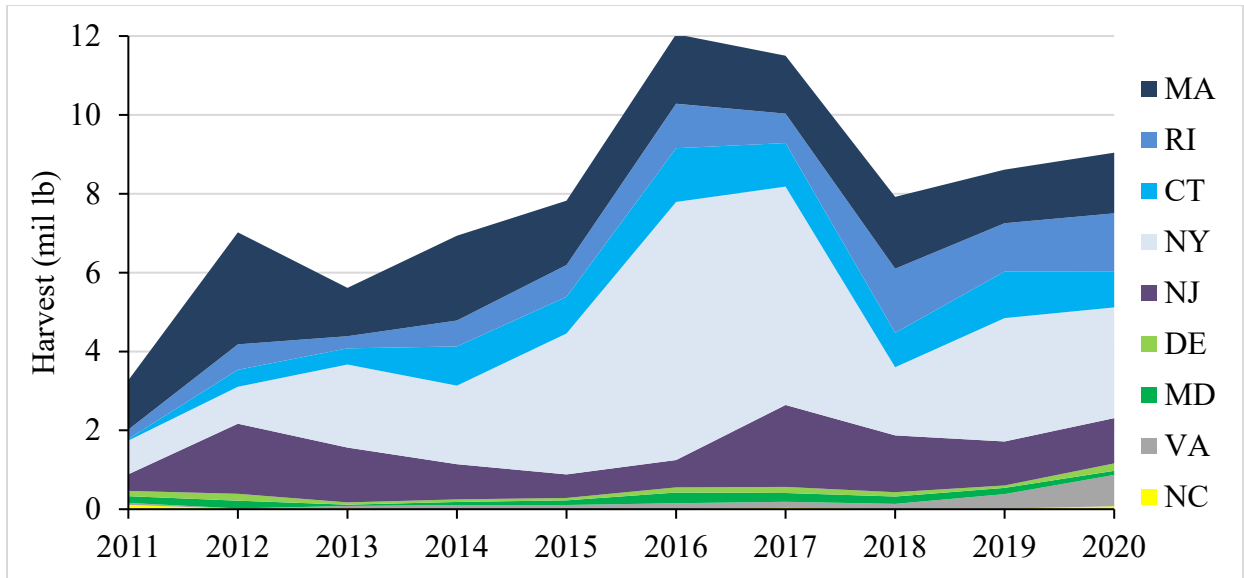


Figure 1: Recreational black sea bass harvest by state, 2011-2020.

Recreational Catch and Harvest Trends and 2021 Projections

Table 1, Table 5, and Figure 1 show recent trends in black sea bass recreational catch, harvest, and discards.

MRIP data for 2021 are currently incomplete and preliminary. Only the first four waves (January - August) of data for 2021 are currently available. These data suggest that 7.57 million pounds of black sea bass were harvested in Maine through Cape Hatteras, North Carolina during January - August 2021. This preliminary estimate is 31% higher than 2020 wave 1-4 harvest and 40% higher than average final estimated 2018-2020 wave 1-4 harvest.

Preliminary wave 1-4 data for 2021 were used to project harvest for the entire year by assuming the same proportion of harvest by wave as the 2018-2020 averages. Measures in federal waters and all states were virtually unchanged across these years (Table 2, Table 3). In addition, given the impacts of COVID-19 on the recreational fishery and on recreational fisheries data collection in 2020, it may not be appropriate to use the most recent single year of proportions of harvest by wave in these projections.

In past years, the MC has recommended the use of coastwide projections informed by multiple year averages, when appropriate as this may represent a more appropriate use of the MRIP data than state by state projections and single year proportions as the MRIP data can be less precise when broken down into smaller increments. However, a benefit of state by state projections is that they allow for evaluation of unexpected values in one or more states and state-level adjustments if necessary. Both coastwide and state by state projections are shown in Table 6.

Based on the methodology described above for coastwide projections, 11.98 million pounds of black sea bass are projected to be harvested from Maine through Cape Hatteras, North Carolina in 2021 (about 89% above the 2021 RHL of 6.34 million pounds). Based on state-by-state projections, projected 2021 harvest is 11.33 million pounds (about 79% above the 2021 RHL; Table 6).

