



Gulf of Mexico Fishery Management Council

Managing Fishery Resources in the U.S. Federal Waters of the Gulf of Mexico

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Gulf of Mexico Red Grouper Operational Assessment Scope of Work DRAFT: August 9, 2021

1. Update the approved SEDAR 61 Gulf of Mexico red grouper base model with data through 2022.
2. Document any changes or corrections made to model and input datasets and provide updated input data tables.
 - Document any changes in MRIP data, both pre- and post-recalibration, in terms of the magnitude of changes to catch and effort. Compare to values from SEDAR 61.
 - Update life history data (e.g., growth, reproduction, mortality) if warranted.
 - Consider the treatment of recreational harvest:
 - Consider inputting recreational catch in weight (i.e., pounds) instead of in numbers of fish.
 - Re-evaluate error estimates for recreational landings.
 - Explore the effects of the changes in the mean weight estimation procedure between SEDAR 61 and the 2021 red grouper interim analysis
 - If using numbers of fish as the input unit for recreational catch, compare the mean weights estimated by the model with that reported by the SERO ACL Monitoring Dataset, or explore fitting to the SERO mean weights.
 - Explore stock assessment model runs incorporating historical landings data back to the start of the fishery, and the sensitivity of the model to the start year used
 - Explore the use of the Florida State Reef Fish Survey Program for private recreational catch and effort for red grouper, in place of the same data collected by the Marine Recreational Information Program.
3. Explore the potential effects of red tide with consideration of past red tide events, and more recent events in 2018 and thereafter.
 - Explore age-specific episodic mortality of red grouper due to red tide.
4. 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. Provide commercial and recreational landings and discards in pounds and numbers.
 - Use the following status determination criteria (SDC):
 - $MSY \text{ proxy} = \text{yield at } F_{MSY} \text{ or } F_{Rebuild} \text{ (if overfished)}$
 - $MSST = 0.5 * SSB_{MSY}$
 - $MFMT = F_{MSY} \text{ and } F_{Rebuild} \text{ (if overfished)}$
 - $OY = 75\% \text{ of } F_{MSY}$
 - If different SDC are recommended, provide outputs for both the current and recommended SDC.

- Unless otherwise recommended, use the geometric mean of the previous three years' fishing mortality to determine F_{Current} . If an alternative approach is recommended, provide justification and outputs for the current and alternative approach.
 - Provide yield and spawning stock biomass streams for the overfishing limit and acceptable biological catch in pounds:
 - Annually for five years
 - Under a “constant catch” scenario for both three and five years
 - For the equilibrium yield at F_{MSY} , when estimable
5. Develop a stock assessment report to address these TORS and fully document the input data and results of the stock assessment model.

Topical Working Group

Topical working groups are requested for:

- Red tide age-specific episodic mortality and red tide index development (*in-person*)
- Changes in the mean weight estimation procedure (*via webinar*)
- Recreational Catch and Effort (*via webinar*)