Mid-Atlantic Fishery Management Council
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Christopher M. Moore, Ph.D., Executive Director

MEMORANDUM

Date: July 18, 2023

To: Chris Moore, Executive Director

From: Julia Beaty, staff

Subject: 2024 Black Sea Bass Specifications

Executive Summary

This memorandum includes information to assist the Mid-Atlantic Fishery Management Council's (Council's) Scientific and Statistical Committee (SSC) and Monitoring Committee in recommending 2024 commercial and recreational catch and landings limits for black sea bass. The Monitoring Committee will also consider if changes are needed to any of the commercial management measures for 2024. Additional information on fishery performance and past management measures can be found in the 2023 Black Sea Bass Fishery Information Document and the 2023 Summer Flounder, Scup, and Black Sea Bass Fishery Performance Report developed by advisors.[1]

The Magnuson-Stevens Fishery Conservation and Management Act requires the Council's SSC to provide scientific advice for fishery management decisions, including recommendations for Acceptable Biological Catch limits (ABCs), prevention of overfishing, and achieving maximum sustainable yield. The Council's catch limit recommendations for the upcoming fishing year(s) cannot exceed the ABCs recommended by the SSC.

The 2021 management track stock assessment provides the most recent stock status information for black sea bass. This assessment indicates that the stock was not overfished and overfishing was not occurring in 2019.[2] ABCs, commercial and recreational annual catch limits (ACLs) and annual catch targets (ACTs), commercial quotas, and Recreational Harvest Limits (RHLs) for 2022-2023 were set based on the results of this assessment. The 2023 ACLs, ACTs, commercial quota, and RHL were later revised to reflect changes in the commercial/recreational allocations. The final values for 2023 are shown in Table 1.

The SSC is tasked with recommending a 2024 ABC during their meeting on July 24-26, 2023. As there is no new information on stock status, staff recommend setting the 2024 ABC equal to the 2023 ABC of 16.66 million pounds (7,557 mt).

[1] Available at: https://www.mafmc.org/fishery-performance-reports. Note that some values in this document for commercial and recreational landings and dead discards for 2019-2022 may differ from the Fishery Information Document as updated data were provided by the Northeast Fisheries Science Center.

[2] Northeast Fisheries Science Center. 2022. Management Track Assessment June 2021. Northeast Fisheries Science Center reference document; 22-10. DOI: https://doi.org/10.25923/4m8f-2g46

During their July 27, 2023 meeting, the Monitoring Committee is tasked with recommending commercial and recreational ACLs and ACTs, a commercial quota, and RHL for 2024. Recreational bag, size, and season limits for 2024 will be considered this fall. Staff recommend setting the 2024 commercial and recreational ACLs and ACTs equal to the respective values implemented for 2023 (Table 1).

Commercial and recreational dead discard estimates for 2017-2019 were used to calculate the 2023 commercial quota and RHL. Staff recommend setting the 2024 commercial quota and RHL based on the same methodology used for 2023, updated with the most recent three years of catch data. This would result in a 2024 commercial quota of 6.00 million pounds (a 25% increase from the 2023 commercial quota of 4.80 million pounds) and a 2024 RHL of 6.27 million pounds (a 5% decrease from the 2023 RHL of 6.57 million pounds; Table 1).

The Monitoring Committee will also review the commercial management measures which can be modified through the specifications process, including the federal waters minimum fish size, minimum mesh size, and mesh exemption programs. Council staff recommend no revisions to these commercial management measures as there is no new information to suggest a change is needed.

The Council will meet jointly with the Atlantic States Marine Fisheries Commission's Summer Flounder, Scup, and Black Sea Bass Management Board (Board) on Tuesday August 8, 2023 to review the recommendations of the SSC and Monitoring Committee, as well as input from the Advisory Panel, before adopting 2024 specifications and considering if changes are needed to the 2024 commercial management measures.

Table 1: Implemented 2023 specifications for black sea bass and staff recommendations for 2024 specifications based on currently available data. Numbers may not add precisely due to unit conversions and rounding.

Measure	2023		2024		Basis
	mil lb	mt	mil lb	mt	
OFL	17.01	7,716	No change from 2023 recommended		SSC recommendation based on 2021 management track assessment projections and Council risk policy
ABC	16.66	7,557			
Com. ACL	7.50	3,401	No change from 2023 recommended		45% of ABC (commercial allocation)
Com. ACT	7.50	3,401			Equal to the ACL; no deduction for management uncertainty
Projected com. dead discards	2.70	1,224	1.50	680	3-year average proportion of commercial dead catch that was discarded applied to the commercial ACL (i.e., 36% based on 2017-2019 for 2023 and 20% based on 2020-2022 for 2024)
Com. quota	4.80	2,177	6.00	2,721	Com. ACT minus projected com. dead discards
Rec. ACL	9.16	4,156	No change from 2023 recommended		55% of ABC (recreational allocation)
Rec. ACT	9.16	4,156			Equal to the ACL; no deduction for management uncertainty
Projected rec. dead discards	2.59	1,175	2.89	1,311	See page 13 for methodology, uses 2017-2019 discards data for 2023 and 2020-2022 for 2024
RHL	6.57	2,981	6.27	2,845	Rec. ACT minus projected rec. dead discards

Stock Status and Biological Reference Points

The most recent stock status information for black sea bass is available from a management track assessment which was peer reviewed and accepted in June 2021. This assessment incorporated fishery data and fishery-independent survey data through 2019. Data from 2020 were not incorporated due to significant gaps in some data sets due to the COVID-19 pandemic and the time required to consider how to best address those gaps. As with the 2016 benchmark and subsequent updates, terminal year estimates of spawning stock biomass, fishing mortality, and recruitment were adjusted for internal model retrospective error. The retrospectively adjusted values are compared against the reference points and used in management.

