Reviewer Report to the Center for Independent Experts
SEDAR 19 South Atlantic red grouper and South Atlantic and Gulf of Mexico black grouper

Prepared for:

Center for Independent Experts

By:

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Executive Summary

The 19th Southeast Data and Review (SEDAR 19) Review Workshop took place in Savannah, Georgia over 25-29 January 2010. The Workshop covered assessments for South Atlantic red grouper and South Atlantic and Gulf of Mexico black grouper. I participated as an independent reviewer at the SEDAR 19 review workshop and this report documents my findings and reviewer activities. The Statement of Work for the meeting is given in Appendix 2.

The main problem in the data for both stocks, particularly black grouper, is the limited number of age samples. This results from the low probability of encountering either species in routine sampling.

The evaluation of a range of different assessment models was useful and effective, and the results were broadly consistent, indicating that conclusions about the current states of the stocks should be relatively robust to the method selected. The models used assumed changes in selection corresponding to changes in management regulations. The timing of such changes should be evaluated more critically in future. Similarly, given the problems in obtaining age data, and the relatively low importance of the two species, simpler assessment models should be considered for future use.

The models and configurations selected for final assessments are suitable for the determination of management targets and the evaluation of stock status relative to these targets. The methods used to project the populations forward, and to evaluate uncertainty associated with the estimates were also appropriate for the task.

The SEDAR process was an effective and scientifically rigorous approach to developing assessments of the two individual stocks under review. In practice however, the two species are not caught independently but form a minor part of a mixed-fishery on a complex of grouper and snapper species. There are potential benefits to be gained from taking a fishery-based, as well as a stock-based, approach to the assessment and management of these species. This would involve taking a more strategic overview of the fishery, and perhaps identifying key species to concentrate on. Such an approach would also have implications for future research.

1.0   Background

This document contains my independent reviewer report of review activities and findings for the 19th Southeast Data, Assessment and Review (SEDAR 19) Review Workshop, held from January 25-29, 2010 at the Hilton Garden Inn, in Savannah, Georgia. Assessments for South Atlantic red grouper and South Atlantic and Gulf of Mexico black grouper, including the findings of the data and assessment workshops and status of the stocks, were reviewed at the meeting. Prior to the meeting, the review panel (Appendix 3), were provided with a Statement of Work (Appendix 2), including the Terms of Reference (TOR) for the assessment as well as for the review panel (RP). Assessment documents and background material (Appendix 3) were provided via an FTP site and/or by email during the three weeks before the meeting. During the meeting, there was a general consensus among the RP on nearly all of the main discussion points and findings of the panel as outlined in the Review Workshop Report. This document contains a summary of those findings as well as my own views about these assessments.

2.0   Individual Reviewer Activities

In addition to reading the assessment documents and background material in advance of the workshop, participating in Review Panel discussion, and assisting in the completion of the review panel consensus report both during and after the meeting, there were a couple of areas where I made particular contributions which reflected my own areas of expertise. Both black and red grouper are very different in their biology and fisheries to the species I am accustomed to dealing with; however, there was one area where I felt the stocks addressed here shared some common ground with the North Sea demersal stocks that I work with, that is in both cases the target species form part of a mixed fishery. What this means is that for management, and arguably also stock assessment, there is a lot to be gained by not treating the stocks in isolation of each other. In the case of the two grouper species considered at the SEDAR 19 meeting, there is some recognition of this through their inclusion in a combined snapper/grouper management plan. However, the assessment process does not seem to recognize the potential benefits to be gained from taking a fishery-based, as well as a stock-based, approach. This perspective, which influences many of my comments on the SEDAR assessments during the meeting and in this report, reflects my interest in the management of mixed fisheries. Other contributions I made to the panel review, which are also reflected below, stem from my interests in other topics including the response of fishers to management measures, and the impacts of age-reading errors on assessments and management advice.

