**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:** Jason Didden, staff

**Subject:** Lower Atlantic Mackerel ABCs recommended for 2024-2025

## Summary

1. Stock biomass has not increased as predicted.
2. Staff recommends an ABC of 3,314 metric tons (MT) for 2024 and 2025 to rebuild the stock and avoid excessive regulatory discards.

## Current Measures and Review of Prior SSC Recommendations

The primary measures used in the mackerel fishery to control catch include set-asides for Canadian catch, recreational catch, and discards, as well as tiered limited access and weekly quota monitoring that is coupled to closure triggers and post-closure trip limits.

The 2023 Acceptable Biological Catch (ABC) of 8,094 metric tons (MT) was based on the mackerel rebuilding plan and a *fishing mortality rate* (F) of 0.12, which was predicted (based on the 2021 assessment) to have a 61% probability of rebuilding the mackerel stock by 2032. The rebuilding projections assume that future recruitment stays low near recent (now 2009-2022) median recruitment when spawning stock biomass (SSB) is low and then the projections assume that as SSB increases, future recruitment increases to near (but somewhat below) 1975-2022 median recruitment (which is what the stock's rebuilding goal is based on). Since the Canadians did not open their mackerel fishery in 2023, total 2023 catch now appears unlikely to exceed 5,953 MT (the potential Canadian catch stays set-aside).

## Recent Catch and Landings

In 2022, U.S. commercial landings declined to the 2$^{nd}$ lowest amount since 1996 after being relatively stable since 2012. Recreational catch declined by 29% from 2021 to 2022 after being relatively stable from 2018-2021.

## Stock Status and Biological Reference Points

Based on the 2023 management track stock assessment, the stock is still overfished – declining back to an all-time low in 2021 and increasing somewhat in 2022. Due to relatively low U.S. removals in 2022 and the near-total closure of the Canadian commercial fishery in 2022, overfishing (updated to $F_{msy\text{-}proxy} = 0.21$) appears to have ended for the first time in 35 years ($F_{2022} = 0.18$). However, the target biomass and maximum sustainable yield proxy catch continue to decline. The change in overfishing may require additional peer review of the draft assessment.

**Staff Recommendation**

Considering the information below, an ABC of 3,314 MT is recommended by staff for both 2024 and 2025 because this ABC should A) facilitate continued rebuilding by 2032 with the Council's 61% probability target (remaining consistent with the overall rebuilding plan), B) avoid a scenario where regulatory discarding becomes excessive, C) account for potential recreational catches, and D) allow some continuous collection of fishery-dependent data for future assessments. An ABC of 3,314 MT would be substantially lower than the standard re-calculated rebuilding projections from the direct assessment model outputs. Supporting information:

1. The Council's previous action was designed to have a 61% chance of rebuilding the Atlantic mackerel stock by 2032.
2. The last two assessments (2021, 2023) indicate the assessment model has been over-predicting both the terminal year biomass estimates and stock rebuilding rate.
3. The relatively high 2022 recruitment estimate is projected to cause a rapid increase in biomass that is inconsistent with experiences from recent assessments.
4. Staff requested a sensitivity analysis to examine the impact on projected rebuilding if once again the strong terminal year (2022) recruitment (Age 1 fish) does not result in the expected biomass gains. The analysis indicated that if the 2022 recruitment results in 65% less Age 2 fish than expected in 2023, a substantially lower F of 0.07 would be required to rebuild the stock by 2032 (with 61% confidence). Age 2 fish were reduced by 65% because recent median recruitment is 65% lower than the 2022 estimated recruitment, and modeling limitations would not allow just scaling down the 2022 recruitment estimate. The analysis illustrates the sensitivity of the standard projections to strong terminal year recruitments and assumed survival into older fish. An F of 0.07 would result in 2024-2025 ABCs of 2,726 MT and 3,900 MT (see spreadsheet on July 2023 SSC meeting page reporting results of staff-requested sensitivity analysis).
5. A mackerel moratorium or very low trip limits will create regulatory discards while further limiting the data for the next assessment in 2025.
6. 2022 recreational catch could be a low statistical outlier, and the previous recreational catch set-aside of 2,143 MT still seems reasonable. We do not yet have data on the impacts of the 20-fish possession limit implemented for 2023.
7. The U.S. assessment is generally consistent with the Canadian assessment. Given recent Canadian policy choices, it seems likely that Canadian commercial catches will stay low for the near future.
8. Staff conferred with NMFS quota monitoring staff, and based on 2021-2023 data, if limited access vessels were limited to 20,000 pounds per trip and open access vessels were limited to 5,000 pounds per trip, commercial U.S. mackerel landings (largely incidental) in 2024 and 2025 would not be expected to exceed 1,000 MT.
9. Combining expected Canadian catch, recreational catch, discards, and U.S. commercial incidental landings would result in a catch of approximately 3,314 MT in 2024.
10. Pending consultation with the Monitoring Committee, staff will likely recommend that the Council request NMFS take emergency action to close directed mackerel fishing for the remainder of 2023 given that the anticipated F from the SSB sensitivity analysis would lead to overfishing if the full quota is caught (predicted $F_{2023}$=0.23).