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Overview of Process for Setting 2023 Recreational Management Measures for Summer Flounder, Scup, and Black Sea Bass

Summer Flounder, Scup, Black Sea Bass Monitoring Committee
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Introduction

This document provides an overview of topics to be discussed during the October 26, 2022 Summer Flounder, Scup, and Black Sea Bass Monitoring Committee (MC) meeting. Further details on some topics are provided in additional briefing materials, which are available here.

Meeting Objectives

During their October 2022 meeting, the MC will discuss considerations for developing 2023 recreational bag, size, and season limits (i.e., management measures) for all three species. The MC will review:

- The Recreational Harvest Control Rule Percent Change Approach approved by the Mid-Atlantic Fishery Management Council (Council) and the Atlantic States Marine Fisheries Commission's (Commission) Interstate Fishery Management Program Policy Board (Policy Board) for use in setting 2023 recreational bag, size, and season limits for these three species.
- Results of the recently completed Summer Flounder Management Strategy Evaluation (MSE) which explored strategies to reduce recreational summer flounder discards. The MC will discuss how the MSE can inform setting 2023 recreational summer flounder measures.
- Two recreational fishery statistical models which can inform development of 2023 recreational measures for all three species.

These discussions will inform additional analysis to be conducted prior to a second MC meeting in November. During their November 2022 meeting, the MC will develop recommendations for several aspects of 2023 recreational management.

Monitoring Committee Discussion Questions

The MC will begin discussing the following questions during their October 2022 meeting. They will continue discussing these questions and will finalize their recommendations for 2023 recreational management during their November 2022 meeting.

- Are there management procedures tested through the Summer Flounder MSE, or variations on these measures, that should be prioritized for consideration when setting 2023 measures? How should these management procedures be considered within the context of the Percent Change Approach?

- Are any modifications recommended to the Recreational Demand Model and/or the Recreational Fleet Dynamics model methods used to predict 2023 harvest under 2022 measures?
- What is the appropriate confidence interval for the expected harvest estimates?
- What changes in measures may need to be considered for 2023 due to the triggering of accountability measures for scup and black sea bass?
- What, if any, additional analysis is needed prior to the November 2022 MC meeting when the MC will adopt recommendations for the following:
    - Expected 2023 harvest under 2022 measures, with confidence intervals, for each species.
    - 2023 non-preferred coastwide and precautionary default measures for summer flounder and black sea bass.[1]
    - 2023 federal waters measures for scup.
- What guidance can the MC provide the Council and the Summer Flounder, Scup, and Black Sea Bass Management Board (Board) regarding use of Recreational Demand Model and Recreational Fleet Dynamics Model for setting 2023 measures?

Percent Change Process for Setting 2023 Recreational Bag, Size, and Season Limits

In June 2022, the Council and the Policy Board approved a new process for setting recreational bag, size, and season limits (i.e., recreational measures) called the Percent Change Approach. They agreed to use this approach for summer flounder, scup, and black sea bass starting with 2023 measures.[2] Under this approach, measures will aim to achieve a specified percent change in harvest compared to status quo measures. Unlike the previous process, the appropriate percent change in harvest will no longer be primarily based on a comparison of expected harvest under status quo measures to the recreational harvest limit (RHL). Instead, the appropriate percent change will be defined by the following two factors:

1) Comparison of a confidence interval (CI) around an estimate of expected harvest under status quo measures to the average RHL for the upcoming two years and
2) Biomass compared to the target level, as defined by the most recent stock assessment.

The resulting percent change in harvest that measures should aim to achieve is summarized in Table 1.

[1] For summer flounder and black sea bass conservation equivalency, under which federal waters measures are waived in favor of state measures, the Council and Board must also specify non-preferred coastwide and precautionary default measures. The non-preferred coastwide measures are a set of measures that would be expected to constrain harvest to the appropriate coastwide target, if implemented in all states and federal waters. These measures are implemented in the federal regulations but waived in favor of state measures. The precautionary default measures are a set of conservative measures that would be implemented in any state or region that failed to develop adequate measures through the process outlined in the FMPs. These measures are intended to be a deterrent to states or regions deviating from the conservation equivalency guidelines outlined in the FMP.

[2] The Council and Policy Board intend for the Percent Change Approach to also apply to bluefish once that stock is no longer under a rebuilding plan. They also agreed, for all stocks, that this approach should be used through 2025 with the goal implementing a new process for setting recreational measures for 2026 and beyond.

