## SEDAR 86
## South Atlantic Red Grouper
## Operational Assessment
## Terms of Reference

1. Update the South Atlantic Red Grouper SEDAR 53 assessment from a terminal year of 2015 to 2021. Incorporate the latest BAM model configurations and updates to data calculation methodologies, detailing the changes made between the 2017 SEDAR 53 South Atlantic Red Grouper standard assessment model and the proposed SEDAR 86 model.

2. Consider new and updated information on life history, steepness, discard mortality, commercial and recreational landings and discards. Note any particular concerns or problems with data collected in 2020 and beyond. Document any changes or corrections made and provide updated input data tables. Provide commercial and recreational landings and discards in pounds and numbers.

3. 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. Investigate asymmetric distributions for incorporating MRIP parameters.

4. Examine and describe impacts on model performance and estimates of the data limitations in 2020 and beyond and the change from estimating recreational landings through MRIP using CHTS to FES units.

5. Explore using appropriate CVs for the landings data to capture the uncertainty in the model results as an alternate run or a base run.

6. Calculate different F metrics in addition to apical F (to address shifts in the age of apical F towards the end of the assessment time series).

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