



Mid-Atlantic Fishery Management Council
800 North State Street, Suite 201, Dover, DE 19901
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org
Michael P. Luisi, Chairman | P. Weston Townsend, Vice Chairman
Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: November 4, 2020
To: Chris Moore, Executive Director
From: Julia Beaty, Staff
Subject: Black Sea Bass Recreational Management Measures for 2021

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 federal waters black sea bass size limits, possession limits, and open/closed seasons for 2021.

In August 2020, the Council and the Board reviewed the previously adopted 2021 black sea bass catch and landings limits. They adopted revised 2021 catch and landings limits based on the recommendations of the Scientific and Statistical Committee (SSC) and the MC. These revisions reflect a change in the Council's risk policy which defines the acceptable risk of overfishing associated with the acceptable biological catch (ABC) level and also account for a change in the projected discard calculations used to set the catch and landings limits.¹

Based on these revisions, the 2021 black sea bass recreational harvest limit (RHL) increased by 9%, from 5.81 million pounds to 6.34 million pounds. The rule implementing the revised 2021 catch and landings limits is expected to publish prior to the end of 2020.

Each year, the MC is tasked with recommending recreational management measures (possession limits, size limits, and seasons) to constrain harvest to the RHL. The Council and Board agree to federal waters recreational management measures for the upcoming year that apply throughout federal waters from Maine through Cape Hatteras, North Carolina. State waters measures will be determined through the Commission process in early 2021.

Typically, staff uses preliminary partial current year recreational catch data to project harvest through the remainder of the current year. This projection is then compared to the RHL for the upcoming year. As described below, recreational data collection in 2020 was severely limited by restrictions related to the ongoing Covid-19 pandemic. As a result, no 2020 preliminary harvest estimates are available for black sea bass to project 2020 harvest. Estimated total recreational fishing trips within the management unit are available and described below; however, these

¹ More information is available at: https://www.mafmc.org/s/Tab08_BSB-2021-Specs_2020-08.pdf.

estimates are not species specific, and in the absence of angler intercept data, effort estimates cannot be used to estimate harvest.

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.

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. The revised 2021 RHL represents a 9% increase compared to the 2020 RHL and is the highest RHL ever implemented for black sea bass. 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 more liberal recreational management measures and increased recreational harvest. For example, an estimated 8.61 million pounds of black sea bass were harvested in the recreational fishery in 2019, 36% greater than the revised 2021 RHL of 6.34 million pounds (Table 1).

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, the Council and Board agreed to leave recreational management measures remain unchanged in 2020 compared to 2019 to allow more time to gradually transition to a management system that accounts for the new MRIP data. These considerations remain relevant for 2021 recreational management measures. It is worth noting that an ongoing amendment to consider revising the commercial/recreational allocations for black sea bass, as well as summer flounder and scup, in light of the revised MRIP data and other considerations, remains a high priority for the Council and Board, with final action expected in 2021 and implementation for 2022.

As described below, staff recommend status quo recreational black sea bass bag, size, and season limits for 2021.

Past RHLs and Management Measures

Joint Council and Board management of the recreational black sea bass fishery, including use of RHLs, began in 1998. The black sea bass RHLs have ranged from a low of 1.14 million pounds in 2009 to a high of 6.34 million pounds in 2021 (pending approval by the National Marine Fisheries Service, Table 1). Prior to approval of the 2016 benchmark stock assessment, the black sea bass 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. This assessment was last updated in August 2019 with data through 2018.

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 1, 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 1, 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 during 2010-2019) 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 2018-2020 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 1, 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 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 4 (note that the Council and Board revised these values for 2021 to account for changes to the MRIP data). At this time, it is not known which states intend to participate in the February 2021 recreational fishery. In 2018-2020, only Virginia and North Carolina participated in this optional opening. In 2018 and 2019, February harvest accounted for 0.09% and 0.12%, respectively, of total estimated recreational harvest from Maine through Cape Hatteras, North

Carolina. Therefore, it is assumed that the February 2018-2019 recreational opening did not pose a noteworthy risk to the black sea bass stock.² Final estimates for 2020 are not yet available and, as described in more detail below, are likely to be incomplete and uncertain.

Recreational Catch and Landings Trends

Between 1982 and 2019, recreational black sea bass catch from Maine through Cape Hatteras, North Carolina was highest in 2017 at 41.19 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 1.77 million pounds. On average during 2010-2019, 85% of black sea bass caught in the recreational fishery were released (Table 5).