Due to the lack of a stock/recruit relationship, a direct calculation of maximum sustainable yield (MSY) and associated reference points (F and SSB) is not feasible and proxy reference points were used. SSB calculations and SSB reference points account for mature males and females.

The 2021 management track assessment indicated that the black sea bass stock was not overfished and overfishing was not occurring in 2019. Spawning stock biomass in 2019 was estimated at about 2.1 times the target level. Fishing mortality in 2019 was estimated to be 15% below the threshold level that defines overfishing (Table 2, Figure 1, Figure 2).

According to the 2021 management track assessment, the 2011 year class (i.e., fish spawned in 2011) was estimated to be the largest in the time series and the 2015 year class was the second largest. The 2017 year class was well below the 1989-2018 average, but the 2018 year class was above average at (Figure 2). The 2018 year class is the most recent year class for which estimates are currently available.

The NEFSC provides "data updates" in the interim years between management track assessments. Data updates include information on fishery catches and fishery-independent survey indices through the prior year. A data update with fishery catch and survey indices through 2022 is expected to be provided in time for the July 2023 SSC and Monitoring Committee meetings.

A research track assessment is currently in development and is scheduled for peer review in October 2023. Stock status will be updated through a subsequent management track assessment in June 2024.

Table 2: Black sea bass biological reference points from the 2021 management track stock assessment.

	Spawning stock biomass	**Fishing mortality rate (F)**
Target	31.84 mil lb (14,441 mt)	N/A
Threshold	15.92 mil lb (7,221 mt)	0.46
Terminal year estimate (2019)	65.53 mil lb (29,769 mt) [a] 2.1 times target level	0.39[a] 15% below threshold level
Status	**Not overfished**	**Overfishing not occurring**

[a] Adjusted for retrospective bias

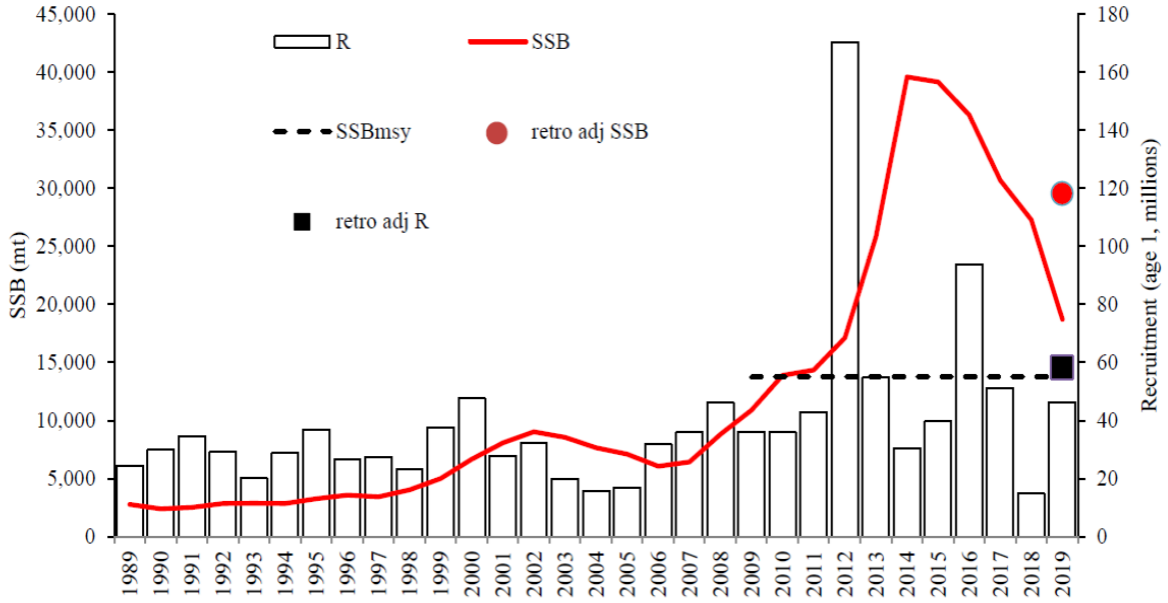

Figure 1: Black sea bass spawning stock biomass (SSB; solid line) and recruitment at age 1 (R; vertical bars), 1989-2019. The horizontal dashed line is the updated SSB_{MSY} proxy = $SSB_{40\%}$ =14,441 mt. SSB and recruitment estimates for 2019 were adjusted for a retrospective pattern in the stock assessment (red circle and black square, respectively). Adjusted values are used in management. Source: 2021 management track assessment.

