SIOFA | APSOI
Southern Indian Ocean Fisheries Agreement
Accord relatif aux Pêches dans le Sud de l'Océan Indien

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Summary of the Scientific Committee and the Meeting of Parties reports on deepwater sharks

Scientific Committee Vice Chair

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Abstract

Concerns on deepwater sharks have been listed in the Scientific Committee's (SC) work program since 2016, and since 2017 that there are agenda items focused on Deepwater chondrichthyans.

This document provides a summary of paragraphs that have discussed and made recommendations on sharks by the Scientific Committee and the Meeting of Parties.

To create this summary, the reports of the Scientific Community and the Meeting of Parties since 2013 were searched for references to shark, sharks or chondrichthyans. Relevant paragraphs in these reports are described below. SC Recommendations are highlighted.

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1. Summary of recommendations and decisions from the Meeting of Parties for 2013-2015

1.1. MoP1 report (2013) noted the following

Para 58. A representative from SIODFA provided details of the network of benthic protected areas (BPAs) in the southern Indian Ocean that have been voluntarily closed to deepwater trawling by SIODFA members, and expressed SIODFA's desire to see these closures formally adopted by SIOFA. SIODFA advised that these closures have already been implemented by Australia and the Cook Islands through their national regulatory processes. SIODFA also stressed that while its members have collected extensive biological and physical data, much about the sea floor remains unknown. SIODFA stated that it also remains concerned about the potential impacts of fishing on vulnerable marine ecosystems, in particular deepwater sharks and coldwater corals and sponges if SIOFA fails to adopt CMMs to effectively manage fishing activities in the SIOFA Area.

Para 73. The Meeting of the Parties agreed the Scientific Committee be tasked with developing:

(…) v). determination of the impacts of fishing on associated and dependant species, in particular deepsea sharks and seabirds;

2. Summary of recommendations and decisions from the Scientific Committee and Meeting of Parties for 2016

2.1. The SC1 report (2016) noted the following

Para 80. **The Scientific Committee noted** the substantial level of reported deepwater shark catch in some fisheries (particularly gillnet) and that it appeared to have been targeting of these species. It was noted that deepwater sharks were also taken as incidental catch in other fisheries. The EU noted the measures that had been taken in EU waters to ensure fisheries did not target deepwater sharks and that guidelines had been developed to ensure they were not targeted in other areas, globally by EU vessels. **The Scientific Committee agreed** that deepwater sharks may not be regarded as a target species of SIOFA fisheries into the future, given the measures parties were putting in place to prevent targeting. However, given the previous catch levels and potential incidental catch and the need to advise the MoP on their stock status, deepwater sharks should remain considered for assessment. It was noted that there was uncertainty in the species identification from the logbook data and that these may be a data poor group.

Para 81. The FAO noted that the ABNJ Deep Seas project included elements on deepwater sharks such as the development and dissemination of identification guides. **The Scientific Committee encouraged** members to work with the ABNJ Deep Seas project to link to the initiatives in this area.

Under Agenda Item 9 - Associated and dependent species:

Para 92. **The Scientific Committee noted** that the first function of the Scientific Committee (as outlined in Article 7 (1)(a)(i)) is to conduct scientific assessment of the fishery resources and the impact of fishing on the marine environment. Moreover, the MoP has tasked the Scientific Committee with specifically considering the impact of fishing on associated and dependent species including deepwater sharks and seabirds.

Para 94. The Cook Islands noted the research work completed aboard Cook Islands flagged vessels included the collection of deepwater shark data over the past 10 years and that this had contributed to the FAO projects on shark identification.

Para 95. The FAO noted that the ABNJ Deep Seas project has completed work in the development and sharing of shark identification work, and encouraged the formalisation of a partnership with the SIOFA Secretariat (once it is established) to facilitate the distribution of identification guides amongst relevant Parties.

Para 96. Australia noted its domestic processes of using risk assessment approaches to consider these species, including ERA Productivity-Sensitivity Analysis, and residual risk assessment to address the potential for overestimation of risk. Australia also noted a revised approach using Sustainability Assessment for Fishing Effects (SAFE) assessment, which produces Fbased reference points through the analysis of species distribution and fishing effort distribution data. Australia noted that with appropriate access to data, this work may be completed intersessionally and provided to the next meeting of the Scientific Committee.

Para 100. Australia presented SC-01-10 (02) that explains the negative impact of large-scale pelagic driftnets (drift gillnets) and deepwater gillnets on fishery resources, bycatch species and deep sea habitats has been raised as a management issue for SIOFA. Australia's paper provides background information that may assist the SIOFA Scientific Committee with recommendations for the next MoP on a binding measure that prohibits the use of largescale pelagic driftnets and deepwater gillnets. The main issues of concern in relation to large-scale pelagic driftnets are the gear's highly non-selective nature, lack of data to estimate mortality of bycatch and negative impacts resulting from nets or net fragments lost or abandoned (i.e. ghost fishing). Issues of concern in relation to deepwater gillnets are risks to deepwater shark populations due to their life history traits (i.e. slow growth, high longevity, late maturity and low fecundity), lack of data and ghost fishing. A ban on the use of large scale pelagic driftnets and deepwater gillnets in the SIOFA area would be consistent with current UNGA Resolutions, the FAO International Plan of Action (IPOA) on Sharks and conservation and management measures taken by other Regional Fisheries Management Organizations (RFMOs).

(End of Agenda Item 9)

2.2. MoP3 report (2016) noted the following

Para 27. One Contracting Party noted the SC's intention to assess the impact of deepwater gillnets; and further noted that, in its view, it would be appropriate to establish a sharks-specific measure instead of prohibiting deepwater gillnets, if sharks are the concern.

3. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2017

3.1. The SC2 report (2017) noted the following

Para 25. Following Japan's request, it was advised that species identification guides for VMEs, corals, deep water sharks, were available from the FAO ABNJ Deep Seas Project. The FAO observer offered to forward these to Japan. Japan confirmed that where possible they take photos and preserve specimens which are sent for identification.

Para 32. The EU clarified that in 2015, EU Spain vessels had moved from a gillnet fishery targeting deepwater sharks to a longline fishery targeting the same species. They noted they are looking towards the outcomes of the ecological risk assessment, to be discussed under Agenda Item 9.

Para 34. The EU advised that they intend to deploy an observer in June or July to cover the time of observation and to collect biological data on the deepwater sharks. Some size data are available.

