Center for Independent Experts Review

SEDAR 16 Stock Assessment Review
Gulf of Mexico and South Atlantic King Mackerel

Jacksonville, Florida
August 4-8, 2008

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1 Executive Summary

The primary goals of the Review Workshop (RW) were to ensure that assessment results were based on appropriate data, appropriate methods and sound science, and to determine whether or the assessment was adequately robust to support management decisions.

The Review Panel (RP) agreed that the outcomes of the Data Workshop (DW) and Assessment Workshop (AW) were appropriate and scientifically based.

Limitations of the data were the lack of correlation among abundance indices used for the separate migratory group assessments, the lack of biological or accurate catch information from Mexico, an inability to examine a single combined king mackerel stock using combined indices, and how to determine relative weighting and which indices to include in base case stock assessments.

Efforts to move the assessment into a framework such as SS3 that allows flexibility in stock spatial structure should be continued. The RP made recommendations on additional diagnostic statistics and sensitivity runs that should be provided with future assessments.

The RP accepted the base case assessments provided for the separate migratory groups gave plausible estimates of values for stock abundance, biomass and exploitation. However, the RP did not agree that these base cases provide sufficient information about the uncertainty of those estimates. Additional sensitivity runs were requested, and the RP agreed that uncertainty among those alternative models meant that only some management benchmarks and parameters could be estimated with confidence. Uncertainty in those management benchmarks and parameters was summarized in the form of decision tables.

The RP recommended as a research task that management strategy evaluation be used to test alternative stock management control rules for the king mackerel stock. This testing, once established, can additionally be used to test the implications of different sub-stock structures, investigate alternative effects of the Mexican and/or wider Atlantic king mackerel fisheries, and to examine the utility of different stock assessment methods or assessment timeframes.

2 Introduction

The 16th Southeast Data Assessment and Review (SEDAR) was chaired by Dr Guillermo Diaz (NMFS Office of Science and Technology, Washington DC). Other members of the review committee were Drs Paul Medley (CIE), Kenneth Patterson (CIE), Doug Gregory (Gulf of Mexico Fishery Management Council SSC/FL Sea Grant) and myself. As required, the chair and committee members drafted and completed a summary report of the meeting. There were no areas of disagreement among committee members about the content of the summary report, so for all major findings against the terms of reference (ToRs) I will refer to the summary report as representing my own views.

3 Terms of Reference

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, Fmsy, Bmsy, 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 Summary 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.

4 Panel Membership

Guillermo Diaz (Chair)……S&T HQ
Kenneth Patterson ..... CIE
Paul Medley ..... CIE
Neil Klaer ..... CIE

Doug Gregory ..... GMFMC SSC/FL Sea Grant

5 Description of Review Activities

The meeting broadly followed the process set out in the agenda (see Appendix 2), with presentations by the assessment team on days one and two, sensitivity analyses requested and examined by the RP on days two to four, and report drafting on days four and five. Results from requested sensitivity analyses formed the basis for many of the recommendations by the RP.

In preparing the summary report, initial drafting for each ToR was divided among the committee members. I drafted the sections of the summary report related to ToR 3 on abundance and exploitation estimates, ToR 4 on population benchmarks and management parameters and ToR 5 on projections.

6 Findings by Terms of Reference

6.1 Evaluate the adequacy, appropriateness, and application of data used in the assessment.

The king mackerel assessment is not unlike many other assessments where there are various sources of input data series of varying levels of quality. The RP generally agreed with the decisions by the DW and AW that determined how these series would be used within the stock assessment.

However, the RP had concerns about (a) the apparent lack of correlation among abundance indices used for the GOM or AT migratory groups, (b) the lack of biological or accurate catch information from Mexico as part of the GOM, (c) an inability for the RW to examine a single combined GOM/AT stock with combined indices, (d) how indices are relatively weighted within the stock assessment and (e) whether particular indices might be included (e.g. AT southern logbook) or excluded (e.g. west GOM SEAMAP groundfish).

It is worth noting here that the DW recommended that changes in catchability in both the fishery dependent and independent indices be estimated. New additions to assessment software allow catchability changes to be modeled within the assessment, one of these being by a random walk (SS3). In future it may become a routine task for data groups to make recommendations on what types of catchability changes should apply to individual abundance indices, and to what time periods. To enable this progress, I recommend that a set of standards be developed to assist data groups in this task.