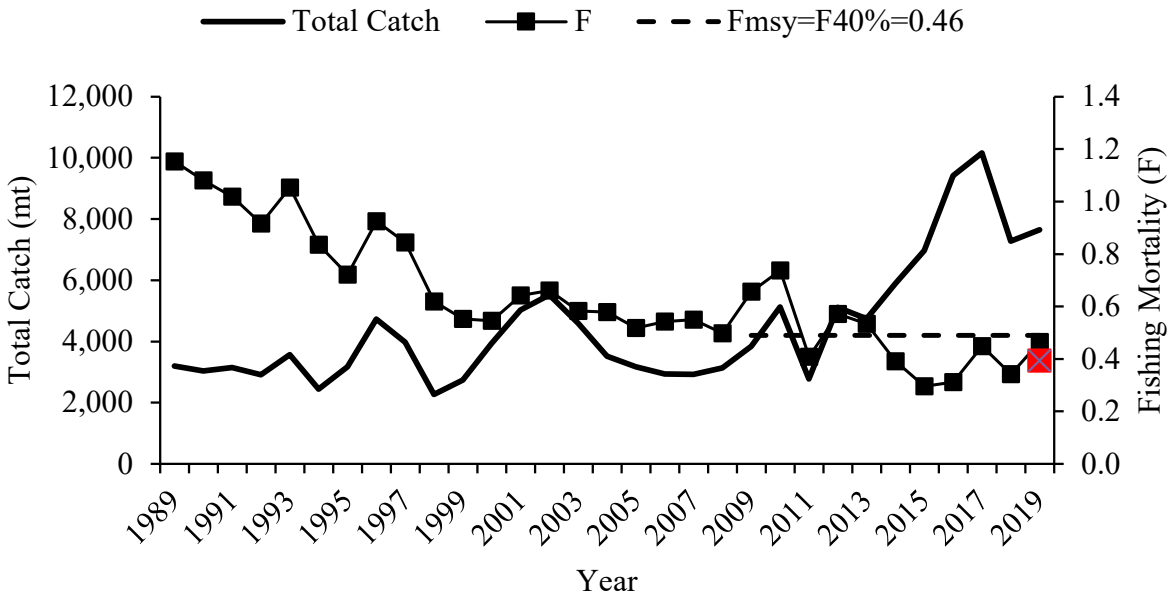

Figure 2: Total fishery catch (metric tons; mt; solid line) and fishing mortality (F, peak at age 6-7; squares) for black sea bass. The horizontal dashed line is the updated F_{MSY} proxy = $F_{40\%}$ = 0.46. The red square is the retrospectively adjusted fishing mortality value for 2019. The adjusted value is used in management. Source: 2021 management track assessment.

Recent Catch and Fishery Performance

Total Dead Catch

Table 3 shows the black sea bass ABCs from 2010 through 2023, as well as the overfishing limit (OFL), from which the ABC is derived when possible. The ABC is set less than or equal to the OFL to account for scientific uncertainty. As shown in Table 3, ABC overages occurred in many years; however, OFL overages have been rare. Depending on the year, the ABC overages were driven by higher than anticipated discards in one or both of the commercial and recreational sectors and/or recreational harvest exceeding the RHL (Table 4, Table 5).

Table 3: Total dead catch (i.e., commercial and recreational landings and dead discards) compared to the OFL and ABC, 2014-2023. All values are in millions of pounds. The recreational contribution to total dead catch is based on data in the "old" MRIP units through 2019 and the revised MRIP data starting in 2020. Catch limits did not account for the revised MRIP data until 2020.

Year	Total dead catch[a]	OFL[b]	OFL overage/underage	ABC[b]	ABC overage/underage
2013	5.99	NA	NA	5.50	+9%
2014	7.92	NA	NA	5.50	+44%
2015	7.92	NA	NA	5.50	+44%
2016	10.66	NA	NA	6.67	+60%
2017	11.70	12.05	-3%	10.47	+12%
2018	9.97	10.29	-3%	8.94	+12%
2019	9.64	10.29	-6%	8.94	+8%
2020	17.33	19.39	-11%	15.07	+15%
2021	21.35	17.68	+21%	17.45	+22%
2022	18.46	19.56	-6%	18.86	-2%
2023	--	17.01	--	16.66	--

[a] See Table 4 and Table 5 for the commercial and recreational data contributing to the total catch estimates.

[b]An OFL was not used and the ABC was set based on a constant catch approach during 2010-2015 due to the lack of a peer reviewed and accepted stock assessment. The 2016 ABC was set based on a data limited methodology. Starting with 2017, the ABC has been set based on a peer reviewed and approved stock assessment.

Commercial Catch

In 2022, about 5.35 million pounds of black sea bass were landed in the commercial fishery, the highest commercial landings in the time series of available data from 1981 through 2022. The 2022 commercial quota of 6.47 million pounds was higher than any previous quota (Table 4). Commercial black sea bass landings were lowest in 2009, when 1.18 million pounds were landed and the lowest quota in the time series was implemented (1.09 million pounds).

Commercial quota overages have been rare; however, ACL overages occurred each year during 2013-2019 based on higher than expected discards. As described on pages 12-13 the method for calculating projected dead discards was revised starting with the 2021 specifications in an attempt to address this issue. Commercial ACL overages have not occurred since 2019 due to a combination of landings falling below the quota and discards falling below the projected amount. Commercial landings were generally close to the quota through 2019. The quota increased by about 59% in 2020. Although landings have continued to increase, they have been 25-39% below the higher quotas since 2020 (Table 4).

Based on data reported through July 13, 2023, 2.22 million pounds of black sea bass have been landed by commercial fishermen from Maine through Cape Hatteras, NC in 2023, corresponding

to about 46% of the 2023 commercial quota of 4.80 million pounds. Landings in 2023 to date are slightly below 2022 landings at the same time of year.[3] This is likely in response to the lower quota in 2023 (4.80 million pounds) compared to 2022 (6.47 million pounds). States adjust their commercial management measures as needed to ensure that their allocations of the coastwide quota are not exceeded prior to the end of the year.

