SUGGESTED REVISIONS AND CLARIFICATIONS TO THE PEER REVIEW PROCESS IN ICCAT

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SUMMARY

ICCAT has historically utilised a rigorous three stage internal review system to ensure the quality of its scientific advice to management. It has been noted, however, that the process would benefit from additional external review. Although ICCAT has put in place protocols to conduct these external reviews, the SCRS in 2012 requested clarification of the process. This document clarifies the terminology regarding the three separate forms of scientific peer review; clarifies and defines the roles of invited experts and external reviewers and proposes a transparent method for identifying and selecting external experts. It is the intention of this document to stimulate discussion surrounding these issues in order to improve and streamline the definitions and processes described here, to the benefit of the peer review system in ICCAT.

RÉSUMÉ

Historiquement, l'ICCAT utilise un système rigoureux de révision en interne en trois étapes afin de garantir la qualité de l'avis scientifique destiné à la gestion. On a cependant observé que le processus pourrait tirer profit d'un examen externe supplémentaire. Bien que l'ICCAT ait mis en place des protocoles pour réaliser ces examens externes, le SCRS a demandé en 2012 des éclaircissements concernant le processus. Le présent document précise la terminologie concernant les trois types d'examen scientifique externe par des pairs, précise et définit les rôles des experts invités et des examinateurs externes et propose une méthode transparente d'identification et de sélection des experts externes. Ce document vise à stimuler les discussions sur ces questions dans le but d'améliorer et de simplifier les définitions et les processus au profit du système d'examen par les pairs de l'ICCAT.

RESUMEN

ICCAT ha utilizado históricamente un riguroso sistema de revisión interna en tres fases para garantizar la calidad de su asesoramiento científico en materia de ordenación. Sin embargo, se ha constatado que el proceso se beneficiaría de una revisión externa adicional. Aunque ICCAT ha implementado protocolos para estas revisiones externas, en 2012 el SCRS solicitó aclaraciones para este proceso. En este documento se aclara la terminología relacionada con los tres tipos de revisión científica por pares, se aclaran y definen los papeles desempeñados por los expertos invitados y los revisores externos y se propone un método transparente para identificar y seleccionar a los expertos externos. La finalidad de este documento es fomentar el debate en torno a estos temas con miras a mejorar y racionalizar las definiciones y procesos descritos aquí, para beneficiar al sistema de revisión por pares de ICCAT.

KEYWORDS

Peer review, Invited expert, Reviewer, Terms of reference, Transparency, Best practice, Quality of scientific advice

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Introduction

A topic that has been discussed in several forums is the subject of peer review of RFMO scientific outputs. The 2010 KOBE II meeting in Barcelona concluded with a recommendation that peer review should be included in all RFMO scientific assessments. This topic was again debated by the expert panel invited by the EU funded TXOTX project partners to London in November 2010. The expert panel agreed that peer review of scientific outputs should be conducted. They further concluded that "If funds are available, peer reviews should be conducted when possible as although there are drawbacks to the process (delays in finalisation of outputs, increase in resources) the advantages of having these reviews outweigh the negatives. This review should be done in a structured way rather than an ad hoc basis. Where expert panels are introduced, these should comprise at least three members to avoid a dominance of one viewpoint or an impasse that could arise from having opposing views." (de Bruyn *et al.* 2011).

The Peer review process can imply different things to different people. For the purposes of this document, we define peer review as having three different levels. Firstly, there is internal peer review, usually facilitated by working groups of diverse national scientists who in "real time" review and provide critical input/advice to the scientific process; on occasion this is supplemented by the participation of an external expert. Secondly, external peer review is facilitated by sending scientific outputs to contracted external experts for review and "quality control" or having the experts attend WG meetings as observers who then report on the meeting outcomes. External peer review may also be conducted through a joint meeting with an advisory expert panel. Lastly, scientific peer review may be facilitated by publishing scientific outputs in peer reviewed journals or presenting them at international conferences.

An additional form of peer review covering performances reviews of the processes being carried out within an organisation/RFMO could be considered, but that is not the intention here. This latter definition ensures that things are being done "correctly" within an organisation, and is more a management topic and less a scientific issue. It should be remembered that in terms of the peer review process, quality is more important than quantity, and peer reviews should be conducted thoroughly and professionally even if the requirements for this ensure that they are not conducted very regularly.

According to the Report of the Independent Performance Review of ICCAT (Hurry *et al*., 2008) the analyses used by the SCRS to formulate its advice are peer reviewed through a rigorous three stage process (working/assessment groups to species groups to SCRS plenary). The structure of the process, the diversity of the participants/analysts and the large number of people involved does not guarantee that errors will not be made, but it provides a reasonable assurance that if errors are made, they will be discovered, admitted, discussed and corrected. Apart from this internal system, external peer reviews of the work of ICCAT SCRS working groups have been conducted in the past and a protocol to conduct such reviews has been in place for some time (Santiago *et al*., 2013). For example, in 2003 the Albacore Species Group (SCRS/2003/113) and the Methods Working Groups (SCRS/2003/039) were both peer-reviewed under the ICCAT Stock Assessment Peer Review program. Other types of peer reviews, such as participation of external experts in Standing Committee on Research and Statistics (SCRS) meetings, publication of SCRS works in peer review journals and at world conferences have also been used. It is thus important at this stage to clarify what is meant by peer review as sometimes the distinctions between forms of peer review have been lost at the working group level.