Under the agenda Item 9.1 Report on progress towards an ecological risk assessment for deepwater sharks in the SIOFA Area:

Para 107. Australia presented paper SC-02-09(01) a progress report towards the development of a quantitative ecological risk assessment (ERA) for deepwater sharks in the SIOFA area. The ERA methods proposed are Productivity Susceptibility Analyses and Sustainability Assessment for Fishing Effects (SAFE). The SAFE method provides an absolute measure of risk to species by estimating both a proxy for fishing mortality rate and an associated quantitative reference point. A preliminary PSA has been completed identifying 58 species that have the potential to be at high risk to the effects of fishing. This means these species have a high probability of being depleted to a level that may result in long-term recruitment failure (assuming all of the stock distribution is subject to fishing). The next steps include undertaking a residual risk analyses and the SAFE analyses to verify the risk identified. The risk identified supports the reporting of all interactions with deepwater sharks associated with current fishing activities to the Secretariat for analyses by the SC. This should include species identification, length, weight, time of capture, location of capture, gear description, sex determination and genetic samples (stock delineation), if possible. A precautionary approach for fishery development or expansion, given the preliminary results, would place the onus on the flag state to demonstrate that their fishing will not adversely impact deepwater shark populations.

Para 108. **The SC welcomed** the progress on this issue and the collaborative approach and thanked the Parties and researchers involved in the analysis and the industry involved in the data collection.

Para 109. **The SC agreed** that the key elements in progressing this analysis, included:

- Refining the list of species considered for each gear. Currently the species list considered is based on the species distribution. This needs to be refined based on available catch data and other relevant information.
- Undertaking the SAFE analyses with fishing footprints. The preliminary analysis assumes the fishery occurs across the Area. If fishing footprints by gear are used, this will give a more realistic estimate of fishing mortality, through the SAFE analysis.
- In terms of the spatial scale of footprints. If the analysis is first undertaken at a coarser spatial scale, e.g. 20 minute grids, any high risk species can be identified and the analysis conducted at a finer spatial scale.

Para 110. **The SC agreed** that the ERA approach could be usefully applied to stocks of key target species, bycatch and incidentally caught species. This was incorporated in the work plan for the proposed ERA WG (Annex L SIOFA Ecological Risk Assessment Working Group ToR).

Para 111. SIODFA advised that they have had a shark data collection programme since 2006. Much data have been recorded including species identification, length, weight, sex, number of pups and photographs. Given there is an issue of shark conservation there would be benefit in analyzing this information. SIODFA's view was that the conservation of deepwater sharks would be most effectively addressed through a dedicated Elasmobranchs Working Group (EWG) rather than including this task in a more general stock assessment WG, which might detract from the task of addressing the status and management of targeted fisheries. SIODFA suggested a dedicated EWG would also facilitate

involvement of experts who are not part of the SC and that further shark information may be obtained from vessel skippers, most of whom had a long involvement in the fishery, if they were asked.

Para 112. SIODFA noted that the term 'risk' has a specific meaning in statistics/decision theory - the product of the probability of an event happening, e.g. a stock collapse, and the loss associated with such an event. SIODFA suggested that this perception may benefit Parties in understanding the consequence of, or lack of, management decisions.

Para 113. **The SC noted** that risk is explicitly defined in the ERA methodology as likelihood times consequence.

Para 114. **The SC agreed** that the ERA work needed to be progressed inter-sessionally. A SWG, led by Australia, was formed to develop the terms of reference and work plan for a proposed ERA Working Group.

Para 115. The SC recommended the Meeting of the Parties agree that the SC Chair convene an ERA Working Group for the purpose of progressing the stock assessment work, with the terms of reference and work plan in Annex L SIOFA Ecological Risk Assessment Working Group ToR.

Para 116. **The SC noted** the expectation in CMM 2016/05 that the Meeting of the Parties would receive a recommendation from the SC in relation to the use of deepwater gillnets and that this work had been identified in the 2017 – 2019 Operational Work Plan adopted at SC1.

Para 117. **The SC agreed** that this research remain on the updated Operational Work Plan (Annex Operational Workplan), reflecting the Meeting of the Parties expectation of SC advice on this issue.

(end of Agenda Item 9.1)

3.2. MoP4 report (2017) noted the following

Para 13. The Meeting of the Parties agreed:

(…) b. that the Scientific Committee Chairperson convene an Ecological Risk Assessment Working Group (ERAWG), chaired by Australia, with an initial focus on deep water sharks, as recommended by the Scientific Committee. The Meeting of the Parties adopted ToR for the ERAWG (Annex L, SC2 Report).

4. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2018

4.1. The SC3 report (2018) noted the following

Para 56. The overview [of SIOFA fisheries 2017] currently includes information on alfonsino, orange roughy, toothfish and deepwater sharks. The small task group agreed to work with Thailand during the meeting to include catches of the key species in the Saya de Malha bank fisheries.

Para 58. It was possible to update the catch volume graph for deepwater sharks (Annex E) as there was consistency in recent years. **The SC discussed** that there has been a major expansion in the deepwater shark fishery and that this indicates that data collection for this fishery should be a priority. The EU clarified that the earlier catch data collection was not as consistent as in recent years and data checking had identified some potential double counting. The EU is checking the records collected by industry and will provide any updates to the SIOFA database if required.

Para 74. **The SC discussed** that the sharks ERA report highlighted the need for better identification of deepwater sharks, and that this requires harmonised methods and processes for collecting these data. It was recalled that the SAWG also discussed risk assessment work for multiple teleost species (including Thai fisheries) and that the outcomes of this work are dependent on the best available information. **The SC discussed** that mandatory observer standards would assist with this process.

Para 101. The Cook Islands noted the recording of sharks and fragile benthos in South Indian Ocean program that is under way at FAO with the Smartforms program, as part of the ABNJ Deep Seas Project. This system is now in rapid development, and is linked to the long term time series of VME indicator species and interactions under a standardised format that was had been used by the trawl fleet in SIOFA since 2006. The Cook Islands suggested this is the preferred system for such data collection in SIOFA, supported by FAO with a global team of specialists in both shark identification and benthic species. This is the system being used by the Cook Islands observers.

Para 248. The ERAWG Chairperson (Dr Simon Nicol, Australia) updated the SC on the first meeting of the SIOFA ERAWG held on 23-24 October 2017 in Hobart, Australia (SC-03-INFO-05). The meeting focused on the ecological risk assessment for deepwater chondrichthyans in the SIOFA Area.

Under Agenda item 7.2.1 Deepwater chondrichthyans:

Para 249. Australia presented paper SC-03-07.2.1(01) that provides an update to the SIOFA SC on the ecological risk assessment (ERA) for the effects of fishing on deepwater chondrichthyans in the SIOFA Area using Productivity-Susceptibility Analysis (PSA) and Sustainability Assessment for Fishing Effects (SAFE) methods. The assessment identified a number of species categorised at high or extreme risk from fishing using demersal trawl, midwater trawl, demersal longline and gillnet gears. A supplementary paper (SC-03-INFO-12) provided a sensitivity analysis that explored different scenarios around the proportion of overlap between fishing effort and species' distributions, and noted that risk scores were not particularly sensitive to the changes.

Para 250. Australia noted that the assessment is conducted in a relatively data-poor space and that records of bycatch are sparse. The presenter noted that the results highlight the importance of getting better information on shark bycatch and identification, as well as noting the lack of productivity/biological data for some species. The presenter noted results for the PSA and SAFE assessments; modifications made to the input data; sensitivity analyses run; data input and modelling limitations.