Table 5: Estimated recreational black sea bass catch (harvest and live and dead discards) and harvest from Maine through Cape Hatteras, North Carolina, 2011-2020.

Year	Catch (millions of fish)	Harvest (millions of fish)	Harvest (mil lb)	% of catch retained	Avg. weight of retained fish (lb)
2011	12.47	1.78	3.27	14%	1.84
2012	34.95	3.69	7.04	11%	1.91
2013	25.71	3.01	5.68	12%	1.89
2014	23.29	3.81	6.93	16%	1.82
2015	23.17	4.39	7.82	19%	1.78
2016	35.80	5.84	12.05	16%	2.06
2017	41.19	5.70	11.50	14%	2.02
2018	24.99	3.99	7.92	16%	1.98
2019	32.32	4.38	8.61	14%	1.97
2020	34.11	4.23	9.05	12%	2.14

Table 6: 2021 harvest projections by state in pounds. All projections are based on preliminary 2021 wave 1-4 estimates and the proportion of harvest by wave and state in 2018-2020. Average annual harvest during 2018-2020 is provided for comparison purposes only.

State	Avg 2018-2020 w1-6 harvest	2018-2020 w1-4 as % of annual harvest	2021 preliminary w1-4 harvest	2021 projected w1-6 harvest	% of projected 2021 w1-6 harvest
ME	0	--	0	0	0%
NH	1,129	0%	0	0	0%
MA	1,572,595	92%	2,523,361	2,742,314	24%
RI	1,444,905	51%	612,658	1,210,755	11%
CT	986,201	63%	1,055,839	1,677,461	15%
NY	2,553,917	50%	610,079	1,219,172	11%
NJ	1,235,340	78%	1,749,626	2,236,264	20%
DE	120,105	56%	197,177	354,528	3%
MD	150,054	37%	177,681	483,840	4%
VA ^a	440,912	45%	635,257	1,397,293	12%
NC ^b	31,761	84%	7,603	9,093	<1%
Total	8,536,918	63%	7,569,281	11,330,721 state by state projection	100%
				11,983,362 coastwide projection	

^a Adjusted to account for February harvest not sampled by MRIP in 2018-2021.

^b Through Cape Hatteras.

Expected 2022 Harvest and 2022 RHL

Projections based on preliminary current year data can be used as a proxy for expected harvest in the upcoming year if measures remain unchanged. This is based on the assumption that next year's fishery will be similar to this year's fishery in terms of availability, angler behavior, and other factors which drive harvest. Focusing on the current year may also be appropriate if measures were notably different in prior years. However, use of a single year of data does not account for variability and uncertainty in the MRIP data across years. For example, MRIP estimates can show notable variation in harvest across years when measures are unchanged (e.g., see 2018-2020 in Table 1). The degree to which these differences are due to true differences in the fishery as opposed to uncertainty and variability resulting from the estimation methodology is unknown.

Variation and uncertainty in MRIP data can be accounted for in several ways, including by using multiple year averages and/or confidence intervals (CIs). For example, given that black sea bass measures were virtually unchanged during 2018-2021, it may be appropriate to assume that expected harvest in 2022 under status quo measures will be similar to average 2018-2021 harvest. Average 2018-2021 harvest values (with coastwide and state by state projections used for 2021) are shown in Table 7. Both averages suggest that 2022 harvest under status quo measures may exceed the 2022 RHL by 39%. Put another way, harvest would need to be reduced by about 28% to prevent a 2022 RHL overage. Although the 2021 estimate is based on projections using preliminary, current-year data, it may be appropriate to include this estimate in the multiple year average to account for the higher than average preliminary wave 1-4 harvest in 2021. If this higher value is driven by increased availability or other changes in the fishery that may continue to influence 2022 harvest, then it would be appropriate to include this estimate in the average as opposed to only relying on final complete year data.

