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## **MEMORANDUM**

Date: September 23, 2021

To: Chris Moore, Executive Director

From: Staff

Subject: Atlantic Mackerel Rebuilding v2.0 Framework Update and Options/ Recommendations

Guidance from NMFS suggests that a reasonable timeline for final action on the second Atlantic mackerel rebuilding plan will be to take final action in April 2022 with implementation by January 1, 2023. Given the long-term perspective recommended by the SSC, the Council is considering 10-year rebuilding options with several rebuilding probabilities. A 10-year rebuilding plan as previously selected by the Council would thus cover from 2023-2032. 2022 will be addressed with emergency or interim action based on the Council's earlier request, though NMFS has substantial discretion for what they implement for 2022. If Canadian landings stay near 4,000 MT, staff anticipates that coastwide catch will remain below the 15,512 MT recommended by the Council for both 2021 and 2022. Given earlier Council actions, staff will assume (unless directed otherwise) that when the last set of projections are run before action, the Council would like recent/current catch assumptions to be based on the information available at that time.

The Scientific and Statistical Committee (SSC) meets in March 2022, so it can provide ABCs associated with various rebuilding options before the April 2022 Council meeting. The outstanding recruitment assumption question has been resolved for the time being by the SSC, with the advice being to use either just lower short-term recruitment, or use lower short-term recruitment until the stock is above half of the rebuilding target (and then revert to typical long term recruitment). While there is no accepted stock-recruitment relationship, observations and analyses at the SSC meeting suggested that lower recruitment is most likely when below half of the rebuilding target. If recruitment does not return to a typical scenario in a few years, SSB will not grow/rebuild as projected in options 2-5. Under all options, according to the latest assessment, coastwide catches at 100% of the biomass target (i.e. rebuilt) with the standard P\* risk policy are anticipated to be about 30,000 metric tons (MT) (coastwide) (assuming 150% C.V.). Based on the SSC's advice and previous input from the Council, staff recommends moving forward with four rebuilding options to address the range evaluation requirements of NEPA:

1. Assume persistent lower recruitment (i.e. 2009+) throughout a 10-year rebuilding period, and seek to limit catches accordingly. To rebuild in 10 years with a 50% probability, 2023 catches (coastwide) would need to be limited to about 600 metric tons (MT) and would increase to about 1,700 MT by 2032 if all goes according to plan. Canadian landings alone would likely lead to not

achieving rebuilding in 10 years if this lower recruitment persists. Fishing mortality would need to equal 0.01. While this may not be practicable, leaving one alternative in the options that assumes only lower recruitment is useful as an indicator of the importance of recruitment for rebuilding and providing contrast with other options.

2. Assume persistent lower recruitment until ½ of the rebuilding target is reached (in several years) followed by typical (1975+) recruitment and calculate catches with the Council's standard P\* risk policy. While not yet precisely calculated, rebuilding (with a 50% probability) would be anticipated in about 6-8 years. Catches (coastwide) would start about 4,000 MT and increase as biomass increases if all goes according to plan. Fishing mortality varies per the Council's risk policy, but would start very low due to the buffering required by the risk policy at low stock sizes.

3. Assume persistent lower recruitment until ½ of the rebuilding target is reached (in several years) followed by typical (1975+) recruitment through the remainder of a 10-year rebuilding period, and seek to limit catches accordingly. To rebuild in 10 years with a 60% probability, 2023 catches (coastwide) would need to be limited to about 7,000 MT and would increase to about 18,500 MT by 2032 if all goes according to plan. Fishing mortality would need to equal about 0.11. NOTE: These values are Council staff approximations based on other scenarios run by Center staff. As with the initial rebuilding plan, this option would have to be designated as superseding the standard risk policy if it results in higher catches than the standard risk policy.