Para 251. Australia also presented SC-03-07(01) which describes potential management actions in response to certain outputs from the SAFE assessments. The relationship between this framework and the SIOFA tiered assessment framework (Annex J) was described.

Para 252. **The SC discussed** the uncertainties in the assessment additional analyses that could assist in identifying and correcting any potential erroneous categorisations.

Para 253. **The SC discussed** that the work of JCU (Dr Cassandra Rigby) has produced a comprehensive dataset on the biology of deepwater sharks, and that an important piece of work for the SC is to analyse these data in more detail. The work of CSIRO was acknowledged. The ERA online tool developed by CSIRO was discussed and it was noted that this adds an important element of transparency to the assessment process.

Para 254. **The SC discussed** that information on stock structure for deepwater chondrichtyans is lacking and is a key uncertainty. In relation to the deepwater chondrichtyan risk assessment, the SC:

- **Noted** the results as presented in papers SC-03-07.2.1(01) and (SC-03-INFO-12).

- **Noted** that it is likely that these results include a number of yet to be identified false positives and false negatives.
- **Noted** that the ERA has prioritised species for which better information is needed and those for which explicit management actions may be required.
- **Requested** CPs to continue collaboration on this work, including the provision of data that has not yet been included in this assessment.
- **Recommends to the Meeting of the Parties that FAO identification guides for deepwater chondrichthyans in the Indian Ocean are implemented on fishing vessels to improve the collection of sharks catch information, and that CPs consider the use of the Smartforms when available.**

(end of Agenda item 7.2.1 Deepwater chondrichthyans)

Recommendations:

Page 50. In relation to the deepwater chondrichtyan risk assessment, the SC recommends to the Meeting of the Parties that FAO identification guides for deepwater chondrichthyans in the Indian Ocean are implemented on fishing vessels to improve the collection of sharks catch information, and that CPs consider the use of the Smartforms when available.

4.2. MoP5 report (2018) noted the following

Para 58. With respect to the work of the Ecological Risk Assessment Working Group, the Scientific Committee Chair noted the progress of the work led by Australia in conjunction with James Cook University and CSIRO on deepwater chondrichtyans and next steps towards completing this in line with CMM 2017/01. The EU noted the value of ERAs in informing the vulnerability of fish species to particular gears which however was not informative in terms of stock status. It suggested also exploring the usefulness of other methods such as MIST (Maximum Impact Sustainable Threshold) which may be able to generate quantitative indicators related to the ability of a stock to withstand fishing pressure. The Scientific Committee Chair noted the SAFE approach generates quantitative estimates of indicators and welcomed the presentation of other approaches to the Scientific Committee. There was discussion on the species identification and data limitations, particularly for historic data, and the efforts by some CCPs to ensure robust species identification and improved data collection for deepwater chondrichtyans.

5. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2019

5.1. The SC4 report (2019) noted the following

Para 26. **The SC asked** for more details regarding EU-Spain's shark fishery, including whether Portuguese dogfish (*Centroscymnus coelolepis*) was the main targeted species and whether there was any bycatch associated with the fishing of the species. The EU explained that it will provide answers intersessionally or at SC5.

Para 36. **The SC requested** that Korea provide spatial effort data for use in the ecological risk assessments (ERAs) for deepwater chondrichthyans and SIOFA teleosts. Korea stated their intention to provide spatial effort data from their observer programme.

Para 68. **The SC requested** that the Secretariat disaggregate catches of deepwater sharks by the main species in the graphs in the SIOFA Overview of Fisheries (Annex F, fig.5), provided there would be no confidentiality issues.

Under Agenda item 7.5 Deepwater chondrichthyans:

Para 154. Australia presented SC-04-19. The paper provides a draft manuscript for an ecological risk assessment for the effects of bottom fishing gears on deepwater chondrichthyans in high seas areas of the Southern Indian and South Pacific Oceans. Productivity-Susceptibility Analysis (PSA) and Sustainability Assessment for Fishing Effects (SAFE) methods were adapted to assess the vulnerability of 174 deepwater chondrichthyans to demersal trawl, demersal longline and demersal gillnet fishing gears in the Southern Indian and South Pacific Oceans. A number of species were categorised as being at high or extreme vulnerability to all gears, including some in the Southern Indian Ocean that are likely taken in association with commercial deepwater shark fisheries. Overall, there was good concurrence between PSA and SAFE results at the upper end of the vulnerability spectrum for Southern Indian Ocean fisheries. Despite a number of methodological limitations of this assessment, such methods can be used effectively to prioritise management action for those species considered to have the highest vulnerability to fishing.

Para 155. **The SC considered** the SERAWG advice.

Para 156. **The SC noted** that there is missing data for certain gears in certain years, which may bias the results of the deepwater chondrichthyan ERA towards underestimating the vulnerability of certain species.

Para 157. **The SC noted** that results should be considered in the context of information on the annual levels of catch for each gear type. **The SC noted** that SERAWG1 had requested the Secretariat to provide the annual catch data for deepwater shark catches in SIOFA from 2012 to 2017 for review by the Working Group in accordance with CMM 2016/03 (data confidentiality).

Para 158. **The SC noted** that in accordance with the SIOFA Rules of Procedure these data were viewed and discussed within a closed session by SERAWG1. Upon request observers and industry affiliates were absent while the SERAWG1 considered these fine-scale data, a subset of which were confidential as they related to total annual catches for individual species taken by EU-Spain. Based on the SERAWG's review of available data, the SC noted that most of the catch of deepwater chondrichthyans recorded in the SIOFA database is being taken by the demersal longline fishery (although noting that this has replaced a demersal gillnet fishery since 2015) and confirmed that the majority of these catches were being taken by one CP.

Para 159. Based on their discussion of the risk assessment results and the SERAWG's analysis of catches, **the SC noted** that the 'key species of concern' in the longline fishery include *Centroscymnus coelolepis* (Portuguese dogfish – SAFE risk low), *Centrophorus granulosus* (Gulper shark - SAFE risk extreme), *Deania calcea* (Brier shark - SAFE risk extreme), *Dalatias licha* (Black shark – SAFE risk extreme), *Zameus squamulosus* (Velvet shark – SAFE risk extreme), *Scymnodon plunketi* (Plunket's dogfish – SAFE risk extreme) and *Centroselachus crepidater* (Golden dogfish – SAFE risk extreme). Three newly described species of chimaera were also assessed to be at high risk in the SAFE assessment for longline gears (*Chimaera willwatchi*, *C. buccanigella* and *C. didierae*).

Para 160. **The SC noted** that as well as a number of species assessed to be at high or extreme vulnerability for all gears, the majority of species were assessed to be at the lower end of the vulnerability spectrum.

Para 161. **The SC noted** that annual catch information was available to the SERAWG to inform its consideration of the risk assessment results for *C. coelolepis*, *C. granulosus*, *D. calcea*, *D. licha* and

Etmopterus granulosus (*E. granulosus* – SAFE risk low). *E. granulosus* was included because it is reported as the fourth highest catch volume.

