



Report from the Extended Scientific Committee

Purpose

To consider the Report of the Twenty-Fourth Meeting of the Scientific Committee (SC24), incorporating the Extended Scientific Committee (ESC).

Introduction

The Report of the Twenty-Fourth Meeting of the Scientific Committee is provided to this meeting as CCSBT-EC/1910/Rep02.

The ESC Chair will provide a presentation of the ESC's report at this agenda item with a detailed summary of the advice and recommendations from the ESC.

Some of the key points arising from the ESC meeting include:

Farm analysis

- The primary recommendation by the Farm Expert, which had also been made by the Scientific Advisory Panel in 2009, was that the implementation of stereo-video technology, which is the only direct method available, is the best method for estimating the weight of SBT transferred to Australian farms. This recommendation made by the Farm Expert was agreed by the ESC. The meeting noted that prior to implementation, a short study to establish the length-weight relationship of fish in the farms and detect any bias in the stereo-video camera measurements may be required.
- The Farm Expert also made a secondary recommendation to explore methods that, in the absence of stereo video implementation, might provide a means of estimating potential maximum growth in farms, length frequency and length-weight relationships during captivity. This recommendation was agreed by the ESC.

Market Analysis

- Specific findings and recommendations arising from the Market Expert's report were considered and accepted by the ESC. These were that:
 - To be useful for SBT management, the market estimation methodology would need to be re-visited to update key parameters, and re-designed to incorporate uncertainty and allow for catch verification of all Members.
 - The Secretariat, with input from CCSBT Members, should identify potential correspondences between Japanese market data and CDS quantities, and trial comparison of the market and CDS data series as a means of flagging discrepancies for further investigation. The results of the trial should be reported to the Compliance Committee to evaluate the practicality and usefulness of the comparisons.
 - CCSBT Members should establish programs to identify instances of illegal (untagged fish for which legal provenance cannot be established) SBT in markets and trade and report on the scope and results of the programs to the Secretariat to inform estimates of unaccounted mortalities. To support this work, CCSBT Members should consider requiring tags to be retained on all SBT until the fish is no longer whole. Any barriers to this requirement, as well as ways of overcoming them, should be reported to the Secretariat.

Non-Member Catches

- The average of the Non-Member SBT catch estimates from 2011-2014 from a 2016 paper to the ESC was 306t and this has almost doubled to 607t in the new analysis. The changes to the method that have contributed to this increase are: (i) revision to input data which led to a reduction in the Japanese catch rates used in the analysis; (ii) revision to the WCPFC data which led to increases in effort and a change in spatial distribution; and (iii) a correction to the IOTC effort data, which resulted in a shift south for effort data into regions with higher SBT catch rates thereby increasing the predicted Non-Member SBT catches. The changes to the IOTC data are likely to have had the most impact on the increase in the SBT catch estimates.
- The ESC was advised that China introduced management measures in 2019, which is after the period analysed, to avoid catching and landing SBT, with prohibitions on SBT retention, area closures, transshipment and reporting requirements.
- Estimates of the SBT catch by Non-Members above are uncertain and are subject to further analysis. However, even the highest estimates are smaller than those used in sensitivity tests conducted as part of the 2017 stock assessment. Those sensitivity tests indicated that even with these high unaccounted catches, the objectives of the current Management Procedure (MP) would be met (i.e. the interim rebuilding target of 20% of the initial spawning stock biomass by 2035 would be achieved with a probability of 70% or more). This means that to achieve the objectives of the current MP, there is no requirement for the EC to change the amount of the TAC that it has set aside to account for IUU catch by Non-Members.

Fishery Indicators

- The review of indicators suggested that recruitment for the most recent year may have been lower, as evidenced by a reduction in: (i) the gene tagging absolute abundance estimate; and (ii) the trolling survey index (piston-line index of age 1) remaining at zero for a second year in a row. It should be noted that current Operating Model estimates of average recruitment are above the expected level. There are some consistent positive trends in the age-based longline CPUE estimates for a number of Members including the Japanese (core vessels) and Korean fleets. For the first time, the ESC noted an increased spawning stock biomass as evidenced by a consistent increase in the close-kin mark recapture empirical index of spawning stock abundance from 2008 to 2014.