3.0   Summary of Findings, Conclusions and Recommendations in Accordance with the TOR's

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

The data (DW) and assessment (AW) workshops did a good, thorough job in analyzing and using the data available to them. What problems there were with the data originate from the fact that, in terms of total catches, both black and red grouper are relatively minor components of the snapper/grouper fishery. As a result, they are encountered in low numbers on any one trip so it is difficult to sample enough fish to estimate the length and age composition of the catches. This was particularly a problem for the black grouper, where the number of fish aged over 1994 to 2008 was just 1350. The average number of fish aged per trip sampled was 2.1, and on average, 88.4 fish were aged each year. This figure covered two gears, and over twenty age classes were present in the catches. The AW recognized that this figure was not sufficient to characterize the age-length composition of the catches and went to great lengths to estimate Von Bertalanffy growth curves for use in estimating age-length keys.

The problems associated with the low probability of encountering red or black grouper on any given trip are not restricted to estimating the age composition of the catches. The same issue also influences the data used as abundance indices, particularly the dive surveys, which seem to have low encounter rates for black grouper at least. The scarcity of black grouper also led to complexity in identifying trips for inclusion in CPUE series as it necessitated the use of approaches such as Stevens & MacCall (2004) or cluster analysis.

From the data in Table 4.6.4 of the DW report, which was presented in slide 27 of the black grouper presentation, there are some indications of a distribution shift in black grouper. Up to and including 1998, the SW region was most important, but subsequently the proportion of landings taken in this area has decreased. This does not seem to result from any changes in effort distribution. I explored this further using the data from the DW report (Figure 1). These data indicate relatively stable catches in the South Atlantic Area, primarily in SE Florida, but much more variation in catches in the Gulf of Mexico, mainly in SW Florida. These differences may have implications for abundance indices for the stocks and hence may merit further investigation.

Overall, I consider that the data were adequate and appropriate for the way in which they were used.

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

It was interesting to see that a range of different assessment methods were explored for both species and encouraging to see that the results were generally comparable across approaches. In both cases, production models were explored, but the final model selected was an age-based

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approach. While age-based methods are generally preferred in cases where sufficient data are available for their use, and may have the advantage of familiarity in cases where the management bodies are used to seeing the output for other stocks, simpler methods such as production models also have advantages. In particular, they require much less data for routine use.

One particular advantage of age-based approaches is the ability to follow individual cohorts through the population. This can be important for management if, for instance, there is substantial variation in year-class strength so that fishing opportunities and stock abundance can show large changes from year to year. In the present case, this potential advantage is lost due to the way the age-length keys are estimated from the limited age data. Such an approach cannot reflect the relative abundance of the different year-classes present in the fishery and as a result any year to year differences in year-class strength are smoothed out, leading to high autocorrelation in the estimated recruitment time series. This problem is similar to that encountered when there is substantial error in age-determination; see, e.g. Bradford (2001), Reeves (2003).

For both grouper stocks, periods of different selectivity were assumed in the assessment models corresponding to changes in the minimum landing sizes for the two species. This implicitly assumes that vessels changed their fishing behavior in some way in response to these regulatory changes. This might involve, for instance, changing fishing grounds to areas where smaller individuals represent a smaller proportion of the catches. At the other end of the scale however, the response might be to carry on fishing the same as before, but just to discard individuals smaller than the revised minimum landing size. In this latter case, the effective selectivity would be unchanged, although the change in discarding practice would hopefully be reflected in the data. In addition, remembering that red and black grouper represent a small component of a mixed snapper/grouper fishery, it seems much more likely that vessels will change their fishing behavior in response to management actions applied to species which represent a higher proportion of their revenue. If these actions do not coincide with those for red or black grouper, then selectivity could change at intervals other those anticipated from red/black grouper management. This is a case where the wider fishery context of black and red grouper needs to be reflected in their assessment. I suspect the best approach to this issue would be a healthy skepticism which assumes constant selectivity with time unless the model fit provides compelling evidence to the contrary. In the latter case, it would be desirable for the break points to be estimated within the model rather than be assumed *a priori*.