Para 162. **The SC noted** for 2013 – 2016 the annual catch data available indicates that these catches are from targeted fishing for Portuguese dogfish in the longline and gillnet fisheries. The SC noted that for one year of catch data (2015) there were two gears in use (longline and gillnet). For one year (2017) the characteristics of longline fishing by this Contracting Party changed with the addition of catches of toothfish. In this context, it was noted that without additional analyses of the spatial distribution of catches, it was difficult to establish whether catches of the aforementioned 'key species of concern' for which catch data are available for 2017 were being taken in association with the main target species (which is thought to be Portuguese dogfish (*Centroscymnus coelolepis*), as it is the species being caught in the highest volumes) or whether these species of concern may be being taken as bycatch when targeting other species (e.g. toothfish).

Para 163. **The SC noted** that additional analysis of the spatial and depth distribution of catches of the main target species and the species of concern in the longline fishery would be useful so that catch rate and catch trend information could be considered in the context of the results from the ecological risk assessment.

Para 164. In summary, **the SC**:

- **Agreed** there is limited catch, effort and biological information for many species of deepwater chondrichthyans;
- **Agreed** that the PSA and SAFE analyses have identified a number of species of deepwater chondrichthyans at high or extreme relative vulnerability to fishing using demersal trawl, demersal longline and demersal gillnet gears;
- **Noted** that based on the results of the ERA and the understanding of the vulnerability of many deepwater chondrichthyans species to fishing, four 'key species of concern' for which catch data are available (*C. coelolepis*, *C. granulosus*, *D. calcea* and *D. licha*) are caught in relatively high volumes.
- **Recommends the collection and submission of more detailed observer data (e.g. improved species identification in accordance with the implementation of the FAO shark guides, biological samples to enable future genetic research, number of pups/eggs, life status (i.e. if discarded)) for species of concern (e.g. those at high or extreme vulnerability to fishing using certain gears) and all other data in accordance with CMM 2018/02, Annex B;**
- **Requests** the MoP to urgently consider measures to mitigate the potential for overexploitation of 'key species of concern' that has been seen in similar fisheries globally.

(end of Agenda Item 7.5)

Para 179. Tony Thompson provided an update on the five-year ABNJ Deep Seas Project. This project is supported by GEF, and implemented jointly by FAO and UNE (September 2014-August 2019). The Project is designed to enhance sustainable use of deep-sea living resources whilst minimising impacts from fisheries to conserve biodiversity conservation in the ABNJ following an ecosystem approach. It brings together over 20 partners who work on deep-sea fisheries and conservation issues in the ABNJ globally. FAO undertook the legal and fisheries components, and UNE-WCMC the spatial planning component. The project has published global reviews on legal instruments, the management of VMEs, orange roughy, CDS, climate change, and Area-based planning, relevant to deep-sea fisheries and biodiversity conservation in the high seas. Soon to be published reports include an Update Worldwide Review of Bottom Fisheries in the High Seas, MSC, and the application of EAFM. Work more relevant to the Indian Ocean and SIOFA includes MSC for deep-sea fisheries, training on implementing

international obligations relating to deep sea fishing and conservation in the ABNJ, shark and ecosystem risk assessment, and support to the SIOFA PAEWG and SERAWG. Further details can be found in information paper SC-04-INFO-04.

5.2. MoP6 report (2019) noted the following

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5. 12.5 Proposal on Sharks 16

Para 117. The European Union presented a proposal for a CMM for the conservation and management of deep sea sharks including a prohibition of targeting any deep-sea shark species by vessels operating under SFIO, as well as prohibiting the removal, retention of board, transhipment and landing shark fins outlined in document MoP6-Prop09_Rev1 and noted that the purpose of this proposal is to fill a management gap and provide for specific measures for the conservation and management of deep sea sharks in SIOFA.

Para 118. The MoP discussed the proposal and some come CCPs indicated that they could not agree to the provisions regarding the finning ban. Other CCPs expressed concerns about the lack of a species list that could result in implementation and compliance difficulties. To address this concern, a list of species was developed taking into account the recent SIOFA ERA on sharks and the advice of the SC. CCPs further developed this proposal in a small working group and the final proposal was presented in MoP6-Prop09_Rev3.3. CCPs were supportive of this proposal and Australia reiterated their sincere hope that this measure will result in reduced mortality of deep sea sharks in the Agreement Area.

Para 119. The EU noted that MoP has taken an important step towards protecting and managing deep- sea shark species in the SIOFA area. This would need to be further strengthened based on advice from the SC on appropriate by catch limits. It also expressed its disappointment that although directed fishing for some deep-sea shark species was now prohibited within the Agreement area, MoP-6 could not adopt the proposed prohibition of the finning of sharks and hoped that the measure could be further strengthened in the future.

Para 120. The Meeting of the Parties ADOPTED the Conservation and Management Measure 2019/12 Conservation and Management of Sharks (Annex L).

Para 151. The Meeting of the Parties ADOPTED the interim formula for annual contributions that composes of 10% Base, 30% National Wealth, 30% of high-value species catch (orange roughy, alfonsino, toothfish and all species of deep sea sharks) and 30% of all other low-value species (effectively this covers the Saya de Malha Bank). The Meeting of the Parties AGREED that this formula shall be reviewed, and amended if required, at MoP7.

6. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2020

6.1. The SC5 report (2020) noted the following

Para 20. Following clarifications requested in the Forum, the EU explained that EU-Spain fishing vessels have not targeted any shark species since the entry into force of CMM 2019/12 (Sharks) in October 2019. Figure 3 of the EU national report shows species catch by area (left) and year (right) of the eight most abundant species taken from the EU-Spain fleet by year, rather than month, during the period

2014- 2019. If Figure 3 would have shown catches by month it would show zero catch of sharks from October 2019. Details about shark bycatch can be found on Figures 3 and 4 of the EU report, where targeted species and bycatch are shown.

Para 21. The EU further explained that, although, as indicated in its annual report, the main target species in area 2 were deepwater sharks, this will change in line with the EU's compliance with the latest CMM (2019/12 (Sharks)). Furthermore, as part of efforts to assess the status of SIOFA's key target and bycatch shark species, EU-Spain has provided necessary data used in developing the ecological risk assessment (ERA) for these species.

Para 37. Chinese Taipei explained that, according to the scientific observers' records, the most common species of shark its vessels have encountered in the Indian Ocean are blue shark, shortfin mako, longfin mako and crocodile shark, while for seabirds, the most common species are white-chinned petrel, shy albatross, wandering albatross and shearwaters nei.

Para 86. **The SC sought** clarification on the use of wire snoods, and whether nylon snoods could be used instead to reduce shark bycatch, in accordance with CMM 2019/12 (Sharks). Noting CMM 2018/09 (Control), para 9, the EU explained that the EU-Spain vessels use wire snoods because they are more resistant than nylon snoods and that the use of nylon snoods would result in loss of fishing gear and increase in marine pollution.