6.2 Evaluate the adequacy, appropriateness, and application of methods used to assess the stock.

The VPA method used to assess the status of the GOM and AT stock separately is both adequate and appropriate.

The original intention of the assessment team was to move the stock assessment from two separate VPA analyses for separate GOM and AT stocks, to a single SS3 assessment that included GOM and AT sub-stocks, and a mixing area that had contributions from both. I agree with the SEDAR 5 RW recommendation that the assessment be moved to a three statistical area model, and I also agree that SS3 provides a useful framework for that approach.

I can also understand a viewpoint raised at the SEDAR 16 RW that more complicated models may not necessarily be "better" or outperform simpler, even single stock models for the king mackerel fishery. However, to make this kind of judgment, in my view it would be necessary to have both the simple and more complicated models on hand. I would recommend therefore, that the SS3 multi-area model continue to be pursued, and that a single area version that includes both the GOM and AT areas also be provided for evaluation at the next AW.

Moving from the 2Box VPA method to the Stock Synthesis framework also has a number of additional advantages. The AW report notes that SS3 does not require catch at age to be exactly known, and uses size sample and age-at-length information as collected from the fishery rather than via pre-processing. It is also possible to include growth model estimation within the assessment to account for the interaction of growth parameter values and selectivity by different fishing sectors. There was an indication to me that the apparent disconnection of some obviously large cohorts through time in the current catch at age information may be due to the growth parameter estimates that were used. SS3 also allows area-specific movement patterns, recruitment separated by area, and differential growth rates. Within-model uncertainty (and convergence) can be examined using the Markov chain Monte Carlo method in SS3.

The AW noted that SS3 was unable to provide management benchmarks separately for each migratory group from a single analysis. Either whole-stock benchmarks need to be split by the management agencies following assessment, or a method of splitting the benchmarks needs to be added to SS3. It should be noted that this particular issue is a problem that is not particular to the SS3 method, but any method that is able to address the sub-stock mixing within a single analysis. It is, of course, possible to construct separate SS3 models for each migratory group in the same way as separate VPAs are constructed currently. I also recommend that these separate migratory group SS3 models be constructed and presented at the next AW. They would be useful to compare with the current VPA base cases to confirm similar results, and may also be useful for examining alternative methods of splitting management benchmarks from the combined SS3 model. I recognize that there is no direct SS3 equivalent of the split catch at age being used for

VPA, but it should be possible to get close to the VPA results by splitting the input data by migratory group as far as practicable.

6.3 Recommend appropriate estimates of stock abundance, biomass, and exploitation.

The assessment team met this term of reference. The RP accepts the base cases provided by the assessment team for the GOM and AT stocks as providing plausible estimates of values for stock abundance, biomass and exploitation. However, the RP does not agree that these base cases provide sufficient information about the uncertainty of these estimates, and made recommendations regarding this uncertainty under ToR5.

Probably due to time constraints, the base case assessment was not accompanied by a range of sensitivity tests and diagnostics. The RP has made recommendations about additional diagnostics that should be provided with future assessments. Many of the base case sensitivities examined during the RW should also be provided as part of the output of the AW – e.g. inclusion and exclusion of the various abundance indices. A standard sensitivity not examined even by the RW was to different values of natural mortality. Sensitivity tests for alternative values of natural mortality (and also steepness if an SS3 assessment) should be provided as standard assessment outputs.

6.4 Evaluate the methods used to estimate population benchmarks and management parameters (e.g., MSY, Fmsy, Bmsy, 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.

Methods used to calculate population benchmarks and management parameters followed the proposed and alternative procedures described in Section I of the SEDAR 16 Stock Assessment Report. Benchmarks and parameters used are similar to those widely used throughout the US for other stocks, and worldwide. The RP agreed that uncertainty among alternative models meant that only some of these benchmarks and parameters could be estimated with confidence.

A range of methods were presented for determining optimum yield, and the decision of selecting the most appropriate one is left as a management decision. In some other fisheries, control rules for determining ABC values are simulation tested to ensure that they perform as expected for a particular fish stock, and with an acceptable level of risk. The RP recommended that management strategy evaluation (MSE) testing of alternative control rules be tested as a research task for the king mackerel stock. MSE testing, once established, can additionally be used to test the implications of different sub-stock structures (both in the actual population and in the assessment), investigate alternative effects of the Mexican and/or wider Atlantic king mackerel fisheries, and to examine the utility of different stock assessment methods or assessment timeframes.