While I consider that the models and configurations used for both stocks are suitable for use in determining the status of two stocks, given the sparse nature of the age data available, I feel that other methods should be considered for future use. For red grouper, it would be desirable to use length data as well as age data so a method such as Stock Synthesis might be considered. For black grouper, there was some discussion within the panel as to whether an age-based model

should be used at all given the extreme sparsity of the age data. I favor an approach such as a production model which would not require age data, but I also recognize that age-based approaches may have advantages of, e.g. familiarity for administrators, so there may be non-scientific reasons for their use, providing the results are comparable in terms of stock status.

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

The two grouper species considered here are, to a large extent, caught together in the same fisheries with the same gear. Given this common ground, I was a little surprised that the final assessments for the two stocks used different models. This does not invalidate the assessment for either stock, but it does hinder comparisons between the two stocks as the stock estimates are conditioned on different sets of assumptions, hence are in different 'currencies' which may not be readily comparable across stocks.

With regard to estimates of stock abundance, biomass, and exploitation, I agree with the findings of the Review Panel.

3.4 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. In addition, for black grouper, the Gulf Council requests that the Panel evaluate the methods used to estimate OFL.

I consider the use of proxies for MSY reference points based on spawner-per-recruit considerations appropriate for establishing management reference points for these stocks. This approach means that the reference points are based more on life-history parameters, than on the estimated stock history, and are thus relatively robust. Given that both species exhibit protogynous hermaphroditism, whereby they first develop as females and then subsequently change in to males, there is a need to consider how spawning stock is defined (e.g. in terms of combined or single sexes). However, as any target reference points are likely to involve low fishing mortalities and thus high survival rates, the sex ratio should not be a problem in such cases.

Values for reference points are given in the Review Panel consensus report. I agree with the RP conclusion that the P* method used to estimate the OFL for black grouper is a standard approach used in the Southeast and was applied appropriately.

3.5   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 approaches used to evaluate uncertainty and to project populations forward are well established, standard approaches, and I agree with the RP conclusions that their use was correct.

3.6   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.

The use of Markov Chain Monte Carlo methods is a standard approach to estimating uncertainty and their use in this context was appropriate. Given the additional uncertainty due to e.g. uncertain estimates of discard and natural mortality, it was also appropriate that the sensitivity analyses were performed to highlight these sources of uncertainty. I also consider the use of additional runs using upper and lower bounds on discard mortality a useful approach to 'bracket' the uncertainty due to this key parameter.

3.7   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.

The presentation of the stock assessment results in the Stock Assessment and Summary report for both stocks was sufficiently clear to enable the assessments for both stocks to be reviewed. The RP report contains some recommendations for the development and presentation of stock assessment diagnostics.

3.8.   Evaluate the SEDAR Process as applied to the reviewed assessments and identify any Terms of Reference which were inadequately addressed by the Data or Assessment Workshops.

The SEDAR review process provides a means of ensuring thorough scrutiny and peer review at each stage of the stock assessment process. I believe that this was achieved for the black and red grouper which were the subject of SEDAR 19. If anything, my concern was that the amount of attention paid to these two stocks was rather disproportionate given their relatively small contribution to landings, and presumably also revenue, from the fishery. While the assessments allow the status of these two stocks relative to management targets to be evaluated, the difficulty comes in translating that information into management actions. The effectiveness of any species-specific management action intended to protect either of these two species, such as a change in minimum landing size or the introduction of an annual catch limit, could be influenced by fishing opportunities for other species in the complex. If there is no change in fishing practice in response to a management measure, then changes to minimum landing size or catch limits

might just lead to increased discarding of the relevant species, thus reducing the potential benefit of such measures. In general it is desirable for management to be addressed at the full species complex rather than treating individual species separately.

