

SEDAR

SouthEast Data, Assessment, and Review

South Atlantic Fishery Management Council
Gulf of Mexico Fishery Management Council
Caribbean Fishery Management Council
NOAA Fisheries
Atlantic States Marine Fisheries Commission
Gulf States Marine Fisheries Commission

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SEDAR 16. South Atlantic and Gulf of Mexico King Mackerel

Third Draft Terms of Reference

May 7, 2007

(Reflecting results of the April 23 mackerel summit; revised AW TOR 8)

I. Data Workshop

1. Characterize stock structure and develop a unit stock definition. Provide maps of species and stock distribution.
2. Tabulate available life history information (e.g., age, growth, natural mortality, reproductive characteristics); provide appropriate models to describe growth, maturation, and fecundity by age, sex, or length as applicable. Evaluate the adequacy of available life-history information for conducting stock assessments and recommend life history information for use in population modeling.
3. Provide measures of population abundance that are appropriate for stock assessment. Document all programs used to develop indices, addressing program objectives, methods, coverage, sampling intensity, and other relevant characteristics. Provide maps of survey coverage. Consider relevant fishery dependent and independent data sources; develop values by appropriate strata (e.g., age, size, area, and fishery); provide measures of precision. Evaluate the degree to which available indices adequately represent fishery and population conditions. Recommend which data sources should be considered in assessment modeling.
4. Characterize commercial and recreational catch, including both landings and discard removals, in weight and number. Evaluate the adequacy of available data for accurately characterizing harvest and discard by species and fishery sector. Provide length and age distributions if feasible. Provide maps of fishery effort and harvest.
5. Provide recommendations for future research in areas such as sampling, fishery monitoring, and stock assessment. Include specific guidance on sampling intensity and coverage where possible. Provide discussion of progress on research and monitoring recommended by SEDAR 5.
6. Prepare complete documentation of workshop actions and decisions (Section II. of the SEDAR assessment report).

2. Assessment Workshop

1. Review any changes in data following the data workshop and any analyses suggested by the data workshop. Summarize data as used in each assessment model. Provide justification for any deviations from Data Workshop recommendations.
2. Develop population assessment models that are compatible with available data and recommend which model and configuration is deemed most reliable or useful for providing advice. Document all input data, assumptions, and equations.
3. Provide estimates of stock population parameters (fishing mortality, abundance, biomass, selectivity, stock-recruitment relationship, etc); include appropriate and representative measures of precision for parameter estimates.
4. Characterize uncertainty in the assessment and estimated values, considering components such as input data, modeling approach, and model configuration. Provide appropriate measures of model performance, reliability, and 'goodness of fit'.
5. Provide yield-per-recruit, spawner-per-recruit, and stock-recruitment evaluations.
6. Provide estimates for SFA criteria. This may include evaluating existing SFA benchmarks or estimating alternative SFA benchmarks (SFA benchmarks include MSY, Fmsy, Bmsy, MSST, and MFMT); recommend proxy values where necessary. SFA parameters shall be provided for the Gulf and Atlantic Migratory Units as currently defined using the most current mixing data.
7. Provide declarations of stock status relative to SFA benchmarks.
8. Estimate Allowable Biological Catch (ABC) based on the following criteria:
 - A) Based on migratory groups and mixing zone dynamics defined using best available scientific information, provide separate ABC values for each of two management areas delineated at the Miami-Dade/Monroe County line: all fish caught north of the line allocated to the Atlantic management area and all fish caught south of the line allocated to the Gulf management area.
 - B) Based on migratory groups and mixing zone dynamics as currently defined, provide separate ABC values for the Gulf and Atlantic Migratory Units based on allocating all fish in the mixing zone to the Gulf Migratory Unit (essentially the 'continuity' approach).
 - C) Based on migratory groups and mixing zone dynamics as currently defined, provide separate ABC values for the Gulf and Atlantic migratory units based on allocating 50% of the fish in the mixing zone to the Gulf Migratory Unit and 50% of the fish to the Atlantic Migratory Unit.
9. Project future stock conditions (biomass, abundance, and exploitation) and develop rebuilding schedules if warranted; include estimated generation time. Stock projections shall be developed in accordance with the following:
 - A) If stock is overfished:
 $F=0$, $F=current$, $F=Fmsy$, $F=target$ (OY),
 $F=Frebuild$ (max that rebuild in allowed time)
 - B) If stock is overfishing
 $F=Fcurrent$, $F=Fmsy$, $F=Ftarget$ (OY)
 - C) If stock is neither overfished nor overfishing
 $F=Fcurrent$, $F=Fmsy$, $F=Ftarget$ (OY)
10. Evaluate the results of past management actions and, if appropriate, probable impacts of current management actions with emphasis on determining progress toward stated management goals.
11. Provide recommendations for future research and data collection (field and assessment); be as specific as practicable in describing sampling design and sampling intensity. Provide discussion of progress on research and monitoring recommended by SEDAR 5.
12. Complete the Assessment Workshop Report (Section III of the SEDAR Stock Assessment Report) and prepare a first draft of the Advisory Report.

3. Review Workshop

1. Evaluate the adequacy, appropriateness, and application of data used in the assessment.
2. Evaluate the adequacy, appropriateness, and application of methods used to assess the stock.
3. Recommend appropriate estimates of stock abundance, biomass, and exploitation.
4. Evaluate the methods used to estimate population benchmarks and management parameters (*e.g.*, *MSY*, *F_{msy}*, *B_{msy}*, *MSST*, *MFMT*, or *their proxies*); recommend appropriate management benchmarks and provide estimated values for management benchmarks, a range of ABC, and declarations of stock status.
5. Evaluate the adequacy, appropriateness, and application of the methods used to project future population status; recommend appropriate estimates of future stock condition (*e.g.*, exploitation, abundance, biomass).
6. Evaluate the adequacy, appropriateness, and application of methods used to characterize uncertainty in estimated parameters. Provide measures of uncertainty for estimated parameters^{*}. Ensure that the implications of uncertainty in technical conclusions are clearly stated.
7. Ensure that stock assessment results are clearly and accurately presented in the Stock Assessment Report, including the Advisory Report, and that reported results are consistent with Review Panel recommendations^{**}.
8. Evaluate the SEDAR Process. Identify any Terms of Reference which were inadequately addressed by the Data or Assessment Workshops; identify any additional information or assistance which will improve Review Workshops; suggest improvements or identify aspects requiring clarification.
9. Review the research recommendations provided by the Data and Assessment workshops and make any additional recommendations warranted. Clearly indicate the research and monitoring needs that may appreciably improve the reliability of future assessments. Recommend an appropriate interval for the next assessment.
10. Prepare a Peer Review Consensus Summary summarizing the Panel's evaluation of the stock assessment and addressing each Term of Reference. Complete and submit this report within 3 weeks of workshop conclusion.

* The review panel may request additional sensitivity analyses, evaluation of alternative assumptions, and correction of errors identified in the assessments provided by the assessment workshop panel; the review panel may not request a new assessment. Additional details regarding the latitude given the review panel to deviate from assessments provided by the assessment workshop panel are provided in the *SEDAR Guidelines* and the *SEDAR Review Panel Overview and Instructions*.

** The panel shall ensure that corrected estimates are provided by addenda to the assessment report in the event corrections are made in the assessment, alternative model configurations are recommended, or additional analyses are prepared as a result of review panel findings regarding the TORs above.