6.5 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).

The RP agreed that methods used for population projection were appropriate. Testing of alternative means for fitting the stock-recruitment relationship were recommended by the RP under ToR 4.

6.6 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.

Most of the uncertainty in assessment outcomes was among alternative plausible model structures. However, the RP agreed that the bootstrap procedure is adequate for estimating uncertainty within model and catch scenario combinations.

The RP did not believe that error estimates from any single model appropriately captures the uncertainty in ABC and other stock condition indicators that result from the assessment. I agree with the approach taken by the RP to present uncertainty to management in the form of decision tables.

6.7 Ensure that stock assessment results are clearly and accurately presented in the Stock Assessment Report, including the Summary Report, and that reported results are consistent with Review Panel recommendations.

This ToR was met, and I agree with the review committee comments in the summary report. As recommended elsewhere, more standard sensitivity tests of the base model, and model diagnostics should be provided.

6.8 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.

I agree with the review panel comments in the summary report. In general, the process of a data workshop, followed by an assessment workshop and finally a review, with all producing detailed reports is very good.

There is a technical issue about whether meetings can be closed for reviewers to discuss the ToRs and reach a consensus for the report. I think it is important for reviewers to be able to discuss alternative viewpoints without this being part of the open meeting. This is especially true if there were contentious points where other meeting participants have a strong position and there was disagreement among the reviewers. This was not the case at

SEDAR 16, but could be a source of difficulties in different circumstances. Either there should be a mechanism to close the meeting, or for the reviewers to have formal discussions outside of the meeting to reach a consensus for the report.

Industry observers were able to present data series at the RW that had not been through the formal examinations of the DW and AW. While industry involvement in the review should be encouraged, it was difficult for the RP to determine the status of this information.

The reviewers were also provided with comments on SEDAR 16 by Frank Hester. As the reviewers were not part of the DW and AW process, the status of these comments was difficult for the reviewers to determine. In this case, many of the points raised in the comments were examined by the review. It is possible that many views or opinions may be given to the RW for consideration and it may be possible to provide the reviewers with additional information so that these may be weighted against the findings of the DW and AW. There probably needs to be a process for passing consensus and minority views to the RW explicitly.

6.9 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.

I agree with the RP comments and recommendations in the RW report. It was recommended that an assessment update for king mackerel be conducted in two to three years, primarily to determine whether indications of recent good recruitment in the GOM contribute to increased biomass of target catches by the commercial and recreational fisheries.

6.10 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.

This ToR was met (although at the time of writing, the report was not finalized and was overdue).

Appendix 1. Bibliography of materials used prior and during the SEDAR16 review

File	Description
Section1&2_for_RW.pdf	Section 1. Introduction
	SEDAR Process Description
	Management Overview
	Assessment History Overview
	Regional Maps
	Section 2. Data Workshop Report
	Introduction
	Life History
	Commercial Fishery Statistics
	Recreational Fishery Statistics
	Measures of Population Abundance
Section3&4_for_RW.pdf	Section 3. Assessment Workshop Report
	Introduction
	Panel Recommendations and Comment
	Data Review and Update
	Stock Assessment Models and Results
	Model 1 - Continuity Case
	Model 2 - Base VPA
	Section 4. Research Recommendations
	Data Workshop Research Recommendations
	Assessment Workshop Recommendations
Comment on SEDAR 16_Hester.doc	Some Comments on SEDAR 16, Frank Hester

Appendix 2. Statement of work

Statement of Work for Dr. Neil Klaer

External Peer Review by the Center for Independent Experts

SEDAR 16 Stock Assessment Review

Gulf of Mexico and South Atlantic King Mackerel

August 4-8, 2008

Jacksonville, Florida

SEDAR Overview:

South East Data, Assessment, and Review (SEDAR) is a process for fisheries stock assessment development and review conducted by the South Atlantic, Gulf of Mexico, and Caribbean Fishery Management Councils; NOAA Fisheries Southeast Fisheries Science Center (SEFSC) and Southeast Regional Office (SERO); and the Atlantic and Gulf States Marine Fisheries Commissions. SEDAR is organized around three workshops: data, assessment, and review. Input data are compiled during the data workshop, population models are developed during the assessment workshop, and an independent peer review of the data, assessment models, and results is provided by the review workshop. SEDAR documents include working papers prepared for each workshop, supporting reference documents, and a SEDAR stock assessment report. The SEDAR stock assessment report consists of a data report produced by the data workshop, a stock assessment report produced by the assessment workshop, and a peer review consensus report prepared by the review workshop.

