SOUTH ATLANTIC FISHERY MANAGEMENT COUNCIL

4055 Faber Place Drive, Suite 201, North Charleston SC 29405
Call: (843) 571-4366 | Toll-Free: (866) SAFMC-10 | Fax: (843) 769-4520 | Connect: www.safmc.net

Trish Murphey, Chair | Jessica McCawley, Vice Chair
John Carmichael, Executive Director

SEDAR (TBD)
South Atlantic King Mackerel
Terms of Reference

Draft: 10/21/2025

1. Update the 2020 SEDAR 38 Update base model for South Atlantic King Mackerel with data using a terminal year of 2025-2026 fishing year. Data providers may include preliminary or partial data for more recent years that could be used in the stock assessment model or projection analyses, with inclusion in the stock assessment model determined by the lead analyst based on quantity and quality of the most recent data.

2. Update the model to the current stock synthesis version and model configurations using current best practices. Provide a model run using the SEDAR 38 configuration including recent years data (following NMFS Procedure 01-101-11).

3. Consider new and updated information on life history, natural mortality, discard mortality, the stock-recruit relationship, commercial and recreational landings and discards. Document any changes or corrections made and provide updated input data tables.
    a. Provide commercial, recreational, and combined landings and discards in pounds and numbers.
    b. Consider the newest methods for estimating natural mortality including a subset of Then et al. 2015, Hamel and Cope 2022, or other research. Consider direct estimation methods such as telemetry or conventional tagging approaches if available. Consider estimation of natural mortality within the stock assessment.
    c. Address as many of the recommendations as possible of the South Atlantic SSC Catch Level Projections workgroup outlined on page 16 of the final workgroup report found here.

4. Evaluate and document the following specific changes in input data or deviations from the previous assessment model:

    a. Provide sensitivity analyses as needed to compare assessment results between new values in the current assessment and values from the SEDAR 38 Update.
    b. Explore alternative age references or age-specific time series for the SEAMAP and NEAMAP fishery independent survey.
    c. Evaluate model sensitivity to the age-data and explore alternative parameterizations (such as inverse age-length keys).
    d. Explore the cause of high max gradient for the model. Describe the cause and implement improvements, as feasible.

e. As feasible, explore the possibility of including a sensitivity run with FISHstory data.

5. Update model parameter estimates and their variances, model uncertainties, estimates of stock status and management benchmarks, and provide the probability of overfishing occurring at specified future harvest and exploitation levels.
    a. Explore the use of recent average recruitment instead of model-derived recruitment from the stock-recruit relationship. Determine an appropriate MSY proxy and timeseries for average recruitment.
    b. If a direct estimate of MSY is not recommended, provide justification for the use of an MSY proxy and rationale supporting the value chosen (i.e. SPR%).
    c. If an MSY proxy is recommended, discuss range of possible MSY proxies and the associated uncertainties.
    d. Provide F, yield, discards, biomass, SSB and recruitment levels that correspond to MSY or its chosen proxy.

6. Compute short-term and long-term population projections as necessary to provide OFL estimates and ABC advice. Provide additional population projections as necessary to address overfishing or overfished stock conditions (e.g. rebuilding).

7. Convene a SAFMC approved technical workgroup including SSC representatives, industry representatives, and outside technical experts to meet via webinar or in-person as needed to review model development and provide guidance.

8. Develop a stock assessment report to address these TORs and fully document the input data, methods, and results.