Uncertainty in the MRIP estimates can also be evaluated by calculating a CI around multiple years of estimates. A joint distribution CI accounts for the uncertainty in an MRIP point estimate (which takes into account the percent standard error value for the estimate) as well as variability in estimates across years when measures were unchanged. For black sea bass, the 2022 RHL (6.74 million pounds) is below the lower bounds of both the 80% joint distribution CI (7.49 - 9.58 million pounds) and the 95% joint distribution CI (6.96 - 10.12 million pounds) for the 2018-2020 MRIP harvest estimates.³ This suggests a high likelihood of an RHL overage in 2022 if recreational measures remain unchanged.

³ The 95% CI indicates greater certainty that the true value fell within the upper and lower bound than the 80% CI; however, it also results in a wider CI.

Table 7: Examples of harvest estimates which could be used to predict 2022 harvest under status quo measures and comparison to 2022 RHL. Estimates for 2018-2020 are final MRIP harvest estimates. Values for 2021 are projected based on the methodology described above.

Harvest estimate basis	Value (pounds)	Difference from 2022 RHL
Average of final 2018 - 2020 MRIP harvest estimates	8,536,918	+27%
2021 state by state harvest projection (Table 6)	11,330,721	+68%
2021 coastwide harvest projection (Table 6; recommended over state by state projections)	11,983,362	+78%
2018-2021 average (2021 projected state by state)	9,387,763	+39%
Staff recommendation: 2018-2021 average (2021 projected coastwide)	9,398,529	+39%

Accountability Measures

Federal regulations include proactive accountability measures (AMs) to help prevent the ACL from being exceeded, as well as reactive AMs that are implemented in response to ACL overages. Proactive AMs include adjustments to the bag, size, and season limits for the upcoming fishing year, if necessary, to prevent the RHL and ACL from being exceeded. The appropriate reactive AM is determined based on stock status and the scale of the overage. 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., harvest 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 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 is: (overage amount) * $(B_{msy} - B)^{1/2} B_{msy}$.
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 ACLs through 2019 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 catch to the ACLs through 2019.

As previously discussed, the MRIP intercept survey in all states was impacted by the COVID-19 pandemic and currently available 2020 estimates are based on an imputation method to address associated data gaps. In addition, dead discard estimates in weight for 2020 are not currently available as necessary age and length information is not currently available.

For these reasons, 2017-2019 are the most recent three years of complete recreational dead catch data in weight. Based on these data, average recreational dead catch during 2017-2019 was 2% below the average recreational ACL (Table 7). A reactive AM would not be triggered based on this comparison. However, it is important to note that the 2020 ACL was exceeded based on harvest alone (Table 8). The full scale of the 2020 ACL overage cannot be predicted without estimates of dead discards in weight.

The National Marine Fisheries Service (NMFS) will make final determinations regarding AM evaluations. It is not yet known if the agency will use 2020 catch estimates (including dead discards) in their evaluation. If a reactive AM is triggered based on the evaluation performed by NMFS, then consideration must be given to adjusting the bag, size, and season limits, taking into account the performance of the measures and conditions that precipitated the overage. Given that biomass is above the target level, the regulations do not require adjustments to be made; however, adjustments must be considered and the recommended outcome (either no change or a modification) must be justified.

Table 8: AM evaluation for the recreational black sea bass fishery, comparing recreational dead catch from Maine through Cape Hatteras, North Carolina to the ACL. The ACLs through 2019 do not account for the revised MRIP data and therefore must be compared to dead catch estimates based on the old MRIP estimates. All values are in millions of pounds. Values shown in this table may differ from those ultimately used by NMFS for ACL evaluation.