SEDAR is a public process conducted by the Fishery Management Councils in the Southeast US. All workshops, including the review, are open to the public and noticed in the Federal Register. All documents prepared for SEDAR are freely distributed to the public upon request and posted to the publicly accessible SEDAR website. Verbal public comment during SEDAR workshops is taken on an 'as needed' basis; the workshop chair is allowed discretion to recognize the public and solicit comment as appropriate during panel deliberations. Written comments are accepted in accordance with existing Council operating procedures. The names of all participants, including those on the review panel, are revealed.

The review workshop provides an independent peer review of SEDAR stock assessments. The term review is applied broadly, as the review panel may request additional analyses, error corrections and sensitivity runs of the assessment models provided by the assessment workshop panel. The review panel is ultimately responsible for ensuring that the best possible assessment is provided through the SEDAR process. The review panel task is specified in terms of reference.

The SEDAR 16 review panel will be composed of three Center for Independent Experts (CIE)-appointed reviewers, one reviewer appointed by the South Atlantic Council, one reviewer appointed by the Gulf of Mexico Council and a chair appointed by the SEFSC Director. Council staff, Council members, and Council AP and SSC members will attend as observers. SEDAR review workshops are open to the public.

Overview of CIE Peer Review Process:

The Office of Science and Technology implements measures to strengthen the National Marine Fisheries Service's (NMFS) Science Quality Assurance Program (SQAP) to ensure the best available science for fisheries management. For this reason, the NMFS Office of Science and Technology oversees a contract for obtaining external expertise through the Center for Independent Experts (CIE) to conduct independent peer reviews of stock assessments and various scientific research projects. The primary objective of the CIE peer review is to provide an impartial review, evaluation, and recommendations in accordance to the Statement of Work (SoW), including the Terms of Reference (ToR) herein.

The NMFS Office of Science and Technology serves as the liaison with the NMFS Project Contact to establish the SoW which includes the expertise requirements, ToR, statement of tasks for the CIE reviewers, and description of deliverable milestones with dates. The CIE, comprised of a Coordination Team and Steering Committee, reviews the SoW to ensure it meets the CIE standards and selects the most qualified CIE reviewers according to the expertise requirements in the SoW. The CIE selection process also requires that CIE reviewers can conduct an impartial and unbiased peer review without the influence from government managers, the fishing industry, or any other interest group resulting in conflict of interest concerns. Each CIE reviewer is required by the CIE selection process to complete a Lack of Conflict of Interest Statement ensuring no advocacy or funding concerns exist that may adversely affect the perception of impartiality of the CIE peer review. The CIE reviewers conduct the peer review, often participating as a member in a panel review, in accordance with the ToR producing a CIE independent peer review report as a deliverable. The ToR may require a CIE reviewer to contribute to a summary report. The Office of Science and Technology oversees the CIE contract to ensure the deliverables (e.g., CIE reports) are in compliance with the SoW and ToR. Further details on the CIE process are provided at http://www.rsmas.miami.edu/groups/cie/

Requirements for CIE Reviewers:

The CIE shall provide three CIE reviewers to conduct independent peer reviews in accordance with the ToR and Schedule herein, and each CIE reviewer's duties shall not exceed a maximum of 14 days for pre-review preparations, conducting the peer review at the SEDAR 16 panel review meeting, and completion of the CIE independent peer review reports. The CIE reviewers shall participate as technical reviewers on the SEDAR 16 review panel that will consider assessments of king mackerel in the Gulf of Mexico and South Atlantic regions. The CIE reviewers shall have expertise in stock assessment, statistics, fisheries science, and marine biology to complete their primary task of conducting an impartial and independent CIE peer review report in accordance with the ToR to determine if the best available science is utilized for fisheries management decisions. The CIE reviewers shall not provide comments on fisheries management decisions.