Para 87. **The SC noted** that there is a possible trade-off between potential gear modifications that may result in small amounts of plastic pollution and fishing gear loss, and the potential conservation of deep-sea sharks and mitigation of shark bycatch in accordance with CMM 2019/12 (Sharks) (and particularly paragraph 5 thereof, which states that CCPs shall, where possible, undertake research to identify ways to make all relevant fishing gears more selective to minimise deep sea shark bycatch and shall provide relevant information to the SC).

Agenda item 7.6 Deepwater chondrichthyans

Para 143. Australia presented SC-05-16, which provides the final SIOFA deepwater chondrichthyans ERA. This work has since been published in the ICES Journal of Marine Science (Georgeson et al. 2020). The main conclusions are that several species that are reported to have been commercially targeted in SIOFA were assessed as being at high or extreme risk to fishing, based on which SC4/SERAWG1 developed a list of 'species of concern'; better catch, effort and biological information is needed to inform assessment and management; and if there is targeted shark fishing in the Southern Indian Ocean, improved assessments and estimates of sustainable yields are urgently required to mitigate risk of overexploitation.

Para 144. The SERAWG Co-Chair (Australia) summarised the discussions from the SERAWG on deepwater chondrichthyans. The SERAWG recalled that CMM 2019/12 (Sharks) tasked the SC with advising the MoP on the need to adopt any appropriate bycatch limits for relevant SIOFA deep sea shark species and fleets. The SERAWG discussed the large removals of low-productivity and potentially highly vulnerable species and agreed that precautionary bycatch limits are necessary if the removals continue. The Co-Chair (Australia) noted that the majority of catches of deepwater sharks in SIOFA are being taken by one CP using longline gears. Regarding CMM 2019/12 (Sharks), the SERAWG suggested that, in the absence of any other attempts or methods to inform the setting of SIOFA-specific bycatch limits, the deepwater chondrichthyan bycatch and move-on rules used by CCAMLR would be a sensible way to mitigate bycatch of deepwater sharks in SIOFA.

Para 145. **The SC discussed** the post-release survival of deepwater sharks caught in both trawl and longline fisheries. It was discussed that some studies suggest low post-release survival from trawl fisheries, while research from longline fisheries in shallower depths than SIOFA fisheries suggests

there may be higher post-release survival. Careful handling of the species may be required to maximise their chance of post-release survival.

Para 146. SIODFA suggested that observers and crews need to be sensitised to the importance of shark survival, while recognising that releasing the sharks in time can be difficult as this needs to be done at what is usually a very critical time during fishing operations. SIODFA also suggested that it may be worthwhile to explore tagging studies of deepwater sharks.

Para 147. DSCC pointed out that CCAMLR has undertaken tagging research on skates that shows that skates survive in longline fisheries. For deepwater sharks, the survival rate is very low in trawl fisheries but some do survive releases from shallow fisheries.

Para 150. **The SC noted** that there is considerable uncertainty around the characteristics of SIOFA deepwater chondrichthyan fisheries and that resolving these uncertainties would greatly assist future scientific research and management of these fisheries, and **requested** that SIOFA CCPs catching deepwater chondrichthyans (whether defined as 'targeted' or ''bycatch') collaborate to provide a paper to SC6 on the characteristics of these fisheries.

Para 151. The SC **noted** the key findings of the ERA, specifically that:

- uncertainties in ERA analyses and the input data should not prevent a precautionary approach being taken by SIOFA to prioritise species for further research, data collection and/or stock assessment to estimate sustainable yields;
- information on the identification, distribution, stock structure, biology and life history of many deepwater chondrichthyans is lacking and needs to be improved;
- at-sea identification protocols need to be improved and efforts should be made to collect information on deepwater chondrichthyans at a species level in logbook and observer records, with these data being recorded at the best possible resolution in the SIOFA databases;
- research on species' post-capture mortality and selectivity would be useful to reduce uncertainties in this assessment, as well as to inform mitigation strategies to minimise vulnerability associated with susceptibility; and
- more quantitative assessments are urgently required for deepwater shark species which are reported to be commercially targeted or retained in relatively high volumes in the Southern Indian Ocean to minimise the risk of overexploitation that has occurred in other fisheries globally.

Para 152. **The SC noted** the measures implemented in SIOFA partly in response to the ERA, including the implementation of CMM 2019/12 (Sharks) and the recommendation for SIOFA vessels to carry and use the relevant FAO guides to the Deep-sea Cartilaginous Fishes of the Indian Ocean (Volumes 1 and 2).

Para 153. The SC recommended that until more rigorous estimates of fishing mortality can be derived, the ERA for SIOFA deepwater chondrichthyans be updated every five to ten years, or whenever there is a substantial change in the fishery (e.g. large changes in catch and/or effort), and that these periodic updates be reflected in the SIOFA SC workplan.

Para 154. **The SC recalled** the advice of SC4 (SC4 Report, para 164), in particular:

- that the Productivity-Susceptibility Analysis (PSA) and Sustainability Assessment for Fishing Effects (SAFE) analyses identified a number of species of deepwater chondrichthyans at high or extreme relative vulnerability to fishing using demersal trawl, demersal longline and demersal gillnet gears; and

- that based on the results of the ERA and the understanding of the vulnerability of many deepwater chondrichthyans species to fishing, four 'key species of concern' for which catch data are available (*C. coelolepis*, *C. granulosus*, *D. calcea* and *D. licha*) are caught in relatively high volumes.

Para 155. Regarding CMM 2019/12 (Sharks), para 4, **the SC requested** the MoP to urgently consider additional precautionary measures to mitigate bycatch of deepwater chondrichthyans. **The SC noted** the absence of any attempts or methods to inform the setting of SIOFA-specific bycatch limits and discussed potentially useful bycatch mitigation measures such as:

- Longline gear modifications, such as the use of nylon snoods instead of wire snoods, noting paragraphs 86 and 87 that discuss potential trade-offs with such an approach.
- Prohibition on the retention of deepwater chondrichthyans
- Live release, where possible, of all shark bycatch (see, for example, CCAMLR conservation measure (CM) 32-18)
- Move-on rules such as those used by CCAMLR (for example, as per CCAMLR CM 33-03), whereby vessels are required to move-on if bycatch of certain species (including deepwater sharks) exceeds a percentage of the catch limit for that fishery, or exceeds a particular weight/number threshold per fishing operation (e.g. set or tow).

Para 156. The Cook Islands noted that the targeting and/or retention of any shark or shark parts by Cook Islands flagged vessels is prohibited as per the special licensing conditions under the Cook Islands High Seas Trawl Authorisation. All sharks must be released dead or alive in the best manner for the sharks' survival.

Para 158. FAO commented that the ABNJ Deep Seas Project is planning to work with RFMOs on impacts of fishing on deepwater sharks. RFMOs are using different approaches, and there is value in learning from the different approaches and results. The ABNJ Project would be interested in collaborating with SIOFA on its deepwater shark assessments, particularly on the data collection relating to identification, catch and distribution of deepwater sharks, and the spatial distribution of fishing effort by gear.