In my view, the link between the stock assessments and the resultant management advice could be improved by more explicit recognition that the species are caught together in mixed fisheries. One way to approach this would be to do less detailed assessments for a wider range of species at the same time. This would involve the use of less complex models, such as production models, which require less data and person-time to operate. It might also be appropriate to prioritize species within the complex, using criteria such as commercial value and biological vulnerability. It would also be useful to improve understanding of the linkages between the different species, at least in terms of when, where and why they are caught together. Using the latter two approaches it may be possible to manage the fisheries on the basis of detailed assessments for a reduced set of 'keystone' species. While it would still be desirable to monitor the status of other species, this approach would help ensure that the resources available for the assessment of these stocks were allocated most effectively. Such an integrated approach would also represent substantial progress towards an ecosystem approach to fisheries management.

3. 9. Consider the research recommendations provided by the Data and Assessment workshops and make any additional recommendations or prioritizations warranted. Clearly denote research and monitoring needs that could improve the reliability of future assessments. Recommend an appropriate interval for the next assessment, and whether a benchmark or update assessment is warranted.
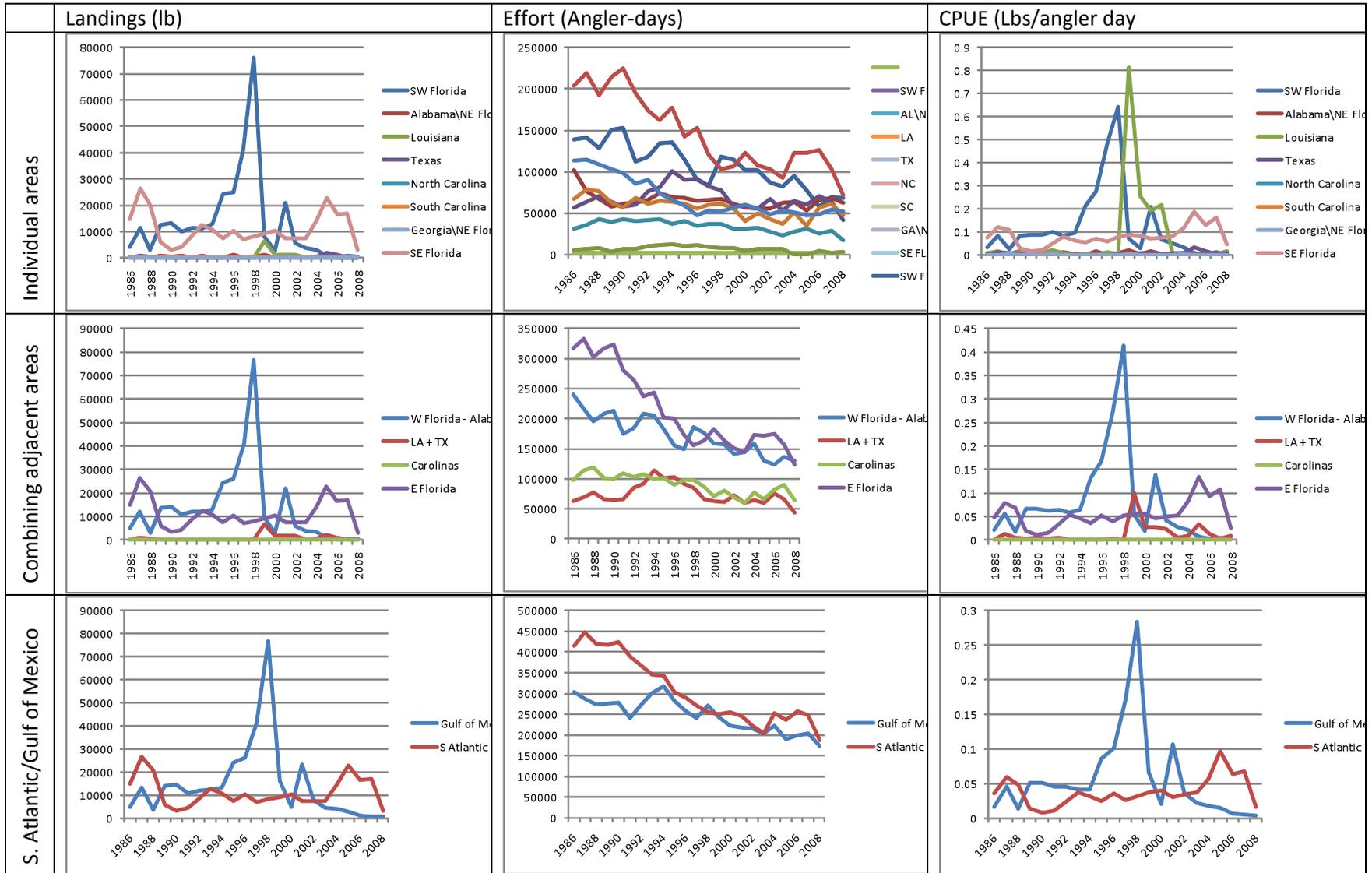
The various meetings preceding the SEDAR 19 review meeting have, between them, produced longs lists of topics that would benefit from further research. Most, if not all, of these could produce useful and interesting results. However, as with other aspects of the assessment, there is a need to take a more integrated overview of these. To give an example, both species have problems with relatively poor coverage of catches for age determination. This seems to be largely due to low encounter rates with these species during sampling. As a result, improving the sampling coverage would probably require a redesign of the sampling scheme and a substantial increase in the resources allocated to sampling. An alternative in this case might be to decide not to use age-based assessments for these stocks, in which case the resources currently used in ageing these species could be directed elsewhere. Another example might be the development of one or more fishery-independent surveys that cover the full geographic range of these stocks. In principle, a well designed survey could cover most of the target species within the reef fish complex, and this would have clear benefits for future assessments of these species. However, the resource implications of such a survey could be substantial, and the benefit to stock assessment would not be realized until the survey had been running for at least five years. Clearly, any decisions on future research need to reflect longer-term, strategic considerations. An important part of this would be to outline how the assessment and management process for these