Statement of Tasks for CIE Reviewers:

The CIE reviewers shall conduct necessary preparations prior to the peer review, conduct the peer review, and complete the deliverables in accordance with the ToR and milestone dates as specified in the Schedule section.

Prior to the Peer Review: The CIE shall provide the CIE reviewers contact information (name, affiliation, address, email, and phone), including information needed for foreign travel clearance when required, to the Office of Science and Technology COTR no later than the date as specified in the SoW. The Project Contact is responsible for the completion and submission of the Foreign National Clearance forms (typically 30 days before the peer review), and must send the pre-review documents to the CIE reviewers as indicated in the SoW.

Foreign National Clearance: If the SoW specifies that the CIE reviewers shall participate in a panel review meeting requiring foreign travel, then the CIE shall provide the necessary information (e.g., name, birth date, passport, travel dates, country of origin) for each CIE reviewer to the COTR who will forward this information to the Project Contact. The Project Contact is responsible for the completion and submission of required Foreign National Clearance forms with sufficient lead-time (30 days) in accordance with the NOAA Deemed Export Technology Control Program NAO 207-12 regulations at the Deemed Exports NAO link http://deemedexports.noaa.gov/sponsor.html

Pre-review Documents: Approximately two weeks before the peer review, the Project Contact will send the CIE reviewers the necessary documents for the peer review, including supplementary documents for background information. The CIE reviewers shall read the pre-review documents in preparation for the peer review.

This list of pre-review documents may be updated up to two weeks before the peer review. Any delays in submission of pre-review documents for the CIE peer review will result in delays with the CIE peer review process. Furthermore, the CIE reviewers are

responsible for only the pre-review documents that are delivered to them in accordance to the SoW including the scheduled deadlines specified herein.

Panel Peer Review Meeting: The CIE reviewers shall participate and conduct the peer review participate during a panel review meeting as specified in the dates and location of the attached Agenda and Schedule of Deliverable. The Project Contact is responsible for any facility arrangements (e.g., conference room for panel review meetings or teleconference arrangements). The CIE Program Manager can contact the Project Contact to confirm the facility arrangements.

The primary role of the CIE reviewer is to conduct an impartial peer review in accordance to the Terms of Reference (ToR) herein, to ensure the best available science is utilized for the National Marine Fisheries Service (NMFS) management decisions (refer to the ToR in Annex 1).

The stocks assessed through SEDAR 16 are within the jurisdiction of the Gulf of Mexico and South Atlantic Fishery Management Councils and the states of Texas, Louisiana, Mississippi, Alabama, Florida, Georgia, South Carolina, and North Carolina.

The review workshop will take place at the Hyatt Regency Riverfront, Jacksonville, Florida from 1:00 p.m. Monday, August 4, 2008 through 1:00 p.m. Friday, August 8, 2008.

Meeting materials will be forwarded electronically to review panel participants and made available through the internet (http://www.sefsc.noaa.gov/sedar/); printed copies of any documents are available by request. The names of reviewers will be included in workshop briefing materials.

Please contact Julie A. Neer (SEDAR Coordinator; (843) 571-4366, Julie.Neer@safmc.net)or John Carmichael, (Science and Statistics Program Manager; (843) 571-4366, John.Carmichael@safmc.net) for additional details.

Hotel arrangements:

Hyatt Regency Riverfront
225 Coast Line Drive East
Jacksonville, FL 32202
904-588-1234 or 800-233-1234
Phone: (919) 828-0811 or (800) 331-7919

Group “SEDAR” $84 /night plus 1.13% city tax = $84.95; rate is guaranteed through 3 July 2008.

SEDAR Review Workshop Panel Tasks:

The SEDAR 16 review workshop panel will evaluate an assessment of Gulf of Mexico and South Atlantic king mackerel. During the evaluation the panel will consider data, assessment methods, and model results. The evaluation will be guided by terms of reference that are specified in advance. The review workshop panel will document its findings regarding each assessment in a peer review consensus summary (Annex I). (Note that the consensus summary is a SEDAR product, not a CIE product.) Separate CIE reviewer reports will be produced as described in Annex II to provide distinct, independent analyses of the technical issues and of the SEDAR process.