Year	Rec. ACL	Rec. harvest ^a	Rec. dead discards ^a	Rec. dead catch ^a	% Over (+) or Under (-) ACL
2017 (old MRIP)	5.38	4.16	1.27	5.43	+1%
2018 (old MRIP)	4.59	3.82	1.10	4.92	+7%
2019 (old MRIP)	4.59	3.46 ^b	0.50 ^b	3.96 ^b	-14%
2020 (new MRIP)	8.09	9.05	Unavailable	Unavailable	+12% based only on harvest; will be higher after accounting for dead discards
2017-2019 avg	4.85	3.81	0.96	4.77	-2%

^a Based on “old” MRIP data through 2019 and revised MRIP data for 2020. Dead discards in weight are provided by the Northeast Fisheries Science Center. Dead discards in weight for 2020 are not yet available.

^b Provided to the NMFS Greater Atlantic Regional Fisheries Office by the Northeast Fisheries Science Center.

Black Sea Bass Conservation Equivalency

Framework 14/Addendum XXXI allowed for use of federal waters conservation equivalency for black sea bass starting in 2020. This version of conservation equivalency allows federal waters measures to be waived in favor of the measures in the states where anglers land their catch. If this approach is recommended by the Council and Board, they must also recommend a set of non-preferred coastwide measures and precautionary default measures. If implemented uniformly 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 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. The Council did not recommend use of conservation equivalency for black sea bass in 2020 or 2021. Given that this type of conservation equivalency has never been used for black sea bass, and given that additional changes to recreational fisheries management may be implemented for the 2023 fishing year based on the outcome of the ongoing Commercial/Recreational Allocation Amendment and the Harvest Control Rule Framework/Addendum, staff recommend against use of this form of conservation equivalency for black sea bass in 2022.

Staff Recommendation

The MC is tasked with developing recommendations for 2022 recreational bag, size, and season limits for 2022. As described above, a reduction in harvest on the order of 28% may be needed to prevent an RHL overage in 2022.

As previously stated, the Council and Board left the recreational measures unchanged across 2019-2021 despite expected RHL overages based on considerations related the revised MRIP data, the ongoing Commercial/Recreational Allocation Amendment and Recreational Reform Initiative, very high black sea bass biomass, and expected negative socioeconomic impacts from further restricting the recreational fishery due to changes in the data rather than a perceived conservation need. When the Council and Board made these recommendations in 2019 and 2020, they emphasized that this was a temporary approach while the Commercial/Recreational Allocation Amendment and Recreational Reform Initiative actions, including the Harvest Control Rule Framework/Addendum, are ongoing. Final action on the Commercial/Recreational Allocation Amendment is expected in December 2021, to allow for implementation for the 2023 fishing year. Final action on the Recreational Harvest Control Rule Framework/Addendum is expected in 2022, with the potential for use in setting 2023 measures. Other Recreational Reform Initiative Actions may not be implemented by 2023. The Council and Board have not yet taken final action on any of these actions; therefore, it is unknown how they may impact recreational fisheries management in 2023 and beyond. It is important to emphasize that the Recreational Harvest Control Rule Framework/Addendum and the other Recreational Reform Initiative actions will not change the Magnuson-Stevens Fishery Conservation and Management Act requirements for ACLs and prevention of overfishing.

The recreational ACL and the RHL are based on the best available science, are intended to prevent overfishing, and are reflective of recent stock status. Therefore, allowing multiple years of recreational overages may pose a risk to the stock, even at high biomass levels. In addition,

NMFS has indicated that although status quo measures were justified for 2020 and 2021 despite expected RHL overages, this approach may not be justifiable for 2022. The MC should take this into consideration when developing their recommendations for 2022 recreational measures.

As described above, a 28% reduction in harvest may be needed to prevent a 2022 RHL overage. Given the scale of the needed reduction, changes to more than one measure may warrant consideration. For example, a 3 fish bag limit for all states, waves, and modes would represent a drastic change from current measures (Table 9), but would achieve only a 21% reduction in coastwide harvest. Moderate changes to multiple measures could be used to collectively achieve the needed reduction to prevent an RHL overage. Consideration should also be given to the potential for differential impacts of any change across states and modes. Changes in the measures should aim to prevent RHL overages while minimizing disproportionately negative impacts to one or more states or modes.

The interaction term developed by the Commission's Technical Committee can be used to predict the total change in harvest from modifying multiple measures: $(x+y)-(x*y)$, where x is the percent change associated with a change in one measure and y is the percent change associated with a change in a different measure.