These harvest estimates should not be compared to the RHLs prior to 2020 as these RHLs did not account for the revisions to the MRIP data. Harvest estimates based on the “old” MRIP data are provided in Table 1 for comparison against the RHLs through 2018. Harvest estimates for 2019 in the “old” MRIP currency are not available at this point in time.

2020 Recreational Data

Typically, staff uses preliminary MRIP data in the current year for waves 1-4 (January through August) to project catch and harvest through the rest of the year. These projections are then compared to the RHL for the upcoming year to evaluate how harvest may need to be adjusted to prevent RHL overages in the upcoming year. However, projections of 2020 harvest cannot be generated because 2020 catch data from MRIP are not available due to limited Access Point Angler Intercept Survey (APAIS) sampling related to Covid-19.

MRIP effort sampling through the mail-based Fishery Effort Survey (FES), continued uninterrupted in 2020. Coastwide data on the estimated number of angler trips are available for the first four waves of 2020 (January-August). These data can be broken down by wave and fishing mode; however, they are generated for all recreational species combined and are not available by target species given that directed trip data are generated using information from APAIS. Figure 2 and Table 6 summarize estimated combined-species recreational trips for waves 1-4 between 2018-2020 for Maine through North Carolina. These data indicate that estimated total trips in waves 1-4 rose by 11% between 2018 and 2019, and then fell 4% between 2019 and 2020.

Between 2019 and 2020, trips in wave 2 decreased by 19%, trips in wave 3 decreased by 4%, and trips in wave 4 increased by 2%. Estimates of party/charter trips in waves 1-4 decreased by 31% between 2019 and 2020. Private/rental trips increased by an estimated 2%, and shore mode trips decreased by 7%.

While these data can give managers a general sense of how effort in 2020 compares to 2018 and 2019, they cannot be used to make conclusions about black sea bass catch or harvest in 2020. Given the lack of intercept survey data, no information is available on recreational catch rates, discard rates, or size/weight of landed and discarded scup in 2020. APAIS information is also required to account for and adjust for non-resident fishing effort and account for area fished, which is important for generating harvest and catch estimates. MRIP is in the process of

² More information on harvest during this recent February opening is available in the briefing materials for the August 11, 2020 joint meeting of the Council and the Board: <https://www.mafmc.org/briefing/august-2020>

evaluating possible methods for generating estimates of 2020 catch, including modeling approaches, the feasibility of imputation, and using data proxies such as the previous year's data. These approaches will take some time to develop, and any catch estimates that can be generated for 2020 are not likely to be available until at least early 2021.

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: $(\text{overage amount}) * (B_{msy} - B) / \frac{1}{2} B_{msy}$.
3. If biomass is above the target ($B > B_{MSY}$): Adjustments to the recreational management measures (bag, size, and seasonal limits) would be 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 2017-2019 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. Based on these data, average recreational catch during 2017-2018 exceeded the average 2017-2018 recreational ACL by 4% (Table 7). Recreational catch estimates are not currently available using the old MRIP methodology for 2019, therefore 2019 recreational catch cannot be evaluated against the ACL and a three-year average cannot be calculated. Based on recreational performance from 2017-2018, an AM has been triggered.

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 MC should consider this when developing recommendations for 2020 recreational measures. Given that the overage is only 4% and given the considerations provided in this memo related to maintaining status quo management measures in 2021, the MC may wish to consider no changes to management measures in 2021 in response to this AM.

It is important to note that the National Marine Fisheries Service (NMFS) will perform their own AM evaluation with numbers that may differ from those shown in this memo.

Black Sea Bass Conservation Equivalency

Framework 14/Addendum XXXI allowed 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. The Council did not recommend use of conservation equivalency for black sea bass in 2020. Given the considerations described elsewhere in this memo pertaining to status quo recreational management measures in 2021, this form of conservation equivalency is not recommended by staff for use for black sea bass in 2021.

Staff Recommendation

In the fall of 2019, the MC discussed restrictions that would be needed to constrain harvest to the RHL in 2020 due to the changes in the MRIP estimation methodology. At the time, it appeared that a 20% reduction in harvest would be needed to constrain harvest to the 2020 RHL. The need for a 20% reduction in harvest despite a 59% increase in the RHL from 2019 to 2020 was 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. The increased harvest estimates were 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 example, the allocation of total allowable black sea bass landings between the commercial and recreational sectors does not account for the new MRIP data. The Council and Board continue to make progress on an amendment to consider revisions to those allocations; however, any changes are not expected to be implemented until 2022.