Terms of Reference for SEDAR 16 Review Workshop:

11. Evaluate the adequacy, appropriateness, and application of data used in the assessment.
12. Evaluate the adequacy, appropriateness, and application of methods used to assess the stock.
13. Recommend appropriate estimates of stock abundance, biomass, and exploitation.
14. Evaluate the methods used to estimate population benchmarks and management parameters (*e.g., MSY, Fmsy, Bmsy, 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.
15. 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).
16. 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.
17. Ensure that stock assessment results are clearly and accurately presented in the Stock Assessment Report, including the Summary Report, and that reported results are consistent with Review Panel recommendations[**].
18. 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.
19. 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.

20. 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.

These Terms of Reference may be modified prior to the Review Workshop. If so, final terms of reference will be provided to the reviewers with the workshop briefing materials.

SEDAR Review Workshop Panel Supplementary Instructions

The review panel Chair is responsible for reviewing documents prior to the workshop, conducting the meeting during the workshop in an orderly fashion, compiling and editing the peer review consensus summary for each species assessed and submitting it to the SEDAR Coordinator by a deadline specified by the SEDAR Steering Committee. The review panel chair will work with SEDAR staff to complete the SEDAR assessment summary report. The review panel chair may participate in panel deliberations and contribute to report preparation.

Reviewers are responsible for reviewing documents prior to the workshop, participating in workshop discussions addressing the terms of reference, preparing consensus reports during the workshop, and finalizing SEDAR documents within two weeks of the conclusion of the workshop. Each reviewer appointed by the CIE is responsible for preparing an additional CIE reviewer report as described in Annex II.

The Chair and SEDAR Coordinator will work with the appointed reviewers to assign tasks during the workshop. For example, the Chair may appoint a panelist to serve as assessment leader for each assessment covered by the review, with the leader responsible for providing initial draft consensus report text for consideration by the panel. Alternatively, reviewers may be assigned particular terms of reference to initially address. Regardless of how initial drafting is accomplished, all panelists are expected to participate in discussion of all terms of reference and contribute to all aspects of the review.

The review panel's primary responsibility is to ensure that assessment results are based on sound science, appropriate methods, and appropriate data, and to determine whether or not the assessment is adequately robust to support management decisions. During the course of the review, the panel is allowed limited flexibility to deviate from the assessment provided by the assessment workshop. This flexibility may include modifying the assessment configuration and assumptions, requesting a reasonable

number of sensitivity runs, requesting additional details and results of the existing assessments, or requesting correction of any errors identified. However, the allowance for flexibility is limited, and the review panel is not authorized to conduct an alternative assessment or to request an alternative assessment from the technical staff present. The review panel is responsible for applying its collective judgment in determining whether proposed changes and corrections to the presented assessment are sufficient to constitute an alternative assessment. The review panel chair will coordinate with the SEDAR Coordinator and technical staff present to determine which requests can be accomplished and prioritize desired analyses.

Any changes in assessment results stemming from modifications or corrections solicited by the review panel will be documented in an addendum to the assessment report. If updated estimates are not available for review by the conclusion of the workshop, the review panel shall agree to a process for reviewing the final results within the time allotted for completion of the project.

The review panel shall not provide specific management recommendations. Such recommendations will be generated through existing Council bodies, such as the Science and Statistical Committee and Advisory Panels, following completion of the assessment. However, the review panel is free to point out items of concern regarding past or present management actions that relate to population conditions or data collection and monitoring efforts.

If the review panel finds an assessment deficient to the extent that technical staff present cannot correct the deficiencies during the course of the workshop, or the panel deems that desired modifications would result in a new assessment, then the review panel shall provide required remedial measures in writing. These instructions shall include an appropriate approach for both correcting and subsequently reviewing the assessment.

Statement of Tasks for CIE Reviewers:

Roles and responsibilities:

1. Approximately 3 weeks prior to the meeting, reviewers shall be provided with stock assessment reports, associated supporting documents, and review workshop instructions including terms of reference. Reviewers shall read these documents to gain an in-depth understanding of the stock assessment, the resources and information considered in the assessment, and responsibilities as reviewers.
2. During the review panel meeting, reviewers shall participate in panel discussions on assessment methods, data, validity, results, uncertainties, recommendations, and conclusions as guided by the terms of reference. Reviewers shall participate in development of a peer review consensus summary report for each assessment reviewed, as described in Annex I. Reviewers may be asked to serve as an assessment leader during the review to facilitate preparing first drafts of review reports.
3. Following the review panel meeting, reviewers shall work with the chair to complete and review the peer review consensus summary reports. Reports shall be completed, reviewed by all panelists, and comments submitted to the Chair by

August 22, 2008.