Table 1: Process for determining appropriate percent change in expected harvest when developing measures under the Percent Change Approach.

Column 1 **Future RHL vs Harvest Estimate**	*Column 2* **Biomass compared to target level (SSB/SSB_{MSY})**	*Column 3* **Change in Harvest**
Future 2-year average RHL is **greater than** the upper bound of the harvest estimate CI (harvest expected to be lower than the RHL)	**Very high** (greater than 150% of target)	**Liberalization** percent equal to difference between harvest estimate and 2-year avg. RHL, not to exceed 40%
	High (at least the target level, but no higher than 150% of target)	**Liberalization** percent equal to difference between harvest estimate and 2-year avg. RHL, not to exceed 20%
	Low (below the target stock size)	**Liberalization**: 10%
Future 2-year average RHL is **within** harvest estimate CI (harvest expected to be close to the RHL)	**Very high** (greater than 150% of target)	**Liberalization**: 10%
	High (at least the target level, but no higher than 150% of target)	**No liberalization or reduction:** 0%
	Low (below the target stock size)	**Reduction:** 10%
Future 2-year average RHL is **less than** the lower bound of the harvest estimate CI (harvest is expected to exceed the RHL)	**Very high** (greater than 150% of target)	**Reduction:** 10%
	High (at least the target level, but no higher than 150% of target)	**Reduction** percent equal to difference between harvest estimate and 2-year avg. RHL, not to exceed 20%
	Low (below the target stock size)	**Reduction** percent equal to difference between harvest estimate and 2-year avg. RHL, not to exceed 40%

For 2023, the following steps should be followed to determine the appropriate percent change in harvest and the associated measures:

1. For each species, what is expected 2023 harvest under 2022 measures, including a CI around that estimate? *The Monitoring Committee should provide recommendations for these estimates and associated CIs over the course of their October and November 2022 meetings.*
2. How do the harvest estimate CIs generated through step 1 compare to the 2023 RHL for each species (Table 2)?[3] This defines the appropriate cell in Table 1, Column 1.
3. Assign the appropriate biomass category in Table 1 for each species (Table 2). This defines the appropriate cell in Table 1, Column 2.
4. What percent change in harvest should 2023 measures aim to achieve? This is defined by the relevant cell in Table 1, Column 3.
5. Considering the outcome of step #4, what additional changes in measures, if any, may be needed for scup and black sea bass due to the triggering of accountability measures? *The Monitoring Committee should provide these recommendations over the course of their October and November 2022 meetings.*
6. What non-preferred coastwide measures would achieve the appropriate percent change for summer flounder and black sea bass? *The Monitoring Committee should provide recommendations for these measures at their November 2022 meeting.*
7. What federal waters measures for scup would be appropriate given the overall percent change in harvest required? *The Monitoring Committee should provide recommendations for these measures at their November 2022 meeting.*
8. What state waters measures would be appropriate for achieving the percent change for each species? These measures will be defined by states working with the Technical Committee and through feedback received at state-hosted public hearings, with review and consideration for approval by the Board.

During their October 2022 meeting, the Monitoring Committee will discuss the analysis necessary to inform their recommendations for steps 1, 2, 6, and 7. It is anticipated that additional analysis will be carried out prior to a second Monitoring Committee meeting on November 15, 2022, at which time the Monitoring Committee will develop their recommendations to the Council and Board.

[3] The 2024 RHL will not be determined until 2023 after the results of the 2023 management track assessments are available for all three species. Therefore, although the Percent Change Approach indicates that the upcoming two-year average RHL will be used, only the 2023 RHL will be used in this first year of implementation.

Table 2: Summary of information needed to determine the appropriate percent change in harvest that recreational measures should aim to achieve in 2023 under the Percent Change Approach. Biomass compared to the target level is based on the 2021 management track assessments for all three species.

Stock	Expected 2023 harvest under 2022 measures, including CI	2023 RHL	Biomass compared to target level	Percent Change Approach Biomass Category
Summer flounder	MC should develop recommendations for these values over the course of their Oct and Nov 2022 meetings.	10.62 mil lb	86%	Low
Scup		9.27 mil lb	196%	Very high
Black sea bass		6.57 mil lb	210%	Very high

Accountability Measures

The regulations for recreational accountability measures (AMs) require comparison of a three-year moving average of total dead catch (landings and dead discards) against the three-year average recreational annual catch limit (ACL). If the three-year average comparison shows an overage, then the appropriate response varies based on biomass compared to the target level. Paybacks of overages are only required when the stock is below its biomass target level. When stocks are above their biomass target, the AM regulations state that "adjustments to the recreational management measures (bag, size, and seasonal limits) will be made 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 Recreational Harvest Control Rule Framework/Addenda did not change this aspect of the regulations.