The measures in Massachusetts through New York are currently more restrictive than the measures in New Jersey through North Carolina throughout most of the year (Table 3). As previously noted, reductions in 2015 and 2016 were disproportionately taken in Massachusetts through New Jersey given that those states accounted for a much greater proportion of harvest than other states (Figure 1). The 2011 black sea bass year class was the largest year class on record and was more prevalent north of Hudson Canyon compared to south of Hudson Canyon. This year class had major impacts on stock dynamics in recent years; however, it will have greatly diminished by 2022. Recent year classes have been more evenly distributed across southern New England and the Mid-Atlantic. Given this, combined with a needed reduction on the order of 28% to prevent an RHL overage, and considerations about disproportionate impacts across states, it may not be appropriate to leave measures in some states unchanged in 2022 while taking reductions in other states.

The current 15 inch minimum size limit in Massachusetts through New York is much more restrictive than the 12.5 or 13 inch size limit in New Jersey through North Carolina and in federal waters (Table 2, Table 3). MRIP data suggest that black sea bass between 12 and 15 inches in length harvested in New Jersey through North Carolina accounted for 23% of all recorded lengths from Maine through North Carolina in 2017-2020 (Figure 2, Figure 3). Therefore, if the minimum size in federal waters and in New Jersey through North Carolina were increased to 15 inches to match Massachusetts through New York, it could be assumed that total coastwide harvest would be reduced by up to 23%. The true reduction may be less than 23% as this analysis does not take into account the average weight at different lengths. The MC may wish to provide advice on how to best address this.

A uniform 15 inch minimum fish size across state and federal waters may achieve most of the 28% reduction needed to prevent an RHL overage; however, it would place the greatest burden of that reduction on New Jersey as New Jersey accounted for 68% of the coastwide harvest of black sea bass between 12.5 and 15 inches in 2017-2020 according to MRIP length frequency data. To avoid disproportionately negative impacts to a single state, a more moderate increase in

the minimum size limit in New Jersey through North Carolina and in federal waters, combined with a change in other measures may warrant consideration. For example, an increase in the minimum size limit in New Jersey through North Carolina and in federal waters to 14 inches, would result in a coastwide reduction in harvest of up to 16% and would also reduce differences in the minimum size limits across states.

A change in the bag limit is not recommended for 2022. As shown in Table 9, major changes in the bag limit would be needed to notably reduce coastwide harvest. This is because most anglers do not take the full current bag limit (15 or fewer fish, depending on the state and wave; Table 3). In addition, stakeholders have expressed concerns about low bag limits disproportionately impacting the for-hire sector as for-hire customers generally want to take home as many fish as possible to justify the cost of a for-hire trip. In addition, for-hire captains can benefit from advertising the ability to retain the full bag limit, even if customers do not always succeed in reaching the limit on each trip.

For these reasons, if measures are modified to prevent a 2022 RHL overage, then a season change is recommended in combination with the minimum size change described above. Based on the interaction term described above, a 14% reduction based on a season change would be needed in combination with the 16% reduction based on the minimum size change described above to achieve the full 28% coastwide reduction to prevent a 2022 RHL overage. Based on the information shown in Table 10, a 13% reduction in coastwide harvest would be expected if federal waters and all states except New York opened Saturday June 4, New York maintained its current June 23 opening, federal waters and all states except Massachusetts closed Monday December 12, and Massachusetts retained its September 9 closure. The federal waters season would be February 1-28 (see pages 4-5 for a description of unique requirements for the February opening) and June 4 - December 11.

Under this season change, participation in the optional February opening would still be allowed as participating states would still be required to consider modifications to their measures later in the year to prevent their participation in this opening from contributing to an RHL overage. Participating states would use the same size limit and possession limit as implemented for federal waters.