4. Following the review panel meeting, each reviewer appointed by the CIE shall prepare an individual CIE reviewer report. These reports shall be submitted to the CIE no later than August 29, 2008, sent to Dr. David Sampson, via email to David.Sampson@oregonstate.edu, and to Mr. Manoj Shivlani, via email to mshivlani@rsmas.miami.edu. See Annex II for complete details on the report outline.

   The duties of each review panelist shall occupy a maximum of 12 workdays; several days prior to the meeting for document review; five days at the SEDAR meeting; and several days following the meeting to ensure final review comments and document edits are provided to the Chair and to complete a CIE review report.

Workshop Final Reports:

The SEDAR Coordinator will send copies of the final review panel consensus report and the complete SEDAR stock assessment report for each stock assessed to Mr. Manoj Shivlani at the CIE.

Submission and Acceptance of CIE Reports:

The CIE shall provide via e-mail the individual CIE Reviewer Reports to the COTR, Dr. Stephen Brown (stephen.k.brown@noaa.gov) for review and approval, based on compliance with this Statement of Work, by September 12, 2008. The COTR shall notify the CIE via e-mail regarding acceptance of the reports within two working days of receipt. Within two working days of the COTR's approval, the CIE shall provide the final individual CIE reviewer reports to the COTR in pdf format.
The COTR shall provide the final CIE reviewer reports to:

SEFSC Acting Director: Bonnie Ponwith, NMFS Southeast Fisheries Science Center, 75 Virginia Beach Drive, Miami, FL 33149 (email, bonnie.ponwith@NOAA.gov)

SEDAR Coordinator: Julie A. Neer, SAFMC, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405 (email, Julie.Neer@safmc.net). (SEDAR shall provide the final CIE Reviewer Reports to the SEDAR Steering Committee and Executive Directors of those Councils having jurisdiction over the included stocks)

Schedule of Deliverables:

2 July 2008	CIE shall provide the COTR with the CIE reviewer contact information, which will then be sent to the Project Contact
14 July	The Project Contact will send the CIE Reviewers the pre-review documents
4-8 August	Each reviewer shall participate and conduct an independent peer review during the panel review meeting
20 August	CIE shall submit draft CIE independent peer review reports to the COTRs
29 August	CIE will submit final CIE independent peer review reports to the COTRs
5 September	The COTRs will distribute the final CIE reports to the Project Contact

Acceptance of Deliverables:

Each CIE reviewer shall complete and submit an independent CIE peer review report in accordance with the ToR, which shall be formatted as specified in Annex 2. Upon review and acceptance of the CIE reports by the CIE Coordination and Steering Committees, CIE shall send via e-mail the CIE reports to the COTRs (William Michaels William.Michaels@noaa.gov and Stephen K. Brown Stephen.K.Brown@noaa.gov) at the NMFS Office of Science and Technology by the date in the Schedule of Milestones and Deliverables. The COTRs will review the CIE reports to ensure compliance with the SoW and ToR herein, and have the responsibility of approval and acceptance of the deliverables. Upon notification of acceptance, CIE shall send via e-mail the final CIE report in *.PDF format to the COTRs. The COTRs at the Office of Science and Technology have the responsibility for the distribution of the final CIE reports to the Project Contacts.

Key Personnel:

Contracting Officer's Technical Representative (COTR):
William Michaels
NMFS Office of Science and Technology
1315 East West Hwy, SSMC3, F/ST4, Silver Spring, MD 20910
William.Michaels@noaa.gov Phone: 301-713-2363 ext 136

Contractor Contacts:
Manoj Shivlani, CIE Primary Coordinator
10600 SW 131st Court, Miami, FL 33186
mshivlani@ntvifederal.com Phone: 305-383-4229

SEDAR contact:

Julie A. Neer, 4055 Faber Place Drive, Suite 201, North Charleston, SC 29405.

Phone: 843-571-4366. Email: Julie.Neer@safmc.net.

