



**SCIENTIFIC COMMITTEE
TWELFTH REGULAR SESSION**
Bali, Republic of Indonesia
3-11 August 2016

PROCESS FOR THE INDEPENDENT REVIEW OF STOCK ASSESSMENTS

WCPFC-SC12-2016/GN-WP-05

Secretariat

Introduction

1. SC11 noted that WCPFC does not have a formal process of external review of the stock assessments and recommended to establish a formal process for the independent review of stock assessments (Paragraph 386, SC11 Summary Report):

386. SC11 recommends that the Secretariat develops a proposal to establish a formal process and its cost implication to independently review stock assessments. This proposal will be presented to SC12.

2. The Commission at WCPFC12 endorsed the SC11 recommendation and tasked the Secretariat to develop a proposal on this process (Paragraph 430, WCPFC12 Summary Report):

430. The Commission tasked the Secretariat to develop a proposal, including an indicative budget, to establish a formal process to independently review stock assessments. This proposal will be presented to SC12.

3. Based on Paragraph 3 of the WCPFC Resolution 2012-01, the WCPFC Secretariat has drafted a proposed formal process for the independent review of stock assessments:

3. Strengthen peer review mechanisms within the Scientific Committee, SPC-OFP and ISC by participation of invited experts (e.g. from other RFMOs or from academia), particularly for stock assessments. These outside experts shall be subject to the data confidentiality rules and procedures currently applicable in the WCPFC.

4. The Commission conducted an independent peer review process for 2011 bigeye stock assessment, the summary of which is annexed as **Attachment A**. SC12 will review the proposed process and provide recommendations for the Commission's consideration.



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The Commission for the Conservation and Management of Highly Migratory Fish Stock in the Western and Central Pacific Ocean,

RECOGNIZING the importance of sound scientific advice as the central piece for the conservation and management of tuna and tuna-like species in the Western and Central Pacific Ocean;

AWARE that the availability of adequate scientific information is fundamental to carrying out the objectives of the WCPFC Convention laid down in its Article 2;

NOTING the role of the Oceanic Fisheries Programme of the Pacific Community (SPC-OFP) which is contracted to provide independent scientific advice;

ACKNOWLEDGING the need to ensure that relevant, professionally independent and objective scientific advice, based on the best available and peer-reviewed scientific analysis, be provided by the Scientific Committee to the Commission;

Implements the following processes for the independent review of stock assessments conducted by the SPC-OFP:

Scientific Committee's recommendation to the Commission

1. The Scientific Committee should recommend a multi-year schedule for independent peer review of stock assessments.
2. The Scientific Committee will recommend to the Commission a specific independent peer review for a stock assessment, with an associated budget. The peer review panel will comprise three (3) independent experts. The budget will include consultancy fees, pre-workshop study, travel costs etc. and the peer review chair's attendance to report at the following Scientific Committee meeting.

Commission's approval of the peer review

3. The Commission at its annual meeting will consider the recommendation (Para 2. above) from the Scientific Committee for an independent peer review of a stock assessment and the associated budget.
4. Subject to the Commission's approval, the Scientific Committee will be tasked to develop Terms of Reference for the upcoming peer review and the Secretariat to implement the peer review process.

Selection of the independent peer review panel

5. The WCPFC secretariat is responsible for administering the selection and timely contracting of the three (3) independent peer reviewers.
 - 1) The Secretariat will distribute a Circular seeking Member's nomination of candidate experts.
 - 2) Each Member may recommend one candidate¹ through their official WCPFC contacts.
 - 3) Subject to the availability of the recommended experts and agreement with the terms of reference, the Commission Chair, the SC Chair and the Executive Director will select five candidates for short listing, and circulate the shortlist with their curriculum vitae to all Members.
 - 4) Each Member will rank the five candidates with scores 1 (most preferred) to 5 (less preferred) and submit these rankings to the Executive Director.
 - 5) The Secretariat will finalize the list of the peer review panel and contract with the three (3) experts. If any of the selected three (3) individuals are unable to undertake the review, the shortlisted candidate next in rank will be invited to join the peer review panel.

Panel's review process

6. At the start of the review process, SPC-OFP will prepare a procedural plan including detailed schedules, activities, provision of assessment results (possibly including all the input data, modeling software, output of basic runs as well as all the sensitivity runs) and provide these to the panel for advanced reviewing.
7. Once the review process is finished, a draft review report will be provided to SPC-OFP for their review and response. If time permits, this step may be concluded towards the end of the peer review workshop.

¹ The nomination may be for an individual or it may be to approach an organisation e.g. IATTC to provide an appropriate expert.

8. The final panel report, incorporated with SPC-OFP's response(s) and the panel's feedback to SPC-OFP if needed, shall be submitted to the WCPFC Executive Director, in advance of the following Scientific Committee meeting as scheduled in the contract.

9. The Chair of the independent peer review panel will be expected to present the results of the review to the following Scientific Committee meeting.