Forms of peer review at ICCAT

Omitting the broader scale review of the RFMO processes (which has been conducted for ICCAT; Hurry *et al.* 2008), the peer review of assessments in ICCAT currently in place is the one adopted by the SCRS in 2002 [Appendix 4 of the 2002 SCRS Report, (Anon., 2003)] following the recommendations of the SCRS in 2001 [2001 Report of the Ad Hoc Working Group on SCRS Organization (Appendix 4 of the 2001 SCRS report) and in the 2001 SCRS Report itself (Anon., 2002)] after discussing the proposed methods of conducting peer review detailed in Restrepo (2000).

The SCRS recommended conducting at least 2 in situ reviews per year. The purpose of the reviews is to provide additional scientific peer reviewed advice to the SCRS and its species groups for improvements in their stock assessments. Conducting an in situ review, wherein the reviewer/invited expert may provide working papers in advance of the session, actively participates in analysis and in report drafting, permits an immediate feedback to the working group and SCRS and facilitates the development of suggestions for future research. This format is thus, in the short-run, the method of peer review viewed most practical for ICCAT.

Until now, both invited experts/WG discussions and external reviewers attending the WGs have been used somewhat interchangeably in ICCAT working groups although they have separate distinct purposes. Invited experts take part in the assessment process. They provide information and advice on how the stock assessment can be conducted/improved/streamlined **DURING** the assessment process, introducing new modelling approaches or new perspectives during a part of or for the whole process. The result is an improved product which hopefully has benefitted from the expertise of the invited person. An external reviewer, on the other hand, should in theory play **NO ACTIVE PART** in the assessment process. The reviewer in this case could participate in the WG in a more passive observer role or could be brought in once an assessment has been conducted and provide a review of the assessment products. The review then points out the deficiencies of the assessment and suggests ways in which it can be improved either before presentation to management or in the future. It is important that these clear differences are noted.

Current Terms of reference

During the 2012 meeting of the ICCAT Working Group on Stock Assessment Methods (WGSAM), the issue of peer review in ICCAT was discussed and Terms of Reference for the participation of external experts as peer reviewers in the SCRS stock assessment meetings were drafted (Anon. 2012):

1. Prior to the meeting, the external reviewer(s) will be given access to previous reports of the working group.

2. Fully participate in the discussions of the appropriate analyses to be conducted at the meeting including, but not limited to:

    - The selection of the assessment model(s) to be used, model assumptions, biological parameters, selection of model run(s).
    - When appropriate, suggest alternative assessment methods that could better characterize the dynamics of the stock.
    - Participate in the development of the main conclusions of the stock assessment and management recommendations from the meeting.
    - Participate in the identification of specific research needs for the future.

3. The comments and suggestions of the external reviewer will be taken into consideration by the Working Group during the stock assessment process and in the preparation of the meeting report. The external reviewer will prepare an independent report with recommendations to improve the assessment and the review processes which will be added to the meeting report as an annex upon its completion.

These terms of reference clearly apply to invited experts. Despite the drafting of these revised TORs by the WGSAM, at the 2012 meeting of the SCRS it was requested that the group revisit the current TORs in order to clarify the role of an invited expert and to draw a distinction between invited experts and external peer review. It is thus the intention of this document to stimulate discussion on this matter and provide suggestions for possible amendments to the current TORs for invited experts as well as the peer review system in general.

Possible future revisions to Peer Review TORs

As stated above, the first step when revising the protocols for peer review is to clarify the roll or position of the contacted person/s. Is the expert required to assist with an assessment (*i.e.* to increase scientific capacity at a stock assessment meeting) or is the person required to review the outputs of a stock assessment session. To this end potential separate TORs are presented for the two different roles.

Possible revised TORs for an invited expert

The proposed TORs for an invited expert are slight modifications of the TORs proposed by the WGSAM in 2012. These therefore are:

1. Prior to the meeting, the external expert(s) will be given access to previous reports of the working group.
2. The external expert (s) will be provided with the official data to be used in the stock assessment, and will be bound by the same confidentiality agreements that apply to participating members of the assessment working group. These data will be made available to the expert/s at the same time they are available to the working group in general.

3. Fully participate in the discussions of the appropriate analyses to be conducted at the meeting including, but not limited to:

    - The data available for analysis and based on this information the selection of the assessment model(s) to be used which is appropriate for the data available, model assumptions, biological parameters, selection of model run(s).
    - When appropriate, suggest alternative assessment methods that could better characterize the dynamics of the stock.
    - Participate in the development of the main conclusions of the stock assessment and management recommendations from the meeting.
    - Participate in the identification of specific research needs for the future.