In the fall of 2019, the MC agreed that they wished to avoid imposing additional restrictions on anglers during this transition period, especially given that black sea bass spawning stock biomass was 237% of the target level in 2018. At the time, status quo recreational management measures were expected to result in an overage of the 2020 ABC; however, the MC felt that this would pose minimal long-term risk to the stock given the very high biomass level. 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, including consideration of their use in the commercial/recreational allocations which are being re-evaluated through an ongoing amendment. The Council and Board agreed and adopted status quo recreational management measures in 2020. As previously stated, final 2020 catch data are not yet available and are expected to be incomplete for the recreational fishery due to the impacts of the Covid-19 pandemic; therefore, it is not yet known if the 2020 ABC or OFL will be exceeded. However, it is worth noting that the recently revised 2021 ABC is 16% higher than the 2020 ABC due to the change in the Council's risk policy; therefore, there may be a lower risk of exceeding the 2021 ABC under status quo recreational management measures compared to in 2020.

The Covid-19 pandemic has impacted both commercial and recreational catch in 2020 and is likely to continue to impact catch in 2021; however, the impacts are likely different for the two sectors and are not well quantified for the recreational sector. The black sea bass commercial fishery tends to land close to the full commercial quota; however, commercial landings may not reach the 2020 quota as a result of the impacts of the Covid-19 pandemic on market demand.

Typically, staff uses preliminary partial current year recreational catch data to project harvest through the remainder of the current year. This projection is then compared to the RHL for the upcoming year. As described above, recreational data collection in 2020 was severely limited by restrictions related to the ongoing Covid-19 pandemic. As a result, no 2020 preliminary harvest estimates are available for black sea bass to project 2020 harvest. Estimated total recreational fishing trips within the management unit are available, however, these estimates are not species specific, and in the absence of angler intercept data, effort estimates cannot be used to estimate harvest. As shown in Table 8, black sea bass tends to be the primary target species on about 1-2% of recreational fishing trips from Maine through North Carolina. Without estimates of harvest in 2020, attempts at changing management measures such as bag limit, minimum size, and season in 2021 would have highly uncertain outcomes.

For all these reasons, staff recommend an additional year of status quo recreational management measures in 2021.

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 ^a	Harvest (old MRIP) ^b	% over/under RHL (old MRIP)	Harvest (revised MRIP) ^c	Open season	Size limit	Bag limit (# fish)
1998	-	-	3.15	1.29	-59%	1.77	1/1-7/30 8/16-12/31	10"	-
1999	-	-	3.15	1.7	-46%	2.16	1/1-12/31		-
2000	-	-	3.15	4.12	+31%	4.65			-
2001	-	-	3.15	3.6	+14%	6.24	1/1-2/28 5/10-12/31	11"	25
2002	-	-	3.43	4.44	+29%	5.67	1/1-12/31	11.5"	
2003	-	-	3.43	3.45	+1%	5.67	1/1-9/1 9/16-11/30	12"	
2004	-	-	4.01	1.97	-51%	3.09	1/1-9/7		
2005	-	-	4.13	1.88	-54%	3.21	9/22-11/30		
2006	-	-	3.99	1.8	-55%	2.74	1/1-12/31		
2007	-	-	2.47	2.17	-12%	3.34			
2008	-	-	2.11	2.03	-4%	3.57			
2009	-	-	1.14	2.56	+125%	5.70			
2010	4.50	-	1.83	3.19	+74%	8.07	1/1-10/5	12.5"	
2011	4.50	-	1.84	1.17	-36%	3.27	5/22-10/1 11/1-12/31		
2012	4.50	-	1.32	3.18	+141%	7.04	1/1-2/29 5/19-10/14 11/1-12/31		
2013	5.50	2.90	2.26	2.46	+9%	5.69	5/19-10/14 11/1-12/31	20	
2014	5.50	2.90	2.26	3.67	+62%	7.24	5/19-9/21 10/18-12/31	15	
2015	5.50	2.90	2.33	3.79	+63%	9.06	5/15-9/21 10/22-12/31		
2016	6.67	3.52	2.82	5.19 ^e	+84%	12.05			
2017	10.47	5.38	4.29	4.16 ^e	-3%	11.50	2/1-2/28 5/15-12/31		
2018	8.94	4.59	3.66	3.82	+4%	7.92			
2019	8.94	4.59	3.66	-	-	8.61			
2020	15.07	8.09	5.81	-	-	-			
2021 ^f	17.45	7.93	6.34	-	-	-	TBD	TBD	TBD

^a RHLs for 2006-2014 are adjusted for Research Set Aside.