fisheries should develop over the short to medium term. Once this information is available, it would be much more straightforward to identify and prioritize research requirements. This might include consideration of when, how and, more critically, if any future assessments of these stocks might be performed.

3.10 Prepare a Peer Review Summary summarizing the Panel's evaluation of the stock assessment and addressing each Term of Reference. Develop a list of tasks to be completed following the workshop. Complete and submit the Summary Report within 3 weeks of workshop conclusion.

At the time of writing all RP members had submitted comments on a first draft of the RP consensus report, and a second draft had been circulated. I have submitted minor comments on this draft and anticipate that the report must be close to completion.

Figure 1: Headboat Catch, effort and CPUE of black grouper

Appendix 1, Bibliography

Bradford, M. J. 1991. Effects of ageing errors on recruitment time series estimates from sequential population analysis. Canadian Journal of Fisheries and Aquatic Sciences, 48: 555–558.

Reeves, S. A. 2003. A simulation study of the implications of age-reading errors for stock assessment and management advice. ICES Journal of Marine Science, 60: 314–328.

Stephens, A., and A. MacCall. 2004. A multispecies approach to subsetting logbook data for purposes of estimating CPUE. Fish. Res. 70:299-310.

Appendix 2: Statement of Work for Stuart Reeves (CEFAS)