Para 159. **The SC agreed** that collaboration with the ABNJ Deep Seas Project would be beneficial to informing SIOFA's management of deepwater shark species and **requested** relevant CCPs collaborate with the ABNJ Deep Seas Project to contribute to the project development on this issue.

Para 161. DSCC suggested ending the use of steel tracers in longline fisheries as a precautionary measure to reduce the bycatch of sharks, especially deepwater sharks. This would also help prevent the bycatch of sharks by ghost fishing when any longline gear is lost.

In relation to Agenda item 6.5.1 Submitted BFIA:

The SC noted that there is a possible trade-off between potential gear modifications that may result in small amounts of plastic pollution and fishing gear loss, and the potential conservation of deep-sea sharks and mitigation of shark bycatch in accordance with CMM 2019/12 (Sharks) (and particularly paragraph 5 thereof, which states that CCPs shall, where possible, undertake research to identify ways to make all relevant fishing gears more selective to minimise deep sea shark bycatch and shall provide relevant information to the SC). (Paragraph 87)

The SC noted the need to make further progress on improving individual impact assessments and developing a cumulative BFIA for SIOFA. (Paragraph 94)

In relation to Agenda item 7.6 Deepwater chondrichthyans:

The SC noted that there is considerable uncertainty around the characteristics of SIOFA deepwater chondrichthyan fisheries and that resolving these uncertainties would greatly assist future scientific research and management of these fisheries, and **requested** that SIOFA CCPs catching deepwater chondrichthyans (whether defined as 'targeted' or 'bycatch') collaborate to provide a paper to SC6 on the characteristics of these fisheries. (Paragraph 150)

The SC noted the key findings of the ERA, specifically that:

- uncertainties in ERA analyses and the input data should not prevent a precautionary approach being taken by SIOFA to prioritise species for further research, data collection and/or stock assessment to estimate sustainable yields;
- information on the identification, distribution, stock structure, biology and life history of many deepwater chondrichthyans is lacking and needs to be improved;
- at-sea identification protocols need to be improved and efforts should be made to collect information on deepwater chondrichthyans at a species level in logbook and observer records, with these data being recorded at the best possible resolution in the SIOFA databases;
- research on species' post-capture mortality and selectivity would be useful to reduce uncertainties in this assessment, as well as to inform mitigation strategies to minimise vulnerability associated with susceptibility; and
- more quantitative assessments are urgently required for deepwater shark species which are reported to be commercially targeted or retained in relatively high volumes in the Southern Indian Ocean to minimise the risk of overexploitation that has occurred in other fisheries globally. (Paragraph 151)

The SC noted the measures implemented in SIOFA partly in response to the ERA, including the implementation of CMM 2019/12 (Sharks) and the recommendation for SIOFA vessels to carry and use the relevant FAO guides to the Deep-sea Cartilaginous Fishes of the Indian Ocean (Volumes 1 and 2). (Paragraph 152)

The SC recommended that until more rigorous estimates of fishing mortality can be derived, the ERA for SIOFA deepwater chondrichthyans be updated every five to ten years, or whenever there is a substantial change in the fishery (e.g. large changes in catch and/or effort), and that these periodic updates be reflected in the SIOFA SC workplan. (Paragraph 153)

Regarding CMM 2019/12 (Sharks), para 4, **the SC requested** the MoP to urgently consider additional precautionary measures to mitigate bycatch of deepwater chondrichthyans. **The SC noted** the absence of any attempts or methods to inform the setting of SIOFA-specific bycatch limits and discussed potentially useful bycatch mitigation measures such as:

- Longline gear modifications, such as the use of nylon snoods instead of wire snoods, noting paragraphs 86 and 87 that discuss potential trade-offs with such an approach
- Prohibition on the retention of deepwater chondrichthyans
- Live release, where possible, of all shark bycatch (see, for example, CCAMLR conservation measure (CM) 32-18)
- Move-on rules such as those used by CCAMLR (for example, as per CCAMLR CM 33-03), whereby vessels are required to move-on if bycatch of certain species (including deepwater sharks) exceeds a percentage of the catch limit for that fishery, or exceeds a particular weight/number threshold per fishing operation (e.g. set or tow). (Paragraph 155)

The SC agreed that collaboration with the ABNJ Deep Seas Project would be beneficial to informing SIOFA's management of deepwater shark species and **requested** relevant CCPs collaborate with the ABNJ Deep Seas Project to contribute to the project development on this issue. (Paragraph 159)

6.2. MoP7 report (2020) noted the following

Para 52. The Meeting of the Parties reviewed the report and advice of the SC5. Following this review, the Meeting of the Parties:

ADOPTED the report of the 5th meeting of the Scientific Committee at MOP-07- 18;

Considered the recommendations from the Scientific Committee to the MOP given in the consolidated advice in Agenda item 13 of the SC5 report and summarised in the Scientific Committee Chair's paper to the MoP (MOP-07- 31[info]);

Due to time constraints and although some CCPs expressed broad support for these recommendations, agreed to defer the recommendations outlined in paragraphs 49, 134 and 155 of the SC5 report to MoP8;

Concerning the recommendation outlined in paragraph 49:

recommended that if feasible, CCPs provide details on the use of fishing footprints in order to allow the next Scientific Committee to progress on the subject,

- endorsed the request that the PAEWG prepare a paper outlining the options for different methodologies of different gear types and objectives as well as options for addressing the pending technical issues and associated consequences/trade-offs to facilitate discussions of the MoP8;
- Noted that Japan intends to provide comments and request for clarification of the intended use of the SIOFA bottom fishing footprint (para49) which forms the foundation of the discussion of the framework for scientific research (para181)
- Acknowledging that the format this year did not allow enough time to properly examine the deepwater shark bycatch mitigation measures discussed by the SC, and that additional time is needed to review the implementation and effectiveness of CMM12, requested the SC further elaborate the bycatch mitigation measures specified in paragraph 155 of the SC5 report in order to provide a solid basis for informed decision-making;
- Noted some CCPs emphasised the importance of CCP bottom fishing impact assessments meeting the BFIAS, and recalled paragraph 75 of the MoP6 report which asks CCPs to address gaps in their BFIAs to meet the BFIAs;

Para 50. The EU expressed its support for conducting a feasibility assessment of collecting acoustic data in paragraph 111 of the SC report, noting that the synergies between voluntary contributions and grants, on the one hand, and the SIOFA budget on the other hand, could allow a preliminary assessment of the main topics. The EU also expressed support for the time frame described in paragraph 153 (the ERA for SIOFA deepwater chondrichthyans to be updated every five to ten years) and expressed it appreciation to the PAEWG, SERAWG and SC Chairs for providing the updated research priorities acknowledging that funding should focus on identified MoP priorities, while assuring synergies among different sources of funding.

Para 53. The Southern Indian Ocean Deepsea Fisheries Association provided a statement relating to the allocation of funds to work on application of acoustics to alfonsino stock assessment, outlined in

Annex H and a statement on expanding knowledge on the deepwater sharks of the Agreement Area, also outlined in Annex H.

7. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2021

7.1. The SC6 report (2021) noted the following

Para 11. Thailand presented its annual report. Thailand began authorising Thai-flagged overseas fishing vessels to operate in the SIOFA Area in May 2019. The main fishing grounds were distributed around Saya de Malha Bank, between 9-11° S latitude and 60 to 62° E longitude. The fishing gear were otter board trawl and handline. Currently, there are no transhipments at sea by Thai carriers in the SIOFA Area because there are still only few Thai fishing vessels operated in the area and they are required to unload fish at Thai ports. The fishing information were recorded during January – December 2020. There were 924.51 tons of catch from otter board trawl and 379.39 tons of catch from handline. For trawl, 464 hauls were operated and the average CPUE was 476.92 kg/hr. The dominant caught species consisted of *Decapterus* spp., *Saurida* spp., *Nemipterus* spp., *Selar crumemophthalmus*, and *Sphyraena* spp. For handline, 133 fishing days were operated and the average CPUE was 2852.59 kg/day. The major caught species consisted of *Carangoides* spp., *Lutjanus* spp., *Serranid* fish, *Aprion virescens*, and *Lethrinus* spp. Incidental bycatch was also observed and reported by onboard observers. Seabirds and marine mammals were not caught by Thai fishing vessels in 2020. From trawl, three leatherback sea turtle, 560 kg hammerhead sharks (*Sphyrna* spp.), one mobulid ray, five bowmouth guitarfish (*Rhina ancylostoma*), 323 kg sponge, and 0.02 kg black coral (*Antipathes dichotoma*) were reported as incidental bycatch. From handline, four kawakawa and 10-kg Staghorn Coral (*Acropora formosa*) were reported as incidental bycatch.

Para 20. Cook Islands presented its annual report. In 2020 the Cook Islands authorised two vessels to undertake fishing in the SIOFA Area. These vessels target deepwater finfish species, primarily alfonsino (*Beryx splendens)* and orange roughy (*Hoplosthethus atlanticus*) using bottom and midwater trawl fishing methods. The report captured catch and effort data, fisheries data collection, research activities, VME thresholds for bottom fishing activities, biological sampling and length/age composition of catches, the observer programme, the port sampling and inspection programme, the vessel monitoring system, and interactions with sharks. Appendices were also provided on the Cook Islands to FAO species codes and list of Benthic Protected Areas (BPAs) closed to Cook Island flagged vessels.

Agenda item 7.6.1. Deepwater chondrichthyans

Para 127. SIODFA introduced information papers SC-06-INFO-03 (a brief summary of information regarding deep water sharks collected by Paul Clerkin on the F.T. Will Watch in SIOFA waters in 2012 and 2014) and SC-06-INFO-04 (an introduction to research work being planned on deepwater sharks in the SIOFA Area by Paul Clerkin). SIODFA highlighted the extreme difficulty that can occur of identifying many deepwater chondrichthyan species and invited proposals for a system whereby CCPs send photos of caught deepwater chondrichthyan species to SIODFA for species identification.

Para 131. Regarding deepwater chondrichthyans, **the SC:**

- **noted** the lack of discussion at this year's SERAWG meeting.
- **requests** that SERAWG4 include deepwater chondricthyans in its agenda and note any additional work towards reviewing progress against CMM 2019/12 (Sharks) and potentially the development of precautionary bycatch limits.

Para 146. **The SC noted** that similar analyses of other species of concern (e.g. elasmobranchs) in the SIOFA Area should also be undertaken in the future.

Para 150. The Food and Agriculture Organization (FAO) of the United Nations presented SC-06- INFO-01, which provides an update on the development of the FAO ABNJ Deep-Sea Fisheries (DSF) Project. Some aspects of the project that may be of particular relevance to SIOFA include data collection; data-limited stocks, such as alfonsino; deepwater sharks; bottom fishing measures and VMEs; collaboration and coordination, across RFMOs, industry, other stakeholders, and BBNJ negotiations; and an ecosystem approach including economic and human pillars.

7.2. MoP8 report (2021) noted the following

Para 50. The European Union noted that it had been requested at CC5 to provide further information about its voluntary move-on rules in the event that its vessel encountered deep-water sharks. The European Union explained that in 2020, these rules were triggered 59 times. The move-on rules consist of three steps: 'A', 'B' and 'C'. Step A was triggered 26 times, step B was triggered 33 times, and step C was never triggered because the vessel did not return to the point of the original encounter.

Para 51. Australia thanked the European Union for the information and requested further details, specifically how many times the move-on rules were triggered in Area 2; how many shots were undertaken in Area 2 and, of those, how many were taken in the interim protected area; and what additional steps are being considered in light of the high level of shark catch.

Para 52. Australia noted that SC5 had provided advice on commonly caught deepwater shark at high or extreme risk from fishing from demersal methods and requested the Meeting of the Parties to urgently consider additional precautionary measures. Australia proposed that the Scientific Committee should provide further advice on the sustainability of deepwater shark catch over recent years and consider whether further measures to control deepwater shark catch are required.

Para 53. The European Union explained that its scientific services were still considering the best approach to analysing how many times the move-on rules were triggered and that it would prefer to give accurate information to the Scientific Committee and the SERAWG rather than an inaccurate figure during the Meeting of the Parties. The European Union further explained that the relevant data concern the sole EU vessel operating in the SIOFA Area and, to ensure the confidentiality of the data, cannot be made publicly available. The European Union will provide the data to the Scientific Committee and the SERAWG in support of the Ecological Risk Assessment on sharks, the review of the CMM 2019/12 and potentially the development of precautionary bycatch limits.

Para 125. DSCC urged CCPs to be prepared to discuss paragraph 129 of the SC6 report, which states that 'the SC recalled the discussion at SC5 on the merits and demerits of wire snoods versus nylon snoods (SC5 Report, paras 86-87) and noted the encouragement to CCPs to share any research that would provide further clarity on this matter' at the next Scientific Committee meeting so as to avoid excessive shark bycatch.

Para 150. Australia noted that each CCP undertaking bottom fishing in the SIOFA Area has duties under CMM 2020/01 to establish and apply measures that limit the extent of bottom fishing by their vessels. Australia noted that no other CCP has measures that limit catch by species and that it was not clear why only Australia's approach was being questioned. Australia noted that paragraph 10 of the CMM requires CCPs to limit catch, effort or both, that Australia meets this requirement by implementing catch-based management controls, and that it has extensive experience in using such approaches to effectively constrain fishing activity. Australia further noted that these practices have been applied for many years, and have been shared with CCPs and on the SIOFA website. Australia explained that there

has been no change to its 1100t catch limit, and pointed out that its catches in recent years are low compared to other CCPs' catches of target species and bycatch species. In terms of catches in 2020, one CCP had deep-sea shark catch of around 600t whereas Australia's total bottom fishing catch was 107t. Australia further noted that it has openly disclosed a change in fishing methods, reducing the use of trawl methods and increasing that of line methods, which has not resulted in an increase in catch. Australia stated that it will continue to monitor its catches of target and bycatch species and ensure that these remain within sustainable bounds, and encouraged all CCPs to do the same.