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

^c All values are for Maine through Cape Hatteras, North Carolina based on MRIP data downloaded June 18, 2020.

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

^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 Pending approval and implementation by NMFS.

Table 2: Average proportion of black sea bass recreational harvest from federal waters, 2015-2019, based on MRIP data accessed June 18, 2020. Maine and New Hampshire had no estimated black sea bass harvest during 2015-2019.

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	7%	8%
NY	46%	50%
NJ	66%	64%
DE	92%	91%
MD	77%	76%
VA	71%	76%
NC^a	86%	87%
ME-NC^a	40%	39%
ME-NJ	38%	37%
DE-NC^a	79%	80%

^a Through Cape Hatteras

Table 3: State waters black sea bass recreational measures in 2018-2020. Measures were the same across all years unless otherwise noted.

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

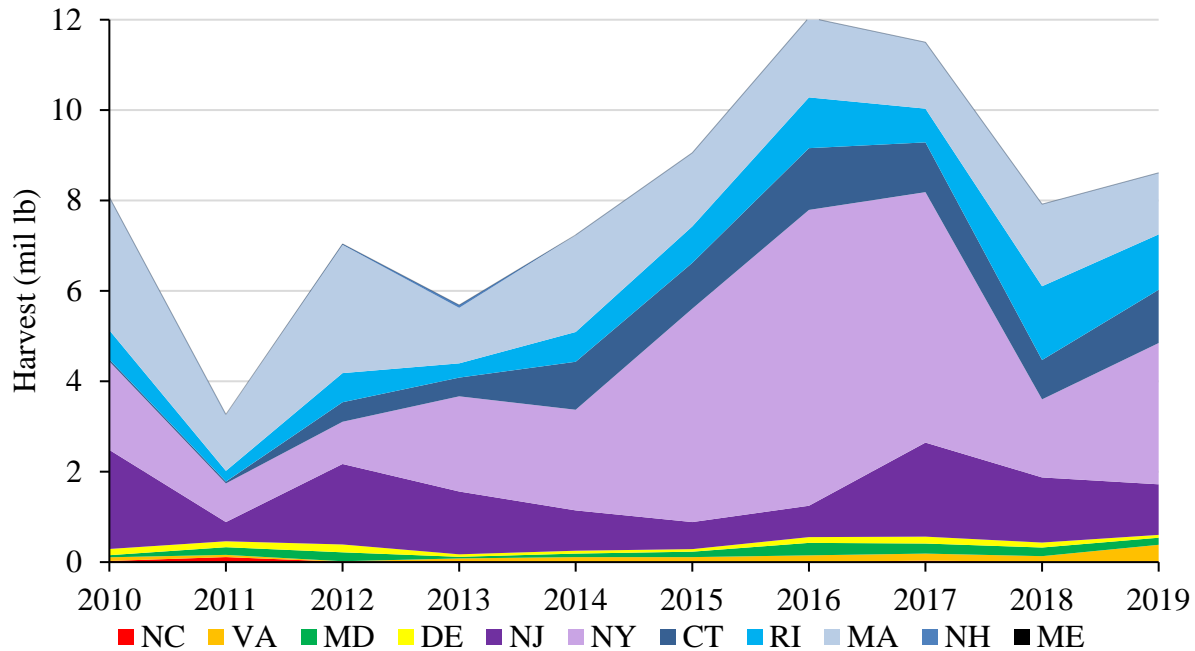


Figure 1: Percentage of coastwide recreational black sea bass harvest by state, 2010-2019 based on MRIP data accessed June 18, 2020.

Table 4: Preliminary expected February recreational harvest by state. Values were revised for 2021 to account for the updated MRIP data.

State	Values used for 2018-2020	Values for 2021
RI	288	1,146
CT	57	158
NY	9,410	41,871
NJ	82,850	405,913
DE	1,297	6,418
MD	541	2,227
VA	5,496	24,891 ^a
NC ^b	62	1,369
Total	100,000	483,993

^a The Council and Board agreed that Virginia could use an alternative value based on the results of their 2018-2020 monitoring program for the February fishery.