External Independent Peer Review by the Center for Independent Experts

**SEDAR 19 South Atlantic red grouper and South Atlantic
and Gulf of Mexico black grouper Review Workshop**

Scope of Work and CIE Process: The National Marine Fisheries Service's (NMFS) Office of Science and Technology coordinates and manages a contract providing external expertise through the Center for Independent Experts (CIE) to conduct independent peer reviews of NMFS scientific projects. The Statement of Work (SoW) described herein was established by the NMFS Project Contact and Contracting Officer's Technical Representative (COTR), and reviewed by CIE for compliance with their policy for providing independent expertise that can provide impartial and independent peer review without conflicts of interest. CIE reviewers are selected by the CIE Steering Committee and CIE Coordination Team to conduct the independent peer review of NMFS science in compliance the predetermined Terms of Reference (ToRs) of the peer review. Each CIE reviewer is contracted to deliver an independent peer review report to be approved by the CIE Steering Committee and the report is to be formatted with content requirements as specified in **Annex 1**. This SoW describes the work tasks and deliverables of the CIE reviewer for conducting an independent peer review of the following NMFS project. Further information on the CIE process can be obtained from www.ciereviews.com.

Project Description: SEDAR 19 will be a compilation of data, a benchmark assessment of the stock, and an assessment review for conducted for Gulf of Mexico and South Atlantic black grouper and South Atlantic red grouper. 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 stocks assessed through SEDAR 19 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 Terms of Reference (ToRs) of the peer review are attached in **Annex 2**. The tentative agenda of the panel review meeting is attached in **Annex 3**.

Requirements for CIE Reviewers: Three CIE reviewers shall conduct an impartial and independent peer review in accordance with the SoW and ToRs herein. CIE reviewers shall have working knowledge and recent experience in the application of stock assessment, statistics, fisheries science, and marine biology sufficient to complete the primary task of reviewing the technical details of the methods used for the assessment. Each CIE reviewer's duties shall not exceed a maximum of 14 days to complete all work tasks of the peer review described herein.

Location of Peer Review: Each CIE reviewer shall conduct an independent peer review during the panel review meeting scheduled in Savannah, Georgia during 25-29 January 2010.

Statement of Tasks: Each CIE reviewers shall complete the following tasks in accordance with the SoW and Schedule of Milestones and Deliverables herein.

Prior to the Peer Review: Upon completion of the CIE reviewer selection by the CIE Steering Committee, the CIE shall provide the CIE reviewer information (full name, title, affiliation, country, address, email) to the COTR, who forwards this information to the NMFS Project Contact no later the date specified in the Schedule of Milestones and Deliverables. The CIE is responsible for providing the SoW and ToRs to the CIE reviewers. The NMFS Project Contact is responsible for providing the CIE reviewers with the background documents, reports, foreign national security clearance, and other information concerning pertinent meeting arrangements. The NMFS Project Contact is also responsible for providing the Chair a copy of the SoW in advance of the panel review meeting. Any changes to the SoW or ToRs must be made through the COTR prior to the commencement of the peer review.

Foreign National Security Clearance: When CIE reviewers participate during a panel review meeting at a government facility, the NMFS Project Contact is responsible for obtaining the Foreign National Security Clearance approval for CIE reviewers who are non-US citizens. For this reason, the CIE reviewers shall provide requested information (e.g., first and last name, contact information, gender, birth date, passport number, country of passport, travel dates, country of citizenship, country of current residence, and home country) to the NMFS Project Contact for the purpose of their security clearance, and this information shall be submitted at least 30 days before the peer review in accordance with the NOAA Deemed Export Technology Control Program NAO 207-12 regulations available at the Deemed Exports NAO website: http://deemedexports.noaa.gov/sponsor.html).

Pre-review Background Documents: Two weeks before the peer review, the NMFS Project Contact will send (by electronic mail or make available at an FTP site) to the CIE reviewers the necessary background information and reports for the peer review. In the case where the documents need to be mailed, the NMFS Project Contact will consult with the CIE Lead Coordinator on where to send documents. CIE reviewers are responsible only for the pre-review documents that are delivered to the reviewer in accordance to the SoW scheduled deadlines specified herein. The CIE reviewers shall read all documents in preparation for the peer review.

The NMFS Project Contact will update this section with a list of background document and estimated number of pages no later than 15 October 2009.