Table 4: Black sea bass commercial landings, dead discards, and dead catch compared to the commercial quota, projected commercial dead discards, and commercial ACL, 2014-2023. All values are in millions of pounds.

Year	Com. landings[a]	Com. quota[b]	Quota over/ under	Com. dead discards[c]	Projected com. dead discards	Disc. over/ under	Com dead catch	Com. ACL	ACL over/ under
2014	2.40	2.17	+11%	1.01	0.36	+181%	3.41	2.60	+31%
2015	2.38	2.21	+8%	0.93	0.39	+138%	3.31	2.60	+27%
2016	2.59	2.71	-4%	1.67	0.44	+280%	4.26	3.15	+35%
2017	4.01	4.12	-3%	2.26	0.97	+133%	6.27	5.09	+23%
2018	3.46	3.52	-2%	1.59	0.83	+92%	5.05	4.35	+16%
2019	3.48	3.52	-1%	2.20	0.83	+165%	5.68	4.35	+31%
2020	4.20	5.58	-25%	1.03	1.40	-27%	5.22	6.98	-25%
2021	4.77	6.09	-22%	1.08	3.43	-69%	5.84	9.52	-39%
2022	5.35	6.47	-17%	1.39	3.63	-62%	6.74	10.10	-33%
2023	--	4.80	--	--	2.70	--	--	7.50	--

[a] NMFS commercial dealer data through 2018. Catch Accounting and Monitoring System (CAMS) data for 2019-2022.

[b] The 2014 commercial quota reflects a 3% deduction for Research Set Aside.

[c] Estimates through 2018 are based on NEFSC data as provided in 2021 management track assessment. CAMS data for 2019-2022.

Recreational Catch

According to the most recent data from the Marine Recreational Information Program (MRIP), between 1981 and 2021, recreational catch (landings and live and dead discards) of black sea bass from Maine through Cape Hatteras, NC was lowest in 1984 at 4.73 million fish and was highest in 2021 at 42.67 million fish. Recreational harvest in weight was highest in 2016 at 12.05 million pounds;[4] however, harvest in numbers of fish was highest in 1986 at 19.28 million fish. Recreational harvest in weight was lowest in 1981 at 1.53 million pounds, while harvest in numbers of fish was lowest in 1998 at 1.56 million fish. A recent time series of recreational harvest and discards is shown in Table 5.

Recreational harvest in 2022 was estimated at 8.14 million pounds, about 21% above the 2022 RHL of 6.74 million pounds. As shown in Table 5, RHL and recreational ACL overages have been frequent in recent years. When considering the scale of these overages, it is important to note that the catch and landings limits for both sectors were not set based on a peer reviewed and accepted stock assessment until 2017. Previous RHLs were likely lower than they could have

[3] Based on data available at https://www.fisheries.noaa.gov/new-england-mid-atlantic/commercial-fishing/quota-monitoring-greater-atlantic-region

[4] The coastwide 2016 and 2017 MRIP estimates for black sea bass are viewed as outliers by the Monitoring and Technical Committees and the SSC due to the influence of very high estimates in individual states and waves (i.e., New York 2016 wave 6 for all modes and New Jersey 2017 wave 3 for the private/rental mode).

been had an approved stock assessment been available to set catch and landings limits that were reflective of biomass levels at that time. In addition, the notable 2020 and 2021 RHL overages were the result of the Council and Board leaving the bag, size, and season limits unchanged despite expected overages. This was a short-term approach to prevent major negative impacts to the recreational sector while changes to management were considered through the Commercial/Recreational Allocation Amendment and the Recreational Harvest Control Rule Framework/Addenda.

MRIP estimates for 2023 are currently only available through wave 2 (March/April). These data do not provide meaningful insights into the 2023 recreational black sea bass fishery given that the recreational fishery was closed through at least May 15 in all states except New Hampshire.

Table 5: Black sea bass recreational landings, dead discards, and dead catch compared to the RHL, projected recreational dead discards, and recreational ACL, 2014-2023. Values are provided in the "old" MRIP units for 2014-2019 and the "new" MRIP units for 2020-2023 as the ACLs and RHLs did not account for the revised MRIP data until 2020. Therefore, overage/underage evaluations must be based in the old MRIP units through 2019 and the new MRIP units starting in 2020. All values are in millions of pounds.

Year	Version of MRIP data	Rec. harvest[a]	RHL[b]	RHL over/ under	Rec. dead disc.[c]	Projected rec. dead discards	Rec. discards overage/ underage	Rec. dead catch	ACL	ACL over/ under
2014	Old MRIP (pre-revision)	3.67	2.26	62%	0.84	0.50	+68%	4.51	2.90	+56%
2015		3.79	2.33	63%	0.82	0.57	+44%	4.61	2.90	+59%
2016		5.19	2.82	84%	1.21	0.57	+112%	6.40	3.52	+82%
2017		4.16	4.29	-3%	1.27	0.57	+123%	5.43	5.38	+1%
2018		3.82	3.66	4%	1.10	0.70	+57%	4.92	4.59	+7%
2019		3.46	3.66	-5%	0.5	1.09	-54%	3.96	4.59	-14%
2020[d]	New MRIP (post-revision)	9.05	5.81	56%	3.06	0.93	+229%	12.11	8.09	+50%
2021		11.97	6.34	89%	3.54	0.93	+280%	15.51	7.93	+96%
2022		8.14	6.74	21%	3.59	2.02	+78%	11.73	8.76	+34%
2023		--	6.57	--	--	2.59	--	--	9.16	--

[a] Based on MRIP data through 2017. Values for 2018 and 2019 were provided by GARFO.