10. In preparing and conducting the review process, due considerations will be devoted to the following elements.

a) Location

Peer reviews of stock assessments will be conducted at the headquarters of SPC-OFP in Noumea, New Caledonia.

b) Duration

Subject to species, a five (5) day workshop is proposed, comprising a two (2) day period for peer reviewing the stock assessment, and a further three (3) day period for iteratively reviewing and advising on various aspects of subsequent assessment runs developed in light of the first two days.

c) Scheduling

Timing is dependent upon existing schedules of the SPC-OFP and the selection process of the reviewers. Notwithstanding the procedural process, the review workshop should occur within the first four (4) months of the year, to accommodate SPC-OFP commitments and allowing time for the reviewers to prepare a report for the following Scientific Committee meeting. The Chair of the peer review panel will present the review to the Scientific Committee.

d) Composition

The peer review panel should comprise three (3) independent scientists that have significant expertise and experience in all aspects of stock assessments, preferably in relation to the stock assessment under review; one of whom will be assigned the role of Chair. The reviewers should not be directly involved with current WCPFC stock assessments.

Attendance to the peer review workshop will be limited to the peer review panel members, scientists directly involved in the relevant assessments, and the Secretariat as a coordinator of the whole process.

INDEPENDENT REVIEW OF 2011 WCPO BIGEYE TUNA ASSESSMENT

29 April – 2 May 2012 at SPC, Noumea, New Caledonia

Background

Following recommendations from the 7th Scientific Committee meeting, the Commission endorsed undertaking a workshop-style peer-review of the 2011 bigeye stock assessment in early 2012 (Para 130, WCPFC7 Summary Report). The peer review, with a panel comprising James Ianelli², Mark Maunder³ and André E. Punt⁴ (Chair), was conducted at the Secretariat of the Pacific Community (SPC), Noumea, New Caledonia from 28 April to 2 May 2012. The SPC – Oceanic Fisheries Programme (OFP) Bigeye Tuna Stock Assessment Team was represented by: John Hampton, Shelton Harley, Simon Hoyle and Nick Davies; and further supported by Pierre Kleiber (on secondment from NOAA), Tim Lawson, Simon Nicol, Peter Williams, Aaron Berger and Dale Kolody. The WCPFC Secretariat was represented by Tony Beeching.

The panel was provided in advance with pertinent background documents and MULTIFAN-CL (MFCL) input and output files. Following SPC-OFP presentations on the bigeye assessment process, the panel reviewed assessment model inputs and associated assumptions, and requested additional model runs and data analyses by SPC-OFP. This iterative process continued throughout the workshop, culminating in a presentation of the panel's findings, providing SPC-OFP an opportunity to respond directly.

The draft report was provided to SPC-OFP immediately after the workshop for comments, enabling the Chair to finalise the report for submission to the Secretariat in advance prior to the following 8th Scientific Committee. The Chair of the panel attended SC8 to summarize the outputs of the review.

The peer review report is posted on the SC8 website:

<http://www.wcpfc.int/system/files/SA-WP-01-Bigeye-Peer-Review.pdf>

This model is considered the best approach in undertaking stock assessment peer reviews – the iterative/adaptive process ensured that the reviewers were fully informed and cognizant of all relevant factors. The interaction between reviewers and stock assessment scientists is cooperative not combative, providing an opportunity to explore in depth the models and assumptions used in the assessment. The budget for the independent review of 2011 bigeye stock assessment was USD 30,000.

² Affiliate professor at the University of Washington and a stock assessment scientist with the Resource Ecology and Fisheries Management division of the Alaska Fisheries Science Center

³ Head of the Stock Assessment Program at the Inter-American Tropical Tuna Commission

⁴ Professor of Aquatic and Fishery Sciences at the University of Washington

Terms of Reference for the peer review of 2011 bigeye stock assessment

The Panel would prioritise the tasks listed below. The review panel may comment and make recommendations upon issues additional to those listed below.

1. Evaluate and determine what stock structure is most appropriate for the bigeye tuna stock assessment with consideration of a Pacific wide assessment.
2. Comment on the adequacy and appropriateness of data sources for stock assessment. Evaluate the use (robustness) of modified data from sampling bias studies. Identify data uncertainties and its effects on assessments results. Recommend methods to resolve data uncertainties.
3. Review the assessment methods: determine if they are reliable, properly applied, and adequate and appropriate for the species, fisheries, and available data.
4. Evaluate the assessment model configuration, assumptions, input data and configuration, and primary sources of uncertainty, parameters (fishery, life history, and spawner recruit relationships), determine if data is used appropriately, input parameters seem reasonable and primary sources of uncertainty are accounted for.
5. Particular attention is to be paid to the following;
 - a) Length of older individuals and the impact it has on the stock assessment results.
 - b) Potential for regime shift in recruitment. Consider whether shifts in recruitment are real or are caused by model artefacts.
 - c) Appropriateness of the stock recruitment relationship.
 - d) Availability of bigeye to purse seine and not being available to longline.
 - e) Investigate the cause of residual patterns in the length composition data and determine how it can be resolved.
 - f) The use of CPUE indices in the assessment (purse seine, pole-and-line and/or longline) and consider the regional weighting of these standardized indices.
 - g) Determine if the manner in which the movement and tagging data are modeled is appropriate.
 - h) Determine if the spatial structure of the model is appropriate.
6. Evaluate the adequacy of the sensitivity analyses in regard to completeness and incorporation of results.
7. Comment on the proposed reference points and management parameters (e.g., MSY, FMSY, BMSY, MSST, MFMT); if possible and feasible, estimate values for alternative reference points (or appropriate proxies) and view on stock status.
8. Evaluate the adequacy, appropriateness, and application of the methods used to project future population status. This would include the methods of projection under hypothetical various options in future management measures (e.g. on effort, catch, or fisheries)
9. Suggest research priorities to improve our understanding of essential population and fishery dynamics, necessary to formulate best management practices.