COMMISSION
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Da Nang, Viet Nam
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Reference Document for Southwest Pacific Shortfin Mako Shark (Agenda 8.1.1.2)

WCPFC19-2022-22
11 November 2022

Secretariat

A. INTRODUCTION

1. The purpose of this paper is to provide a quick reference guide to the latest recommendations of the Scientific Committee (SC18) and Technical and Compliance Committee (TCC) of relevance to the discussions of Southwest Pacific shortfin mako shark (*Isurus oxyrinchus*) to be discussed under Agenda 8.1.1.2. This paper includes latest stock status, management advice and future research recommendations from SC18 for the Southwest Pacific shortfin mako shark stock, and recommendations to amend the Scientific Data to be Provided decision.

B. SCIENTIFIC COMMITTEE RECOMMENDATIONS

B.1 Provision of Scientific Information (*Paragraphs 42 – 44, SC18 Outcomes Document*)

a. Stock status and trends

2. The authors noted that the assessment models had high estimation uncertainty and were sensitive to a range of inputs. Assessment results were deemed preliminary and were not recommended for providing management advice and that alternative assessment approaches be explored. Therefore, SC18 found it was unable to provide stock status or trends information on Southwest Pacific mako shark to the Commission, as the status remains unknown.

b. Management advice and implications

3. SC18 does not regard the South Pacific mako shark assessment to be robust enough to provide management advice. As such, SC18 is unable to provide management advice and implications for South Pacific mako shark to the Commission. SC18 notes that a large number of CCMs currently release (cut sharks free) shortfin mako sharks. This practice may result in a reduction in fishing mortality and SC18 encourages CCMs to continue to maintain this practice as a precautionary measure for a slow growing, unproductive species with unknown stock status.

c. Future research recommendations

4. Given some of the fundamental uncertainties highlighted above, SC18 recommended:
   - Future assessments should spend increased effort to reconstruct spatiotemporal abundance

patterns for shortfin mako, and develop a better understanding of how these patterns drive regional abundance indices.

- Providing more time, either as inter-sessional projects, or by extending time-frames for shark analyses will allow more thorough investigation of input data quality and trends, which shape assessment choices. In addition, this approach would allow input analyses to be completed in time to be presented to the March pre-assessment workshop prior to the stock assessment commencing. Moreover, this will provide more time for the assessments themselves allowing a more thorough investigation of alternative model structures or assessment approaches.
- Increased effort should be made to re-construct catch histories for sharks (and other bycatch species) from a range of sources. Our catch reconstruction models showed that model assumptions and formulation can have important implications for reconstructed catch. Additional data sources, such as log-sheet reported captures from reliably reporting vessels, may be incorporated into integrated catch-reconstruction models to fill gaps in observer coverage.
- Additional tagging should be carried out using satellite tags in a range of locations, especially known nursery grounds off southeast Australia and New Zealand, as well as high seas areas to the north and east of New Zealand, where catch-rates are high. Such tagging may help to resolve questions about the degree of natal homing and mixing of the stock.
- Tagging may also help to obtain better estimates of natural mortality, if carried out in sufficient numbers. This could be taken up as part of the WCPFC Shark Research Plan to assess the feasibility and scale of such an analysis.
- Additional growth studies and validation of aging methods from a range of locations could help build a better understanding of typical growth, as well as regional growth differences. Current growth data are conflicting, despite evidence that populations at locations of current tagging studies are likely connected or represent individuals from the same population.
- Genetic/genomic studies could be undertaken to augment the tagging work to help resolve the stock/sub-stock structure patterns. To support this work, a strategic tissue sampling program for sharks is recommended with samples to be stored and curated in the Pacific Marine Specimen Bank.
- Aggregated data are currently submitted as annual totals for the WCPFC area only, making them uninformative for a stock specific assessment. Therefore, shortfin mako shark aggregated data (and probably other Key Sharks) should be reported by ocean area not simply as WCPO and, where possible, these data should be retrospectively corrected. As such we propose that paragraph 1 bullet point 3 of the Scientific Data to be Provided to the Commission should include the following sentence: "For Key Sharks, estimates of annual catch should be separated into catch north and south of the Equator. The WCPFC secretariat should work with CCMs to get these data retrospectively corrected where possible."

C. TECHNICAL AND COMPLIANCE COMMITTEE RECOMMENDATIONS

C.1 2022 Review information about scientific data provision *(paragraph 167, TCC18 draft Summary Report)*

1. TCC18 noted the recommendation from SC18 that paragraph 1 bullet point 3 of the Scientific Data Rules relating to annual catch data for key shark species be amended as follows.

> "The estimates of annual catch of key shark species should be separated into catch north and south of the equator and that the WCPFC Secretariat should work with CCMs to get these data retrospectively corrected where possible."