[b] The 2014 RHL reflects a 3% deduction for Research Set Aside.

[c] Estimates for 2014-2017 are from data update provided by the NEFSC in 2018 (most recent data from NEFSC in "old" MRIP units; available at https://www.mafmc.org/ssc-meetings/2018/july-17-18). Values for 2018 and 2019 were provided by GARFO. Estimates for 2020-2022 were provided by the NEFSC with the 2023 data update.

[d] Recreational harvest estimates for 2020 were impacted by temporary suspension of shoreside intercept surveys due to COVID-19. NMFS used imputation methods to fill gaps in 2020 catch data with data collected in 2018 and 2019. For black sea bass, the 2020 harvest estimate for Maine-Virginia relied on approximately 17% imputed data. For more information on imputation methods see: https://www.mafmc.org/s/1-2020-Marine-Recreational-Catch-Estimates-QA-52121.pdf.

Review of Prior SSC Recommendations

In July 2021, the SSC recommended 2022 and 2023 ABCs for black sea bass based the Council's ABC control rule and risk policy, using stock status information and projections provided with the 2021 management track assessment. This remains the most recent stock assessment and the most recent stock projections. The SSC reviewed their 2023 ABC recommendation in July 2022 and agreed that no changes were needed.

In setting the 2022-2023 ABCs, the SSC maintained use of a 100% OFL coefficient of variance (CV). The following text was copied directly from the SSC's July 2021 meeting summary[5] and describes their rationale for applying a 100% OFL CV:

- There is a strong retrospective bias present in the assessment results and this pattern differs between the two spatial sub-areas.
- The fishery has a large recreational component (~60-80% of total harvest in recent years), and thus a substantial reliance on MRIP. Updated MRIP numbers differ substantially from the old estimates, and the updated estimate for one year (2016) was considered implausible owing to high variance in wave-specific data.
- Spatially explicit models were implemented in the 2016 benchmark assessment, and there were detailed efforts to explore the consequences of the misspecification of the spatial
- resolution of these models on perceptions of stock status.
- There were broadly consistent patterns in the fishery independent indices.

The SSC also noted that retrospective bias had increased since the 2019 management track assessment and uncertainty in the 2020 recreational harvest and dead discards are high because of COVID-related disruptions to the MRIP survey in 2020.

The projections used by the SSC to calcuate the 2022-2023 OFLs and ABCs assumed that recreational harvest in 2021 would be the same as in 2020. This resulted in an expected RHL overage. The projections also assumed that the comercial sector would catch their full ACL without overages. Therefore, the assumed RHL overage resulted in an assumed 2021 ABC overage. The SSC agreed that this was an appropriate assumption given recent trends in recreational harvest and given that the Council and Board maintained status quo recreational measures in 2020 and 2021 despite expected RHL overages.

The SSC recommended variable ABCs across 2022-2023 because the revisions to the Council's risk policy adopted in 2019 resulted in a greater than 50% probability of overfishing in one year when averaged ABCs were used. The ABCs recommended by the SSC are shown in Table 6.

The SSC determined the following to be the most significant sources of scientific uncertainty associated with determination of the 2022-2023 OFLs and ABCs in July 2021:

- The retrospective pattern was large enough to need the corrections (outside the 90% confidence intervals), and the additional uncertainty caused by applying the correction is unclear. The model for the northern sub-area has a larger retrospective pattern than the model for the southern sub-area.
- The natural mortality rate (M) used in the assessment — because of the unusual life history strategy, the current assumption of an equal M in the assessment model for both sexes — may not adequately capture potential sex-based differences in M.

[5] Available at: https://www.mafmc.org/ssc-meetings/2021/july21-23

- The spatial distribution of productivity within the stock range.
- The level, temporal pattern, and spatial distribution of recreational catches.
- The nature of exchanges between the spatial regions defined in the assessment model.
- The extent to which the spatial structure imposed reflects the dynamics within the stock.
- The combination of the values from the northern and southern sub-areas is conducted without weighting based on landings or biomass. It is unclear whether or how the uncertainty should be treated when the biological reference points are combined using simple addition.
- Future effects of temperature on stock productivity and range are highly uncertain.
- Estimates of 2020 harvest and dead discards in both the recreational and commercial sectors are highly uncertain because of COVID-related pauses in observer coverage and MRIP intercept surveys.

Table 6: 2022-2023 black sea bass OFLs and ABCs recommended by the SSC in July 2021, as well as associated fishing mortality rates (F), probability of overfishing (p*), spawning stock biomass (SSB), and projected biomass compared to target level (SSB/SSB_{MSY}).