^bNorth of Cape Hatteras

Table 5: Recreational black sea bass catch and harvest by year, Maine through Cape Hatteras, NC, 1982-2019 based on new MRIP estimates. Catch includes landings as well as both live and dead discards. Percent released includes all released fish, including those that survive and those that are presumed to die post-release. Preliminary 2020 MRIP estimates and projections are unavailable due to Covid-19 related data gaps.

Year	Catch (millions of fish)	Harvest (millions of fish)	Harvest (millions of lb)	% Released	Avg. weight of landed fish (lb)
1982	12.90	10.72	10.31	17%	0.96
1983	9.05	5.16	4.86	43%	0.94
1984	4.73	2.51	1.91	47%	0.76
1985	9.33	4.53	3.66	51%	0.81
1986	29.71	19.28	11.02	35%	0.57
1987	5.59	2.57	1.83	54%	0.71
1988	10.29	3.51	3.58	66%	1.02
1989	11.65	6.66	5.30	43%	0.80
1990	14.46	5.12	3.91	65%	0.76
1991	15.14	6.16	4.84	59%	0.79
1992	11.92	4.70	3.77	61%	0.80
1993	12.22	7.11	5.66	42%	0.80
1994	10.74	4.18	3.80	61%	0.91
1995	19.27	6.88	5.24	64%	0.76
1996	14.05	7.20	7.96	49%	1.11
1997	15.65	6.56	6.34	58%	0.97
1998	8.42	1.56	1.77	81%	1.14
1999	14.49	1.64	2.16	89%	1.31
2000	25.65	4.26	4.65	83%	1.09
2001	20.86	4.27	6.24	80%	1.46
2002	24.98	4.58	5.67	82%	1.24
2003	18.28	4.08	5.67	78%	1.39
2004	12.90	2.35	3.09	82%	1.32
2005	12.50	2.00	3.21	84%	1.60
2006	13.09	1.80	2.74	86%	1.52
2007	14.58	2.14	3.34	85%	1.56
2008	24.19	2.46	3.57	90%	1.45
2009	23.12	3.92	5.70	83%	1.45
2010	26.42	5.10	8.07	81%	1.58
2011	12.47	1.78	3.27	86%	1.83
2012	34.95	3.69	7.04	89%	1.91
2013	25.78	3.02	5.69	88%	1.88
2014	23.89	3.97	7.24	83%	1.82
2015	24.11	4.94	9.06	80%	1.83
2016	35.80	5.84	12.05	84%	2.06
2017	41.19	5.70	11.50	86%	2.02
2018	24.99	3.99	7.92	84%	1.98
2019	32.32	4.38	8.61	86%	1.97