Based on a comparison of 2019-2021 average recreational dead catch to the 2019-2021 average ACLs, recreational AMs have been triggered for scup and black sea bass, but not for summer flounder (Table 3). Given that scup and black sea bass are above their biomass targets, the regulations require adjustments to the recreational measures. The regulations do not specify how the measures should be modified. The MC should discuss how measures for scup and black sea bass in 2023 may need to be modified due to the AM, including how the appropriate response may vary based on the outcome of the Percent Change Approach for each species.

Recreational measures for scup and black sea bass were restricted in 2022 with the goal of reducing harvest by 33% for scup and 20.7% for black sea bass compared to a recent multi-year average. These restrictions were made in response to RHL and recreational ACL overages in prior years. These restrictions are not accounted for in the 2019-2021 comparisons which triggered AMs for 2023. The impacts of the 2022 restrictions on harvest cannot be fully evaluated with currently available preliminary partial year MRIP data. It is also worth noting that several states did not implement the restrictions until mid-year in 2022; therefore, the restrictions may not have their full intended effect in 2022. Additional analysis, including use of the Recreational Demand Model and Recreational Fleet Dynamics Model (see below), will be carried out to predict 2023 harvest under 2022 measures for all species.

Table 3: AM evaluation for the recreational summer flounder, scup, and black sea bass fisheries, comparing recreational dead catch to the ACLs. For scup and black sea bass, the ACLs through 2019 did 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. (Note: Typos in previous versions of this document regarding black sea bass harvest for 2020-2021 have been corrected.)

Species	Year	Rec. ACL	Rec. harvest	Rec. dead discards	Rec. dead catch	% Over (+) or Under (-) ACL
Summer founder	2019 *new MRIP*	11.51	7.80	3.04	10.84	-6%
	2020 *new MRIP*	11.51	10.06	3.19[a]	13.25	+15%
	2021 *new MRIP*	12.48	6.82	2.19[a]	9.01	-28%
	2019-2021 avg	**11.83**	**8.23**	**2.81**	**11.03**	**-7%**
Scup	2019 *old MRIP*	8.01	5.41[c]	1.23[c]	6.64[c]	-17%[c]
	2020 *new MRIP*	7.87	12.91	1.15[a]	14.06	+79%
	2021 *new MRIP*	7.66	16.62	1.36[a]	17.98	+135%
	2019-2021 avg	**7.85**	**11.65**	**1.25[a]**	**12.90**	**+64%**
Black sea bass	2019 *old MRIP*	4.59	3.46[b]	0.50[b]	3.96[b]	-14%
	2020 *new MRIP*	8.09	9.05	3.41[a]	12.46	+54%
	2021 *new MRIP*	7.93	11.97	4.18[a]	16.15	+104%
	2019-2021 avg	**6.87**	**8.16**	**2.70**	**10.85**	**+58%**

[a] Recreational dead discards in weight are typically provided by the NEFSC and are calculated using the same methods as the stock assessments for each species. These estimates are not currently available for 2020-2021; therefore, Council staff generated estimates of recreational dead discards in weight by applying the average weight of discarded fish in 2019 from the 2021 management track assessment to the MRIP estimate of dead discards in numbers of fish in 2020 and 2021 (i.e., the MRIP estimate of total discards, i.e., MRIP B2s, in numbers of fish multiplied by the dead discard mortality rates used in the assessments for each species – 10% for summer flounder and 15% for scup and black sea bass).

[b] 2019 recreational harvest, dead discards in weight, and total dead catch in weight in "old" MRIP units were provided to the NMFS Greater Atlantic Regional Fisheries Office by the Northeast Fisheries Science Center (NEFSC).

[c] 2019 recreational harvest, dead discards in weight, and total dead catch in weight were provided by the NMFS Greater Atlantic Regional Fisheries Office.