Year	OFL		ABC		ABC F	ABC p*	SSB		SSB/ SSB_{MSY}
	MT	Mil. lb	MT	Mil. lb			MT	Mil. lb	
2022	8,735	19.56	8,555	18.86	0.41	0.49	22,637	49.91	1.57
2023	7,716	17.01	7,557	16.66	0.41	0.49	19,538	43.07	1.35

Staff Recommendations for 2024 ABC

In the absence of updated stock assessment information, staff recommend setting the 2024 ABC equal to the 2023 ABC of 16.66 million pounds (7,5571 mt).The 2023 ABC was set based on stock projections using the 2021 management track assessment model. These remain the most recent projections available for black sea bass. As noted above, a research track assessment is currently underway and updated projections will be provided with a management track assessment in 2024 for use in setting 2025-2026 ABCs. Given the very healthy stock status and the ability to respond to an improved stock assessment for 2025 specifications, setting the 2024 ABC equal to the 2023 ABC may be a low-risk approach.

Sector Specific Catch and Landings Limits

Recreational and Commercial ACLs

The commercial/recreational allocations for black sea bass were revised via Amendment 22 to the Fishery Management Plan (FMP), effective in 2023. Under the revised allocations, the commercial ACL is now 45% of the ABC and the recreational ACL is 55% of the ABC (Figure 3).

If the SSC agrees to set the 2024 ABC equal to the 2023 ABC, this would result in a status quo commercial ACL of 7.50 million pounds (3,401 mt) and a recreational ACL of 9.61 million pounds (4,156 mt).

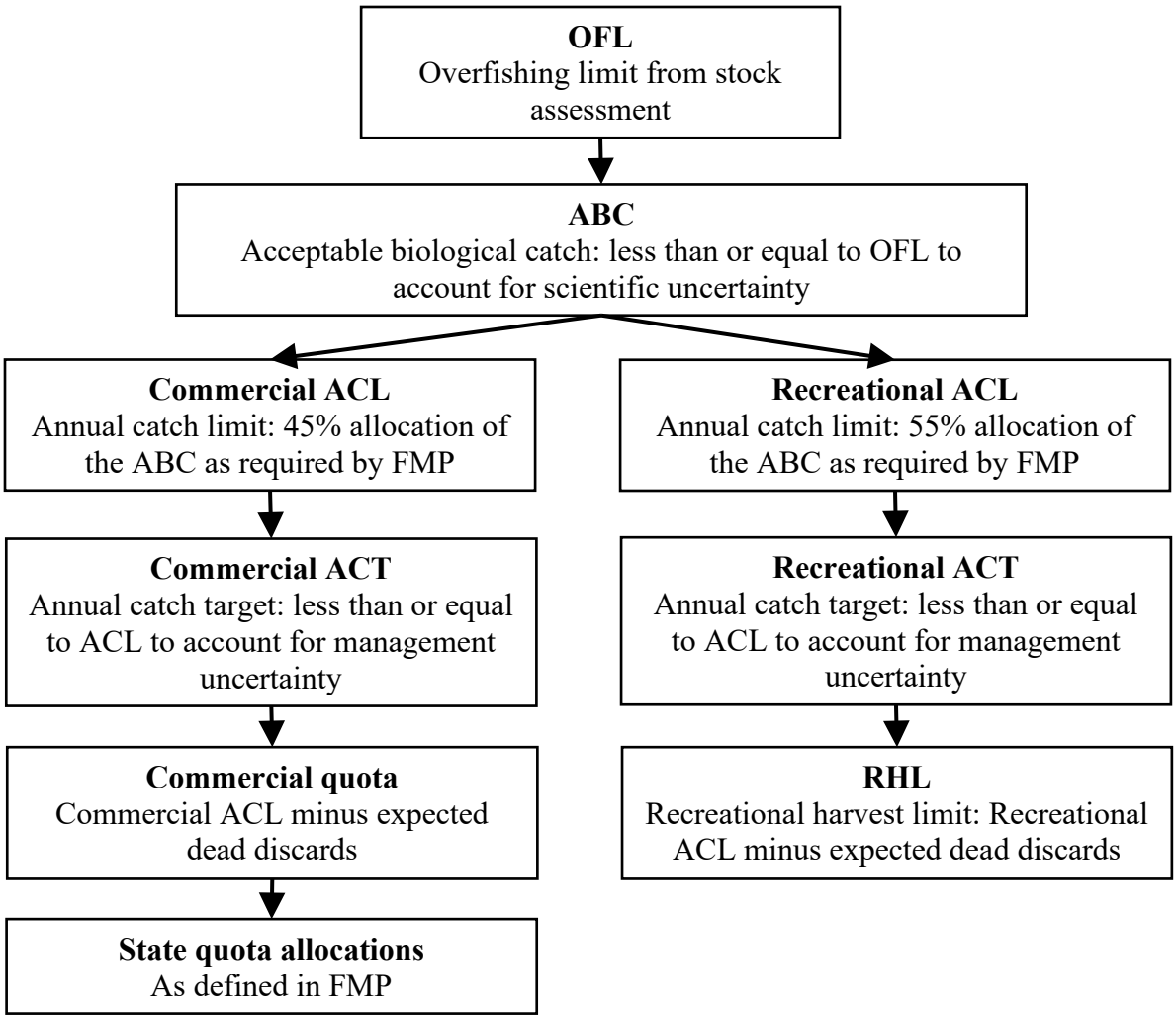

Figure 3: Black sea bass catch and landings limits, reflecting the revised commercial/ recreational allocations which became effective in 2023.