Request for Changes:

Requests for changes shall be submitted to the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the Contractor within 10 working days after receipt of all required information of the decision on substitutions. The contract will be modified to reflect any approved changes. The Terms of Reference (ToR) and list of pre-review documents herein may be updated without contract modification as long as the role and ability of the CIE reviewers to complete the SoW deliverable in accordance with the ToR are not adversely impacted.

Agenda

SEDAR 16: South Atlantic and Gulf of Mexico King Mackerel

August 4 - August 8, 2008

Monday

1:00 p.m.	**Convene**	
1:00 – 1:30	**Introductions and Opening Remarks**	
	Coordinator	
	- Agenda Review, ToR, Task Assignments	
1:30 – 3:30	**Assessment Presentation**	**TBD**
3:30 – 4:00	**Break**	
4:00 – 6:00	**Continue Presentation/Discussion**	**Chair**

Tuesday

8:30 a.m. – 11:30 a.m.	**Assessment Presentation**	**Chair**
11:30 a.m. – 1:30 p.m.	**Lunch Break**	
1:30 p.m. – 3:30 p.m.	**Panel Discussion**	**TBD**
	- Assessment Data & Methods	
	- Identify additional analyses, sensitivities, corrections	
3:30 p.m. – 4:00 p.m.	**Break**	
4:00 p.m. – 6:00 p.m.	**Panel Discussion**	**Chair**
	- Continue deliberations	
	- Review additional analyses	

***Tuesday Goals*:** Initial presentations completed, sensitivities and modifications identified.

Wednesday

8:30 a.m. – 11:30 a.m.	**Panel Discussion**	**Chair**
	- Review additional analyses, sensitivities	
	- Consensus recommendations and comments	
11:30 a.m. – 1:30 p.m.	**Lunch Break**	
1:30 p.m. – 3:30 p.m.	**Panel Discussion**	**TBD**
3:30 p.m. – 4:00 p.m.	**Break**	
4:00 p.m. – 6:00 p.m.	**Panel Discussion**	**Chair**

Wednesday Goals: Final sensitivities identified, Preferred models selected, Projection approaches approved, Consensus report drafts begun

Thursday

8:30 a.m. – 11:30 a.m.	**Panel Discussion**	**Chair**
	- Final sensitivities reviewed.	
	- Projections reviewed.	
11:30 a.m. – 1:30 p.m.	**Lunch Break**	
1:30 p.m. – 3:30 p.m.	**Panel Discussion or Work Session**	**Chair**
3:30 p.m. - 4:00 p.m.	**Break**	
4:00 p.m. - 6:00 p.m.	**Panel Work Session**	**Chair**
	- Review Consensus Reports	

Thursday Goals: Complete assessment work and discussions. Final results available. Draft Consensus Reports reviewed .

Friday

8:30 a.m. – 1:00 p.m.	**Panel Work Session**	**Chair**
1:00 p.m.	**ADJOURN**	

Annex I.

SEDAR Review Panel Consensus Summary Report Contents

I. Terms of Reference

List each Term of Reference and summarize Panel discussions and recommendations regarding the particular item. Begin the discussion with a clear statement indicating whether or not the criteria in the Term of Reference are addressed satisfactorily.

II. Further Analyses and Evaluations

Summarize and discuss the results of any analytical requests that are not addressed in specific ToR discussions in Section I.

III. Additional Comments

Summarize any additional discussions, comments, and recommendations that are not captured in the Section I or II.

IV. Reviewer Statements

Each individual reviewer should provide a statement attesting whether or not the contents of the Consensus Report provide an accurate and complete summary of their views on the issues covered in the review. Reviewers may also make any additional individual comments or suggestions desired.

ANNEX II:

Format and Contents of CIE Independent Reports

1. The report should be prefaced with an Executive Summary with concise summary of goals for the peer review, findings, conclusions, and recommendations.

2. The main body of the report should consist of an Introduction with
    a. Background
    b. Terms of Reference
    c. Panel Membership
    d. Description of Review Activities

3. Summary of Findings in accordance to the Term of Reference

4. Conclusions and Recommendations in accordance to the Term of Reference

5. Appendix for the Bibliography of Materials used prior and during the peer review.

6. Appendix for the Statement of Work

7. Appendix for the final panel review meeting agenda.

8. Appendix for other pertinent information for the CIE peer review.

Please refer to the following website for additional information on report generation: http://www.rsmas.miami.edu/groups/cimas/Report_Standard_Format.html
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