In summary, if a 28% reduction in harvest is deemed necessary to prevent a 2022 RHL overage, staff recommend consideration of the following changes to achieve this reduction:

- Minimum size
 - No change in Massachusetts through New York.
 - New Jersey, Delaware, Maryland, Virginia, North Carolina, and federal waters minimum size limits increase to 14 inches.
- Season
 - Federal waters and all states except New York open Saturday June 4, 2022. New York would maintain its current June 23 opening.
 - Federal waters and all states except Massachusetts close on Monday December 12, 2022. Massachusetts would maintain its current closure starting September 9.
- Bag limits
 - No changes in federal waters or in any states.

The Monitoring Committee should consider if this recommendation is appropriate, or if different changes in measures to prevent a 2022 RHL overage would more appropriately account for impacts across different states and modes. If the Monitoring Committee adopts an alternative recommendation to prevent an RHL overage, or a recommendation that would not prevent an RHL overage (e.g., an additional year of status quo measures or a more moderate reduction than the full reduction needed to prevent an RHL overage), then the Monitoring Committee should discuss how to best justify that recommendation.

Table 9: Expected percent reduction in total coastwide recreational black sea bass harvest in numbers of fish under various bag limits for all modes combined. The reductions account for current variations in bag limits by state based on the most liberal bag limit by state. They do not account for variations in bag limits by wave within a state and therefore may over-estimate the percentage reductions. Current bag limits are shown in Table 3.

Bag	Coastwide Reduction	Notes
15	0%	No states currently have bag limits greater than 15.
10	1%	Currently, ME, NH, NJ (all but wave 4), and DE-NC have bag limits of 10 or more.
7	4%	Currently, ME, NH, RI (waves 5-6 only), NY, NJ (all but wave 4), and DE-NC have bag limits of 7 or more.
5	9%	All states currently have a bag limit of at least 5 fish for one or more waves.
4	14%	All states currently have a bag limit of at least 5 fish for one or more waves.
3	21%	All states currently have a bag limit of at least 5 fish for one or more waves.
2	35%	NJ has a 2 fish bag limit during wave 4. All other states and waves have bag limits of at least 5 fish.
1	57%	No state currently has a 1 fish bag limit during any wave.

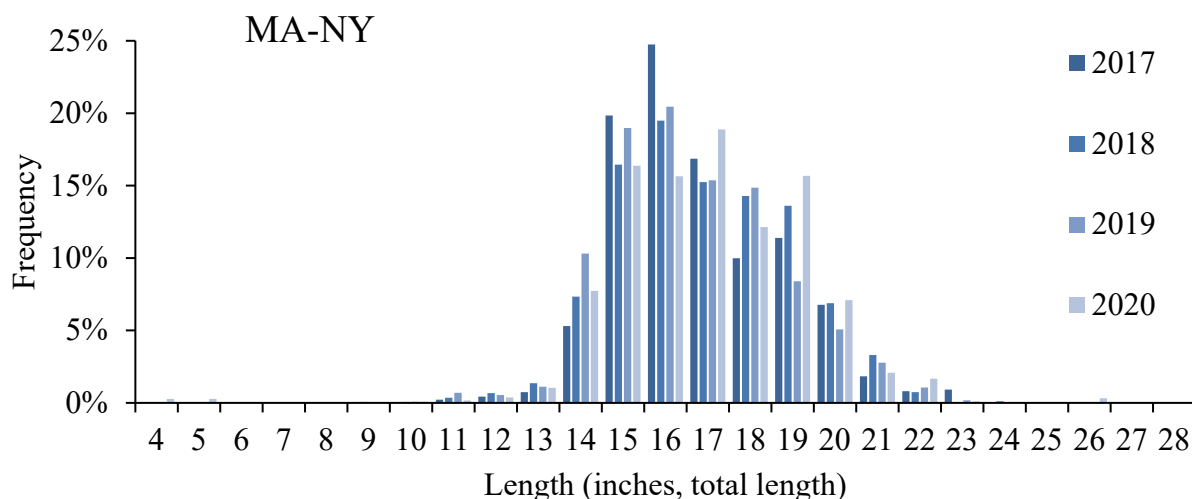


Figure 2: Expanded length frequencies of harvested black sea bass during 2017-2020 in MA-NY. These states had a minimum size limit of 15 inches during 2017-2020.