Summer Flounder Management Strategy Evaluation

The Council recently completed a recreational summer flounder management strategy evaluation (MSE) as part of the continued implementation of the Council's Ecosystem Approach to Fisheries Management. The objectives of this MSE were 1) to evaluate the biological and economic benefits of minimizing discards and converting discards into landings in the recreational summer flounder fishery; and 2) identify management procedures to effectively realize these benefits. The results

from the MSE suggest there are multiple management procedures that outperform status quo management at reducing discards and converting those discards into harvest while limiting risk to the summer flounder stock.

At their August 2022 meeting, the Council and Board expressed support for using the MSE to help inform potential recreational management options for summer flounder in 2023. The MC should consider how to potentially apply the results of the MSE to 2023 measures and over the longer term. Management procedures evaluated in the MSE, or some variation of them, could be considered in the process for 2023 summer flounder recreational measures (steps 6 and 8 above) if they are demonstrated to achieve the appropriate percentage change in harvest compared to status quo measures. See the MSE briefing document provided for additional information about the MSE and related discussion points for the MC.[4]

Recreational Demand Model and Recreational Fleet Dynamics Model

The Council and Commission are supporting development of two statistical models to predict the impacts of recreational bag, size, and season limits on recreational harvest and discards of summer flounder, scup, and black sea bass.

The Northeast Fisheries Science Center is developing the **Recreational Demand Model** for these species. This model was also used through the Summer Flounder MSE. This model accounts for the impacts of regulations, year class strength, and angler preferences on harvest and discards. Year class strength is based on stock assessment projections and angler preferences are based on a survey of anglers from Maine through Virginia.

The **Recreational Fleet Dynamics Model** is being developed by scientists at the Rhode Island Department of Environmental Management and uses a generalized additive model to predict harvest and discards based on management measures. Covariates in the model include year, minimum size, wave, state, bag limit, a lagged recruitment variable, spawning stock biomass, and the RHL. The model is limited to analyzing the impacts of management strategies that have been used in the past. Novel strategies (e.g., slot limits which were used for the first time for summer flounder in New Jersey in 2022) cannot be directly analyzed through this model until MRIP data are available for years when those strategies were used. An R Shiny App is being developed for this model to allow the MC to modify management measures and view the resulting predicted harvest and discards.

Both models allow for consideration of varying management measures at the state and wave level. Both models were reviewed by the Council's Scientific and Statistical Committee in September 2021[5] and have been improved since that time based on their recommendations. More details on both models will be provided with the briefing materials for the October 26, 2022 MC meeting[6] and will be presented during the MC meeting.

The MC should discuss how these two models can be used for steps 1, 6, 7, and 8 of the Percent Change Approach, as described on page 4. These models cannot be used for step 6 (federal waters

[4] Available at https://www.mafmc.org/council-events/2022/summer-flounder-scup-and-black-sea-bass-monitoring-committee-cgl9e.

[5] The final report from the SSC review is available at https://www.mafmc.org/s/05_Rec-Model-Peer-Review-Reports.pdf.

[6] Available at https://www.mafmc.org/council-events/2022/summer-flounder-scup-and-black-sea-bass-monitoring-committee-cgl9e.

measures for scup) because they cannot produce estimates of harvest from federal waters without assumptions about state waters measures.

Next Steps

The MC will finalize recommendations for the following estimates and measures during their November 2022 meeting:

- Expected 2023 harvest under 2022 measures, with confidence intervals, for each species.
- 2023 non-preferred coastwide and precautionary default measures for summer flounder and black sea bass.
- 2023 federal waters measures for scup.

The MC will begin discussing their approach for these recommendations during their October 2022 meeting. The MC may consider recommending additional analysis to be carried out between the October and November MC meetings.

The Advisory Panel (AP) will meet following the November MC meeting to provide their recommendations for 2023 recreational measures. In December 2022, the Council and Board will review AP input and MC recommendations before determining the appropriate percent change in harvest that measures should aim to achieve in 2023 for all three species. The Council and Board will also recommend 2023 federal waters measures for scup. For summer flounder and black sea bass, they will recommend either waiving federal waters recreational measures or using one set of coastwide measures to be applied uniformly in all states and federal waters. If federal waters measures are to be waived for summer flounder and black sea bass, the Council and Board must also recommend 2023 non-preferred coastwide measures and precautionary default measures during their December 2022 meeting.[7] For all three species, states will work through the Commission process in early 2023 to determine state and/or regional measures which will collectively achieve the percent change in harvest agreed upon by the Council and Board.

[7] See footnote 1 for a description of non-preferred and precautionary default measures.