SEDAR

SouthEast Data, Assessment, and Review

SEDAR 75 Gulf of Mexico Gray Snapper

Operational Assessment Terms of Reference

October 2020

1. Update the approved SEDAR 51 Gulf of Mexico Gray Snapper base model with data through 2019, or for the most recent year for which finalized data are available.

2. Document any changes or corrections made to model and input datasets and provide updated input data tables.
   - Evaluate the potential effects of red tide on gray snapper, with consideration of past red tide events through 2019.
   - Document changes in MRIP data, both pre- and post-recalibration, in terms of the magnitude of changes to catch and effort.
   - Re-evaluate gear selectivity, retention, and discards for the recreational shore mode.
   - Consider the SEFSC's improved approach for estimating commercial discards.
   - Evaluate how to correct for predicted commercial discards above the size limit, given no commercial trip limit or other regulatory limitation.
   - Consider SEDAR 51 recommendations for natural mortality (M):
     - Set the max age = 28 years
     - Apply a Lorenzen age-specific M vector
     - Consider bounding M between 0.13 and 0.17
   - Consider SEDAR 51 recommendations for growth:
     - Use all age data regardless of sex
     - Determine whether to predict growth within the model, using the recommended growth parameters as priors, or to use fixed growth parameters
   - Consider combining available relevant video indices for the Gulf to allow for the greatest sample size across the longest potential time period. Consider other weighting alternatives for these surveys.
   - Consider SEDAR 51 recommendations, and any new information, for reproduction.
   - Incorporate social and economic information into the stock assessment considerations as practicable.

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. Provide commercial and recreational landings and discards in pounds and numbers.
   - Investigate bounding steepness between 0.81 and 0.99, based on the range considered in the SEDAR 15 Update assessment of mutton snapper.

- Use the following status determination criteria (SDC) proposed in Amendment 51:
  - MSY proxy = yield at F_{MSY} or $F_{Rebuild}$ (if overfished)
  - MSST = $0.5*B_{MSY}$
  - MFMT = F_{MSY} or $F_{Rebuild}$ (if overfished)
  - 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

4. Develop a stock assessment report to address these TORS and fully document the input data and results of the stock assessment model.