Stock Status

- According to the 2017 stock assessment, the stock remains at a low state, estimated to be 13% in 2016 of the initial spawning stock biomass (SSB_0), and below the level to produce maximum sustainable yield (MSY). Fishing mortality is about half the level associated with MSY.
- Indications of stock status based on reconditioning of the operating models in 2019 for testing of candidate management procedures suggest that the spawning stock biomass (SSB) in 2018 was 0.17 (0.15–0.21) of initial SSB, with an increase in SSB of 79% since 2009.

Annual Review of implementation of the current Management Procedure (MP)

- The ESC has evaluated whether there are events, or observations, that are outside the range for which the management procedure was tested and the implications of this for TAC setting. The scope of this evaluation covered: (i) the very high longline CPUE estimate in 2018; (ii) the pre-arranged absence of aerial survey data for 2018 and 2019; (iii) changes in estimates of the population dynamics and productivity of the stock since the tuning and implementation of the MP in 2011; (iv) the shift in size distribution towards small fish in the Indonesian spawning ground fishery since 2013; and (v) the potential for fishing mortality (from Members and non-Members) to be greater than the TAC recommended by the MP.

- Based on the annual review of the exceptional circumstances and fishery indicators, the ESC recommended that there is no need to revise the Extended Commission's 2016 decision regarding the TAC for 2018-20. Therefore, the recommended TAC for 2020 and the 2018-20 quota block remains 17,647t.

Development of the new Management Procedure (MP)

- In considering the overall performance of candidate management procedures for two tuning levels (30% SSB₀ by 2035 and 35% SSB₀ by 2040¹), the ESC noted the trade-off between the level of rebuilding and the cumulative catch associated with the two tuning levels, which involves an increase of 0.02 in SSB/SSB₀ rebuilding under the most conservative tuning (35% SSB₀ at 2040) for a loss of about 30,000-36,000 tonnes in median cumulative TAC over the rebuilding period. In light of these considerations, the ESC recommended that the 30% by 2035 tuning be used for the selection of a new MP.
- The ESC investigated the impact of alternative levels of maximum TAC change as per the request of the 2018 meeting of the Strategy and Fisheries Management Working Group (SFMWG). Maximum TAC changes of 2000t and 4000t were investigated in addition the agreed maximum change of 3000t that is used for the Bali Procedure. Following these investigations, the ESC recommended no alteration to the current maximum TAC change of 3000t.
- The ESC conducted extensive testing and comparisons for four final Candidate Management Procedures (CMPs). All CMPs performed well, each with their own positive features, making the task of recommending a MP to the EC a challenging one, because generally the differences in performance statistics were quite small. There are, nevertheless, some important differences, and some CMPs performed better over a wider range of criteria and robustness tests than others.
- The ESC considered the CMP performance across a broad range of attributes: (i) Risk to SSB; (ii) Short term level of TAC; (iii) Probability of two increases in TAC followed by a TAC drop; (iv) Longer term performance beyond 2035; (v) Nature of the TAC trajectory; (vi) Certainty of future TACs; and (vii) Incorporation of available data sources. Based on these considerations, the ESC recommended the "RH13" CMP to the EC for the 30% SSB₀ by 2035 tuning.
- The ESC noted that the Meta-rules developed for the Bali Procedure had provided an effective process for managing exceptional circumstances during MP implementation and that their general nature meant that they would remain a suitable basis, with appropriate review, for implementation of the new MP. The ESC agreed that the Meta-rules should be updated to reflect the MP adopted by the EC.
- Three of the four CMPs used three input data sources, these being gene tagging, close-kin mark recapture and CPUE. One of the CMPs only used gene tagging and close-kin data.
- The ESC noted that isolated missing data for any of the MP input data series would not undermine the CMP's performance.

Budgetary implications

- The budgetary implications of the ESC's workplan will be included in paper CCSBT-EC/1910/06 on the Draft 2020 and Indicative 2021-2022 Budgets. Additional expenses to those indicated in CCSBT Circular #2019/051 include:
 - Expansion of sampling for the Close-kin work by 1,100 samples per year, which will add between \$28,000 and \$29,000 per year to the budget for 2020-2022; and
 - expanded scope of the June 2020 OMMP meeting to include consideration of the Scientific Research Plan, which will require attendance of the ESC Chair in addition to the full advisory panel and consultant at the meeting.

¹ The SFMWG advised that the tuning timeframe for CMPs should be 2035, but if the timeframe is too short and the initial results are numerically unstable or unsuitable, the OMMP Technical Group should increase the timeframe by five years or whatever is necessary. An extended timeframe to 2040 proved to be necessary for the 35% SSB₀ target.

Prepared by the Secretariat