Recreational and Commercial ACTs

ACTs are set less than or equal to the sector-specific ACLs to account for management uncertainty (Figure 3). Management uncertainty is comprised of two parts: uncertainty in the ability of managers to control catch and uncertainty in quantifying the true catch (i.e., estimation errors). Management uncertainty can occur due to a lack of sufficient information about catch (e.g., due to late reporting, underreporting, and/or misreporting of landings or discards) or due to a lack of management precision (i.e., the ability to constrain catch to desired levels). The Monitoring Committee should consider all relevant sources of management uncertainty in the black sea bass fishery when recommending ACTs. Based on the considerations described below for each sector, staff recommend no deduction from the 2024 commercial and recreational ACLs to the ACTs to account for management uncertainty.

Recreational harvest is estimated through a statistical survey design (i.e., the MRIP program), as opposed to mandatory vessel and dealer reporting in the commercial fishery which is more of a census of the entire commercial fishery. The commercial fisheries are also mostly limited access (with some exceptions at the state level) and the commercial fisheries can be closed in-season when landings approach the quota. The recreational fisheries for these species are all open access and there is no in-season closure authority due to the timing of recreational data availability. For

these reasons, recreational landings can be more difficult to constrain and predict than commercial landings.

The commercial quota monitoring system has largely been successful in preventing quota overages. As shown in Table 4, commercial landings have not exceeded the quota since 2015. Commercial ACL overages during 2016 through 2019 were the result of higher than expected commercial dead discards. Revisions to the projected discard methodology were made starting with the 2021 specifications to address this issue. Commercial ACL overages have not occurred since 2019 due to both landings falling below the quotas, which increased by about 59% in 2020, and discards falling below the projected amount.

When considering the scale of the RHL overages and underages shown in Table 5, it is important to note that the catch and landings limits for both sectors were not set based on a peer reviewed and accepted stock assessment until 2017. Previous RHLs were likely lower than they could have been had an approved stock assessment been available to set catch and landings limits that were reflective of biomass levels at that time. In addition, the notable 2020 and 2021 RHL overages were the result of the Council and Board leaving the bag, size, and season limits unchanged despite expected overages. This was a short-term approach to prevent major negative impacts to the recreational sector while changes to management were considered through the Commercial/Recreational Allocation Amendment and the Recreational Harvest Control Rule Framework/Addenda.

The Percent Change Approach and the use of a new recreational harvest estimation model (the Recreational Demand Model) were both applied to the development of recreational black sea bass measures in 2023 for the first time. This required changes in the black sea bass measures to achieve a 10% reduction in harvest compared to predicted 2023 harvest under 2022 measures. As previously stated, it is not possible to predict 2023 recreational harvest based on currently available data.

The Percent Change Approach considers the RHL in the upcoming year(s) as well as biomass compared to the target level when setting measures. In some cases, RHL and ACL overages are permitted under this approach. In other cases, this approach requires more restrictive measures than would be needed to prevent RHL and ACL overages. The Percent Change Approach will sunset after the 2025 fishing year with the goal of using an improved process for setting 2026 recreational measures. A management action to consider the appropriate replacement for the Percent Change Approach is currently in development.

Additionally, a separate amendment is under development to consider managing for-hire recreational fisheries separately from other recreational fishing modes (referred to as sector separation) and improvements to recreational catch accounting.

Given these ongoing management actions, staff recommend no buffer for management uncertainty in the recreational fishery, consistent with past practice for this fishery.

Projected Commercial Dead Discards and Commercial Quota

Projected commercial dead discards are subtracted from the commercial ACT to derive the commercial quota (Figure 3). The methodology to calculate projected dead discards is not prescribed in the FMP and can be modified on an annual basis.

Starting with the 2021 specifications, commercial black sea bass dead discards have been projected based on an assumption that commercial dead discards as a proportion of total dead commercial catch would be equal to the average proportions during the most recent three years

of available data. This method aimed to address the issue of past under-prediction of commercial discards (Table 4) and reduce the frequency of ACL overages due to discards. As previously stated, the commercial ACL has not been exceeded since 2019 due to a combination of landings falling below the quota, which increased by about 59% in 2020, and discards falling below the projected amounts.

Data provided with the 2021 management track assessment indicated that on average during 2017-2019, 36% of commercial dead catch was discarded (Table 4). Applying this percentage to the 2023 commercial ACL resulted in 2.70 million pounds of projected commercial dead discards and a 2023 commercial quota of 4.80 million pounds.

Staff recommend setting the 2024 commercial quota based on the same methodology used for prior years, updated with the most recent three years of landings and dead discard estimates. Based on the currently available data (Table 4), commercial dead discards in 2020-2022 averaged 20% of commercial dead catch, compared to the 36% average based on 2017-2019 data. Applying this revised percentage to the recommended 2024 commercial ACL of 7.50 million pounds results in a projected discard estimate of 1.50 million pounds. This value would result in a 2024 commercial quota of 6.00 million pounds, a 25% increase over the 2023 commercial quota of 4.80 million pounds (Table 1).

Projected Recreational Dead Discards and Recreational Harvest Limit

Projected recreational dead discards are subtracted from the recreational ACT to derive the RHL (Figure 3). The methodology to calculate projected dead discards is not prescribed in the FMP and can be modified on an annual basis.

When setting the 2023 specifications, the Council and Board agreed to use a different method for projecting recreational dead discards compared to commercial dead discards. The adopted method for the recreational fishery aimed to address concerns that the previous method could have under-estimated recreational dead discards in 2023 and to avoid the assumption that recreational catch will be equal to the ACL. Given recent levels of recreational dead catch compared to the ACL (Table 5) and the new process used to set recreational measures (i.e., the Percent Change Approach), the Council and Board agreed that it may not be reasonable to assume that recreational catch in 2023 would be equal to the ACL.