4. The comments and suggestions of the external expert will be taken into consideration by the Working Group during the stock assessment process and in the preparation of the meeting report. The external expert will prepare an independent report with recommendations to improve the assessment which will be added to the meeting report as an annex upon its completion. As part of this report, the external expert/s may:

    - comment on the appropriateness of the discussions and analyses held at the meeting in terms of the meeting's objectives;
    - as already defined above during the working group discussion, suggest alternative assessment methods where better methods exist and suggest specific research for the future;
    - not provide an evaluation as to whether the assessment should be accepted or not, although full quantification of the uncertainty around the assessment results is part of the assessment process and encouraged. As the expert will function as a member of the working group, he will have input in the discussions on the soundness of the conclusions and recommendations without needing to specifically address them here unless expressly requested to do so.

Possible TORs for an external Reviewer

1. An external reviewer shall be selected who meets the following criteria;

    - expertise,
    - working knowledge,
    - recent experience in one or more of the subject areas involved in the review.

The subject areas used as criteria for selection of the reviewer shall be determined by the chair of the working group along with the Chairman of the SCRS and the ICCAT Secretariat.

2. The external reviewer shall be required to;

- read background material provided by the working group on the assessment in progress as well as any previous assessments on the stock
- produce a review report addressing the review terms of reference. These terms of reference shall be determined by the chair of the working group along with the chairman of the SCRS and the ICCAT secretariat but will include issues such as, quality of data used in the assessment, appropriateness of model applied for the assessment, appropriateness and completeness of quantification of uncertainty, quality and appropriateness of model diagnostics, soundness of the main conclusions and recommendations, alternative assessment methods where better methods exist and specific research for the future. An example of this type of TOR is provided in Appendix 1.

3. The external reviewer shall not necessarily be present at the actual stock assessment session, and could be contacted remotely to review the outputs. Should the chair of the working group, the SCRS chair or the ICCAT secretariat determine that the external reviewer’s presence is necessary at the assessment session, he will play little active role in the discussions taking place at that meeting but will act as an observer who may comment or offer suggestions as necessary.

Selection of invited experts or external reviewers

The secretariat will keep a list of experts who have been agreed to participate in the ICCAT review system and who have been judged to have the necessary experience and expertise. This will allow selection of candidates as soon as the SCRS calendar has been agreed. Nominations from this list should be made by the chair of the working group, the SCRS chair or the ICCAT secretariat at which stage they should be distributed to members of the appropriate working group for comment. Selection of the final candidate/s shall be communicated by the chair of the working group who along with the SCRS chair and ICCAT secretariat will have the final say on candidate selection.

Conclusions

It is clear that ICCAT has put considerable effort into developing and modifying its peer review system. It has been complimented on the thoroughness of its three stage internal review process as well as its flexibility to modify the process as required, but it is acknowledged that external expertise can greatly improve scientific capacity which in turn will improve the scientific advice to management. The external review process, however, requires clarification, particularly as to the role of the external expert, either as an active participant in the scientific processes or as a reviewer of the scientific outputs. It is hoped that the potential TORs presented in this document will stimulate discussions as to how this clarification can best be conveyed to the external experts. A clear and transparent way in which external experts can be identified and selected has also been proposed, which is in accordance with how ICCAT currently operates, with minor clarifications. Beneficial discussions on this matter are also anticipated.

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Appendix 1

AN EXAMPLE OF TERMS OF REFERENCE FOR AN INDEPENDENT REVIEW

Annex 2: Tentative Terms of Reference For the Peer Review

SEDAR 21 Highly Migratory Species (HMS) Sandbar, Dusky, and Blacknose sharks 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 esti mates of stock abundance, biomass, and exploitation.
4. Evaluate the methods used to estimate population benchmarks and stock status (*e.g., MSY, Fmsy, Bmsy, MSST, MFMT, or their proxies*); recommend appropriate management benchmarks, provide estimated values f or management benchmarks, and declare stock status, consistent with the stock status determination criteria, benchmark, and biological reference points in the Consolidated HMS FMP, proposed FMPs and Amendments, other ongoing or proposed management programs, and National Standards.
5. Evaluate the adequacy, appropriateness, and application of the methods used to project future population status, rebuilding timeframe, and generation time; recommend appropriate estimates of future stock condition (e.g., exploitation, abundance, biomass).
6. Evaluate the adequacy, appropriateness, and application of methods used to characterize the uncertainty in estimated parameters. Provide measures of uncertainty for estimated parameters. Ensure that the implications of uncertain ty in technical conclusions are clearly stated.
7. Ensure that stock assessment results are clearly and accurately presented in the Stock Assessment Report and that reported results are consistent with Review Panel recommendations. If there are differences b etween the AW and RW due to reviewer's requests for changes and/or additional model runs, etc., describe those reasons and results.
8. Evaluate the SEDAR Process as applied to the reviewed assessments and identify any Terms of Reference that 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. Provide a list of tasks that were not completed, who is responsible for completing each task, and when each task will be completed. Complete and submit the Final Summary Report within 3 weeks of workshop conclusion.