Panel Review Meeting: Each CIE reviewer shall conduct the independent peer review in accordance with the SoW and ToRs, and shall not serve in any other role unless specified herein. **Modifications to the SoW and ToRs can not be made during the peer review, and any SoW or ToRs modifications prior to the peer review shall be approved by the COTR and CIE Lead Coordinator.** Each CIE reviewer shall actively participate in a professional and respectful manner as a member of the meeting review panel, and their peer review tasks shall be focused on the ToRs as specified herein. The NMFS Project Contact is responsible for any facility arrangements (e.g., conference room for panel review meetings or teleconference arrangements). The NMFS Project Contact is responsible for ensuring that the Chair understands the contractual role of the CIE reviewers as specified herein. The CIE Lead Coordinator can

contact the Project Contact to confirm any peer review arrangements, including the meeting facility arrangements.

Contract Deliverables - Independent CIE Peer Review Reports: Each CIE reviewer shall complete an independent peer review report in accordance with the SoW. Each CIE reviewer shall complete the independent peer review according to required format and content as described in Annex 1. Each CIE reviewer shall complete the independent peer review addressing each ToR as described in Annex 2.

Other Tasks – Contribution to Summary Report: Each CIE reviewer may assist the Chair of the panel review meeting with contributions to the Summary Report, based on the terms of reference of the review. Each CIE reviewer is not required to reach a consensus, and should provide a brief summary of the reviewer's views on the summary of findings and conclusions reached by the review panel in accordance with the ToRs.

Specific Tasks for CIE Reviewers: The following chronological list of tasks shall be completed by each CIE reviewer in a timely manner as specified in the **Schedule of Milestones and Deliverables**.

1) Conduct necessary pre-review preparations, including the review of background material and reports provided by the NMFS Project Contact in advance of the peer review.
2) Participate during the panel review meeting in Savannah, Georgia during 25-29 January 2010.
3) During the 25-29 January 2010 meeting in Savannah Georgia, the CIE reviewers shall conduct an independent peer review in accordance with the ToRs (**Annex 2**).
4) No later than 8 February 2010, each CIE reviewer shall submit an independent peer review report addressed to the "Center for Independent Experts," and sent to Mr. Manoj Shivlani, CIE Lead Coordinator, via email to shivlanim@bellsouth.net, and David Sampson CIE Regional Coordinator, via email to david.sampson@oregonstate.edu. Each CIE report shall be written using the format and content requirements specified in Annex 1, and address each ToR in **Annex 2**.

Schedule of Milestones and Deliverables: CIE shall complete the tasks and deliverables described in this SoW in accordance with the following schedule.

20 December 2009	CIE sends reviewer contact information to the COTR, who then sends this to the NMFS Project Contact
11January 2010	NMFS Project Contact sends the CIE Reviewers the pre-review documents
25-29 January 2010	Each reviewer participates and conducts an independent peer review during the panel review meeting
8 February 2010	CIE reviewers submit draft CIE independent peer review reports to the CIE Lead Coordinator and CIE Regional Coordinator
22 February 2010	CIE submits CIE independent peer review reports to the COTR
28 February 2010	The COTR distributes the final CIE reports to the NMFS Project Contact and regional Center Director

Modifications to the Statement of Work: Requests to modify this SoW must be approved by the Contracting Officer at least 15 working days prior to making any permanent substitutions. The Contracting Officer will notify the COTR within 10 working days after receipt of all required information of the decision on substitutions. The COTR can approve changes to the milestone dates, list of pre-review documents, and ToRs within the SoW as long as the role and ability of the CIE reviewers to complete the deliverable in accordance with the SoW is not adversely impacted. The SoW and ToRs shall not be changed once the peer review has begun.

Acceptance of Deliverables: Upon review and acceptance of the CIE independent peer review reports by the CIE Lead Coordinator, Regional Coordinator, and Steering Committee, these reports shall be sent to the COTR for final approval as contract deliverables based on compliance with the SoW and ToRs. As specified in the Schedule of Milestones and Deliverables, the CIE shall send via e-mail the contract deliverables (CIE independent peer review reports) to the COTR (William Michaels, via William.Michaels@noaa.gov).