The Council and Board considered input from the Monitoring Committee on two potential methods for projecting recreational dead discards and ultimately agreed to use an average of the two approaches. The first method would have set projected 2023 recreational dead discards to the most recent three-year average (i.e., 3.04 million pounds based on 2017-2019). The second method is the same as described above for the commercial fishery, producing an estimate of 2.14 million pounds (based on 2017-2019 average proportions). The first method does not rely on an assumption that catch will be equal to the ACL and resulted in a higher estimate than the second method. Some Monitoring Committee members thought this higher estimate was more appropriate given recent trends in dead discards; however, other Monitoring Committee members thought discards may decrease below recent levels given the increased ACL in 2023. They also supported maintaining the prior method for an additional year given that it was not possible at the time to evaluate how well it predicted discards given that it was first used in 2021 and dead discard estimates in weight were only available through 2019. The Council and Board agreed that both approaches recommended by the Monitoring Committee had logical rationales. They also agreed that discards in 2023 could fall between these two estimates; therefore, they decided to use an average of these two approaches.

Staff recommend setting the 2024 RHL based on the same methodology used for the 2023 RHL, updated with the most recent three years of harvest and dead discard estimates. This results in a projected dead discard estimate of 2.89 million pounds (Table 7). Subtracting this value from the recommended 2024 recreational ACT of 9.16 million pounds results in a 6.27 million pound RHL for 2024. This would represent a 4% decrease from the 2023 RHL of 6.57 million pounds (Table 1).

Table 7: Recreational ACL, projected recreational dead discards, and resulting RHL as implemented in 2023 and as revised based on the most recent discard data available at the time of finalizing this document (Table 5). All values are in millions of pounds.

Measure	Implemented for 2023	2023 method updated based on most recent 3 years of data	Projected discards set to most recent 3-yr avg.	Discards as proportion of catch based on most recent 3-yr avg. proportion
Rec. ACL	9.16	9.16	9.16	9.16
Projected rec. dead discards	2.70	2.89[a]	3.40 based on 2020-2022	2.38 26% of ACL based on 2020-2022
RHL	6.57	6.27	5.76	6.78

[a] As described in the text above, this value is the average of values in next two columns.

Commercial Management Measures

Federal regulations include several commercial management measures which can be modified through the annual specifications process. These measures are summarized below. Council staff recommend no changes to these measures for 2024 as there is no new information to suggest changes are needed. Advisors did not recommend any changes for 2024.

The commercial minimum fish size in federal waters is 11 inches. This measure has remained unchanged since 2002.

Trawl vessels which possess 500 pounds or more of black sea bass from January 1 through March 31, or 100 pounds or more from April 1 through December 31, must fish with nets that have a minimum mesh size of 4.5-inch diamond mesh throughout the codend for at least 75 continuous meshes forward of the terminus of the net. For codends with less than 75 meshes, the entire net must have a minimum mesh size of 4.5-inch diamond mesh. These measures have been unchanged since 2002. Hasbrouck et al. (2018) confirmed that the current minimum mesh sizes are effective at releasing most fish smaller than the commercial minimum size. This study also considered the potential for a common minimum mesh size for black sea bass, scup, and summer flounder. The results were not able to identify an effective common mesh size for all three species at the current size limits; however, the authors concluded that a common mesh size of 4.5 or 5 inches diamond for scup and black sea bass would be effective at releasing undersized fish.[6] Further consideration of a shared minimum mesh size has not been prioritized by the Council and Board.

[6] Hasbrouck, E., S. Curatolo-Wagemann, T. Froelich, K. Gerbino, D. Kuehn, P. Sullivan, J. Knight. 2018. Determining Selectivity and Optimum Mesh Size to Harvest Three Commercially Important Mid-Atlantic Species - A Report to the Mid-Atlantic Fishery Management Council and the Atlantic States Marine Fisheries Commission. Available at: http://www.mafmc.org/s/Tab08_SFSBSB-Mesh-Selectivity-Study-Apr2018.pdf

Pot/trap regulations include minimum vent sizes of 2.5 inches in diameter if circular, 1.375 inches x 5.75 inches for rectangular vents, and 2 inches for square vents remained unchanged. In addition, two vents are required in the parlor portion of the pot/trap. These regulations have been unchanged since 2007.

Recreational Management Measures

Framework 17, which implemented the Percent Change Approach, states "the Council and Board would consider adjusting measures in sync with the setting of catch and landings limits in response to updated stock assessment information. It is anticipated that updated stock assessments will be available every other year for all four species. In the interim year, measures would be reviewed and may be modified if new data suggest a major change in the expected impacts of those measures on the stock or the fishery."

A previously planned management track assessment for black sea bass was delayed from June 2023 to June 2024 to allow more time for the ongoing Research Track Assessment to thoroughly develop and evaluate new assessment approaches. This has resulted in a longer time between management track assessments for black sea bass than was anticipated during Framework 17.

Under the staff recommendations described above, the RHL would be revised based on updated discard projections accounting for two additional years of catch data. As previously stated, no new stock status information is available. The Monitoring Committee will meet in the fall of 2023 to consider the best approach for setting recreational management measures following the Percent Change Approach.