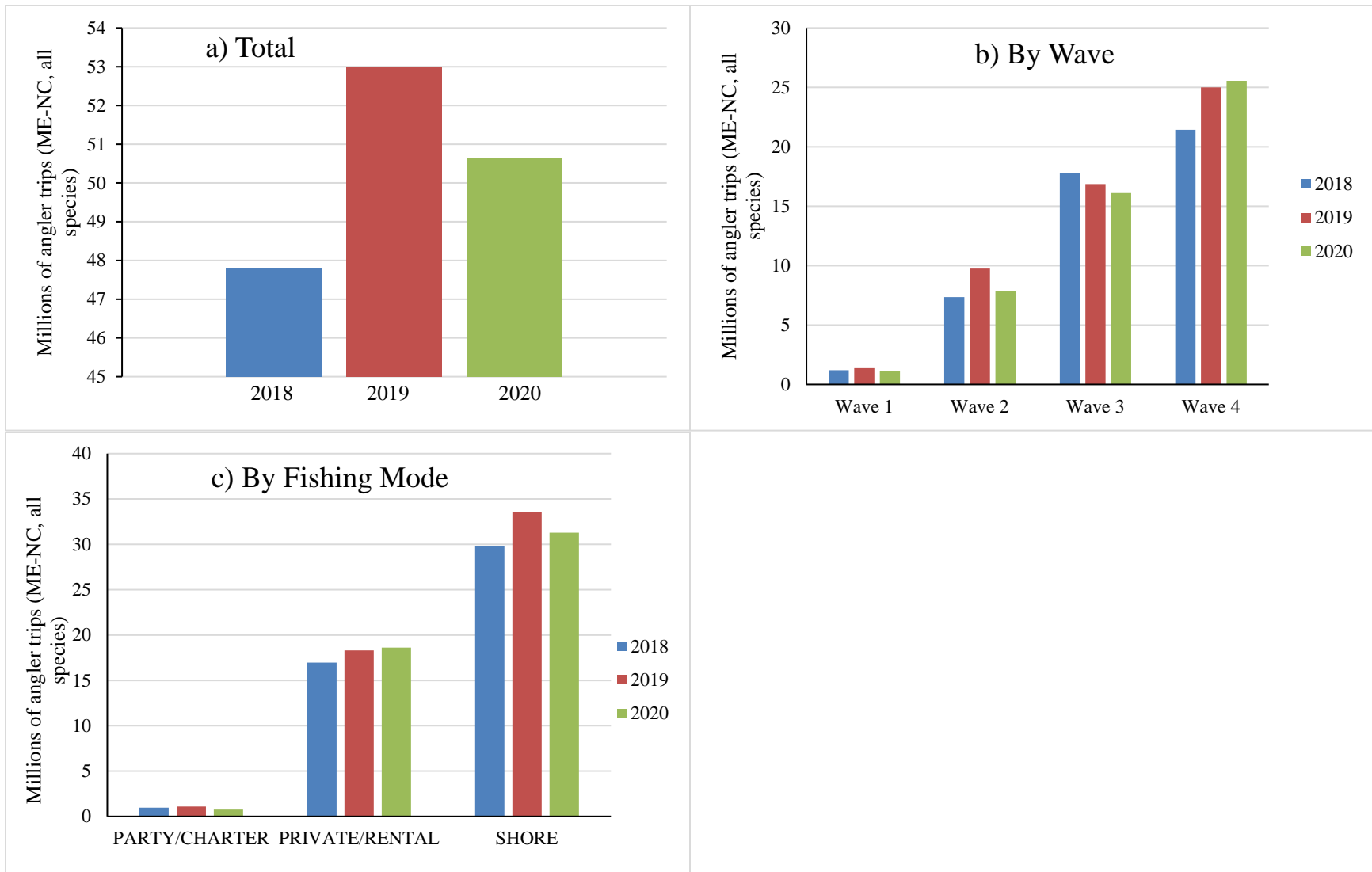


Figure 2: Estimated wave 1-4 angler trips for all species, ME-NC, 2018-2020 for a) all trips combined; b) trips by wave, and c) trips by fishing mode.

Table 6: Total estimated angler trips by wave and fishing mode, 2018-2020, waves 1-4, ME-NC. Includes all trips regardless of species caught or targeted.

	2018	2019	2020
Wave 1 (Jan/Feb)	1,198,416	1,367,270	1,113,345
Party/Charter	284	757	1,935
Private/Rental	396,807	363,376	371,757
Shore	801,325	1,003,137	739,653
Wave 2 (Mar/Apr)	21,434,158	25,000,122	25,551,407
Party/Charter	563,025	675,081	484,402
Private/Rental	7,946,904	8,583,014	10,323,820
Shore	12,924,229	15,742,027	14,743,185
Wave 3 (May/Jun)	7,356,358	9,755,048	7,883,221
Party/Charter	26,347	28,413	3,164
Private/Rental	1,886,247	3,209,239	2,441,457
Shore	5,443,764	6,517,396	5,438,600
Wave 4 (Jul/Aug)	17,793,795	16,866,182	16,112,517
Party/Charter	380,926	388,272	261,453
Private/Rental	6,732,529	6,148,493	5,482,056
Shore	10,680,340	10,329,417	10,369,008
Total	47,782,727	52,988,622	50,660,490

Table 7: 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.³

Year	Rec. ACL	Rec. landings	Rec. dead discards	Rec. Catch	% Over/Under ACL
2017	5.38	4.16	1.27	5.43	+1%
2018	4.59	3.82	1.10	4.92	+7%
2019	4.59	Not available in “old” MRIP units			Unknown
2017-2018 avg	4.99	3.99	1.19	5.18	4%

³ 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.

Table 8: Number of recreational fishing trips for which black sea bass was the primary target species, Maine - North Carolina, based on MRIP data accessed 11/4/2020.

Year	Number of Directed Black Sea Bass Trips	Directed Black Sea Bass Trips As Percent of All Recreational Trips
2010	1,105,356	1.11%
2011	464,202	0.48%
2012	705,492	0.75%
2013	675,330	0.76%
2014	831,221	0.93%
2015	1,261,483	1.48%
2016	1,114,685	1.28%
2017	1,169,560	1.37%
2018	1,170,462	1.65%
2019	1,383,702	1.78%
2010-2019 avg	988,149	1.16%