Applicable Performance Standards: The contract is successfully completed when the COTR provides final approval of the contract deliverables. The acceptance of the contract deliverables shall be based on three performance standards:
(1) Each CIE report shall completed with the format and content in accordance with **Annex 1**,
(2) Each CIE report shall address each ToR as specified in **Annex 2**,
(3) The CIE reports shall be delivered in a timely manner as specified in the schedule of milestones and deliverables.

Distribution of Approved Deliverables: Upon acceptance by the COTR, the CIE Lead Coordinator shall send via e-mail the final CIE reports in *.PDF format to the COTR. The COTR will distribute the CIE reports to the NMFS Project Contact and Center Director.

Key Personnel:

William Michaels, Contracting Officer's Technical Representative (COTR)
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Julie Neer, SEDAR 19 Coordinator, NMFS Project Contact
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Annex 1: Format and Contents of CIE Independent Peer Review Report

1. The CIE independent report shall be prefaced with an Executive Summary providing a concise summary of the findings and recommendations, and specify whether the science reviewed is the best scientific information available.

2. The main body of the reviewer report shall consist of a Background, Description of the Individual Reviewer's Role in the Review Activities, Summary of Findings for each ToR in which the weaknesses and strengths are described, and Conclusions and Recommendations in accordance with the ToRs.

   a. Reviewers should describe in their own words the review activities completed during the panel review meeting, including providing a brief summary of findings, of the science, conclusions, and recommendations.

   b. Reviewers should discuss their independent views on each ToR even if these were consistent with those of other panelists, and especially where there were divergent views.

   c. Reviewers should elaborate on any points raised in the Summary Report that they feel might require further clarification.

   d. Reviewers shall provide a critique of the NMFS review process, including suggestions for improvements of both process and products.

   e. The CIE independent report shall be a stand-alone document for others to understand the weaknesses and strengths of the science reviewed, regardless of whether or not they read the summary report. The CIE independent report shall be an independent peer review of each ToRs, and shall not simply repeat the contents of the summary report.

3. The reviewer report shall include the following appendices:

   Appendix 1: Bibliography of materials provided for review
   Appendix 2: A copy of the CIE Statement of Work
   Appendix 3: Panel Membership or other pertinent information from the panel review meeting.

Annex 2: Terms of Reference for the Peer Review

**SEDAR 19 South Atlantic red grouper and South Atlantic
and Gulf of Mexico black grouper Review Workshop**

Below or the correct TORs for the 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, 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.

    A. In addition, for black grouper, the Gulf Council requests that the Panel evaluate the methods used to estimate OFL.

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 as applied to the reviewed assessments and identify any Terms of Reference which were inadequately addressed by the Data or Assessment Workshops.

9. Consider the research recommendations provided by the Data and Assessment workshops and make any additional recommendations or prioritizations warranted. Clearly denote research and monitoring needs that could improve the reliability of future assessments. Recommend an appropriate interval for the next assessment, and whether a benchmark or update assessment is warranted.

10. Prepare a Peer Review Summary summarizing the Panel's evaluation of the stock assessment and addressing each Term of Reference. Develop a list of tasks to be completed following the workshop. Complete and submit the Summary Report within 3 weeks of workshop conclusion.

Annex 3: Tentative Agenda

SEDAR 19 South Atlantic red grouper and South Atlantic
and Gulf of Mexico black grouper Review Workshop
Savannah, Georgia during 25-29 January 2010

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**	

Appendix 3; Review Panel Membership

Name	Role
Dr. Chris Legault	Chair
Dr. Paul Medley	CIE Reviewer
Dr. Gary Grossman	Reviewer
Dr. Neil Klaer	CIE Reviewer
Stuart Reeves	CIE Reviewer
Dr. Sean Powers	Reviewer