4. Assume persistent lower recruitment until ½ of the rebuilding target is reached (in several years) followed by typical (1975+) recruitment through the remainder of a 10-year rebuilding period, and seek to limit catches accordingly. To rebuild in 10 years with a 50% probability, 2023 catches (coastwide) would need to be limited to about 8,600 MT and would increase to about 22,000 MT by 2032 if all goes according to plan. Fishing mortality would need to equal 0.14. As with the initial rebuilding plan, this option would have to be designated as superseding the standard risk policy if it results in higher catches than the standard risk policy.

Relative to the Council's previous motions and the four above suggested alternatives, staff suggests moving several options to a "Considered but Rejected" designation, including:

Given the extremely low catches (no U.S. harvest allowed for 10 years) required for even a 50% probability of rebuilding when lower recruitment is assumed for the whole rebuilding period (i.e. #1 above), 60% and 75% probability options combined with the low recruitment appear redundant. Assuming low recruitment for even a part of the timeline is itself more precautionary than the initial rebuilding plan, and including even lower catch time series than #1 above seems unwarranted. A standard P\* approach combined with assuming lower recruitment for the whole time period is similarly redundant. These options would be listed in a "Considered but Rejected" section.

Taking a P\*-like deduction from a rebuilding catch (i.e. treating a rebuilding catch like a typical OFL that gets buffered) is redundant given the Council would already be considering and choosing from discrete rebuilding probabilities (e.g. 50% or 60%). For reference, catches would start around 2,500 MT if a P\*-like deduction was taken from the rebuilding catches associated with a 50% probability of rebuilding in ten years (i.e. taking a P\*-like buffer from #4 above). This option would also be listed in a "Considered but Rejected" section.

Even with the two phase recruitment scenario, achieving a 75% probability of rebuilding would require very low catches. Catches would start around 3,000 MT in 2023 and end around 11,000 MT in 2032. Given Canadian catches alone are expected to be at least 4,000 MT per year even initially, and it may be impossible to drastically restrict recreational catches, this option appears impracticable and would also be listed in a "Considered but Rejected" section.

If the Council endorses these above four general rebuilding options, then Council staff will work with Center staff to develop the exact time series of catches and predicted biomass trajectories. Council staff will also work with GARFO staff to build in management measures to accompany these scenarios as currently used and/or as previously directed by the Council and Mackerel, Squid, and Butterfish Committee, including:

- Commercial closure and trip limit options that are commensurate with the quotas resulting from the above four rebuilding options.

- A 3.0 inch minimum mesh requirement to retain more than 5,000 pounds of Atlantic mackerel (to mimic the butterfish regulations)

- River Herring and Shad Caps that either adjust to the potential quota in each year or use a floor of 129 MT (i.e. the current cap)

- Recreational measures including annual and seasonal Atlantic mackerel closures of federal waters to harvest/possession of Atlantic mackerel and/or a 10-inch Atlantic mackerel minimum size limit.

Note: Given the unknown discard mortality, and likely enforcement issues related to chub mackerel mis-identification, staff recommends moving the minimum size option to "Considered but Rejected." Identification issues could still be an issue with closures, but at least there's a clearer conservation benefit.

Council staff has flagged to several relevant states that additional restrictions on Atlantic mackerel fishing are likely pending. Given the potential of substantial additional reductions for the commercial sector, and that most recreational Atlantic mackerel harvest occurs in state waters, staff recommends that the Council request that all states with consistent and substantial recreational Atlantic mackerel landings (Massachusetts, New Hampshire, and Maine) take measures to reduce recreational catch in state waters by approximately 50% in 2022. Since catch mostly starts after May 1, there should be time for the relevant states to consider measures for 2022.

In 2018-2020 most recreational Atlantic mackerel catch was in the from of MRIP "B1" reported (not observed) harvest. This suggests to staff that a substantial portion of mackerel harvest is for bait, and staff's understanding is that mackerel are often used for striped bass and highly migratory species (HMS) bait. To the extent that Atlantic mackerel are caught in state waters and then taken offshore for HMS bait, then there could be some indirect state waters catch reduction (and impact on HMS fishing) from a possession prohibition in federal waters. Offering a briefing to the NMFS HMS Advisory Panel at its next meeting seems warranted to explore this issue.