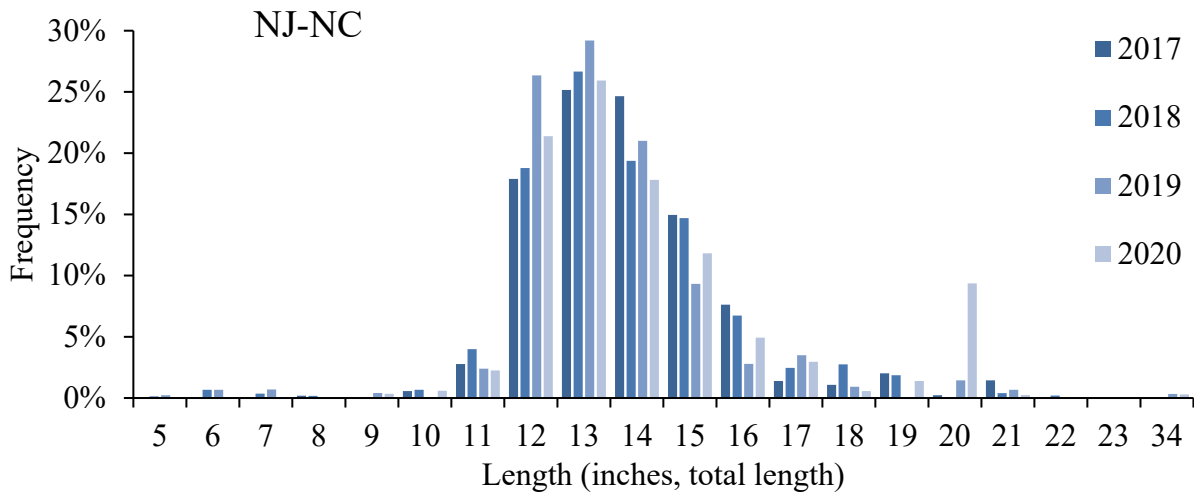


Figure 3: Expanded length frequencies of harvested black sea bass during 2017-2020, NJ-NC. These states had a 12.5 inch minimum size limit during 2017-2020, with the exception of a 13 inch size limit in NJ during wave 6.

Table 10: Predicted percent reduction in coastwide harvest (in weight) based on one additional closed day by wave and state. Values were calculated based on the average harvest in pounds and the number of open days by wave during 2018-2020.

State	Reduction in Coastwide Harvest Based on One Additional Closed Day					
	Jan-Feb	Mar-Apr	May-Jun	Jul-Aug	Sept-Oct	Nov-Dec
MA ^a	-	-	0.27%	0.06%	0.09%	-
RI	-	-	0.01%	0.13%	0.12%	0.02%
CT	-	-	0.04%	0.09%	0.05%	0.02%
NY	-	-	0.15%	0.22%	0.15%	0.10%
NJ	-	-	0.22%	0.05%	0.11%	0.01%
DE	-	-	0.01%	0.01%	0.01%	<0.01%
MD	-	-	0.01%	0.00%	0.01%	<0.01%
VA ^a	<0.01%	-	0.01%	0.03%	0.01%	0.04%
NC ^{a, b}	<0.01%	-	<0.01%	<0.01%	<0.01%	<0.01%
ME-NC	0.00%	0.00%	0.72%	0.60%	0.54%	0.20%

^aThis state modified their seasons across 2018-2020 to either allow for a Saturday opening (MA) or account for harvest in the optional February opening (VA and NC). To account for this, the average number of days open per wave across 2018-2020 was used for this analysis.

^bNorth Carolina had no estimated January/February harvest in 2018 and 2020, but 55,035 pounds of estimated January/February harvest in 2020. This is considered an outlier estimate and North Carolina has indicated that they do not intend to participate in the optional February opening in future years. Therefore, the January/February average harvest value for North Carolina was replaced with a value of zero for this analysis.