8. Summary of recommendations and decisions from the Scientific Committee and Meeting of parties for 2022

8.1. The SC7 report (2021) noted the following

Agenda item 7.6 Review of the level of mortality of deep-water sharks.....33

Para 14. The Cook Islands presented its annual national report. In 2021 the Cook Islands authorised two vessels to fish in the SIOFA Area. These vessels targeted deepwater finfish species, primarily alfonsino (*Beryx splendens)* and orange roughy (*Hoplostethus atlanticus*) using bottom and midwater trawls. The report noted the catch and effort data, fisheries data collection, research activities, vulnerable marine ecosystem (VME) thresholds for bottom fishing activities, biological sampling and length/age composition of catches, the observer programme, the port sampling and inspection programme, the vessel monitoring system, and interactions with sharks. Appendices were also provided on the translation between Cook Islands and FAO species codes, and a list of the Benthic Protected Areas (BPAs) closed to Cook Island flagged vessels was provided.

Para 150. **The SC developed** interim definitions to prioritise species for work including primary, secondary and endangered, threatened and protected (ETP) species as follows:

- Secondary species: All other species that comprise 5 per cent or more of the total catch (determined using a 3-5 year average) or, for 'less resilient' species (most sharks etc., based on ERA), 2 per cent or more of the total catch.

Para 151. The SC recommended that the above definitions of primary, secondary and ETP species be used on an interim basis and that the workshop on defining fisheries, target species and target species consider these definitions and how to refine them further.

Agenda item 7.6 Review of the level of mortality of deep-water sharks

Summary of paper

Para 154. Tuna taken in pelagic longline fisheries constituted the greatest bycatch by weight. Deepwater sharks taken in demersal longline fisheries included the greatest number of high-risk species. Conducting a level 2 ERA of important bycatch in SIOFA fisheries would require clarity on the target species in a fishery and improved taxonomic resolution in catch reporting.

Para 155. Based on the paper, the consultant recommended that:

- In the interim of the adoption of additional measures, including bycatch limits for relevant deep-sea shark species (see CMM 2019/12 Annex 1), SIOFA should introduce measures to reduce/avoid demersal longline fishing in SIOFA Subarea 2.
- Leafscale gulper shark *Centrophorus squamosus* (GUQ) should be considered a 'key species of concern'.

Para 156. Some CCPs pointed out that, with regard to deepwater shark bycatch, the study and its recommendations were limited to the longline fishery in Subarea 2 and did not consider other areas or gear types for which such bycatch have been recorded noting the document SERAWG-03-INFO-03 showing shark bycatches during two benthopelagic trawl surveys in 2012 and 2014, which occurred prior to the prohibition on targeting sharks. The consultant clarified that the analysis included an evaluation of available demersal and pelagic longline as well as some trawl data from multiple subareas. Other CCPs pointed out that the extremely high level of deepwater shark bycatch, that makes up almost 60% of the retained catch, for this area is far higher than for other similar fisheries and that this fishery may need to urgently reduce the level of shark bycatch as a high priority. One CCP noted that there appears to be deliberate targeting of sharks in this fishery.

Para 157. The SC endorsed the SERAWG's recommendation to support the holding of a 2- day workshop in Tenerife (Spain) in 2023 to:

- **carry out an assessment of the stock status of the shark species involved in the SIOFA fisheries.**
- **discuss potential measures to reduce shark bycatch further.**

Para 158. The SC further recommended that the workshop:

- **investigate potential shark bycatch mitigation measures considering all fishing methods across the whole SIOFA Area.**
- **consider as a priority the key areas and methods for which sharks are caught.**
- **review the list of species of concern in CMM 2019/12 (Sharks) with respect to sharks.**
- **develop identification guides to assist the recording of species by the vessel crew and observers.**

Para 159. **The SC noted** that, to be able to develop further scientific advice on shark bycatch mitigation, it is important to have access to all CCPs' shark bycatch data.

Para 160. The SC recommended that a data call be made in preparation for the shark-related workshop to gather all available data.

Para 161. The SC recommended that, in areas where vessels are experiencing high shark bycatch, CCPs consider interim voluntary guidelines to reduce that bycatch.

Para 162. The SC endorsedD the following SERAWG recommendations:

- **to hold more detailed discussions on potential gear modifications that could mitigate shark bycatch, including information on the survival rates of sharks hooked by such gear.**
- **regarding the voluntary EU measure of releasing all shark species listed as a "high risk" in Annex 1 of the CMM 2019/12 (Sharks) that are alive and in good condition, "in good condition" is ambiguous and open to interpretation and the measure should be modified to require the release of all the aforementioned shark species that "are alive".**

Para 163. The Cook Islands informed the SC that it intends to submit a characterisation of its fisheries to the next SC meeting. The SC encouraged the Cook Islands to endeavour to provide a draft at the shark-related workshop if time allowed.

Para 164. While noting that there was some uncertainty in the ERA results, **the SC suggested** that the MoP consider including Leafscale gulper shark *Centrophorus squamosus* (GUQ) as a 'key species of concern' in CMM 2019/12.

Para 165. **The SC encouraged** CCPs to report catch, effort and observer data at the finest taxonomic resolution possible, as required under CMM 2021/02 (Data Standards) to all gear having shark bycatch.

Para 166. The DSCC reiterated its concern, as expressed at SERAWG4, at the level of shark bycatch especially in Subarea 2, where it seems that a very high level of effort involved the requirement to move-on, and supported the use of shark mitigation measures which involve replacing wire traces with nylon close to the hook.

Para 167. The United Nations Food and Agriculture Organization (FAO) drew the SC's attention to two papers on deepwater shark species by the Areas Beyond National Jurisdiction (ABNJ) Deep-Sea Fisheries under the Ecosystem Approach (DSF) Project: 'Regional summaries of current work on shark bycatch assessment' and 'Deep sea RFMO measures in force in 2021 relating to sharks, skates and rays'.

Para 169. The SC endorsed the following SERAWG recommendations:

- **to conduct spatio-temporal analyses of bycatch, such as analyses by SIOFA subarea, and comparisons of the periods before and after 2019, when CMM 2019/12 (Sharks) entered into force.**

Para 176. With regard to defining fisheries, target species and bycatch species, **the SC recommended that the MoP:**

ii. Secondary species: All other species that comprise 5 per cent or more of the total catch (determined using a 3-5 year average) or, for 'less resilient' species (most sharks etc., based on ERA), 2 per cent or more of the total catch.

Para 177. With regard to deep-water sharks, **the SC recommended** that the MoP:

ENDORSE the holding of a 2-day workshop in Tenerife (Spain) in 2023 to:

- **carry out an assessment of the stock status of the shark species involved in the SIOFA fisheries.**
- **discuss potential measures to reduce shark bycatch further.**
- **investigate potential shark bycatch mitigation measures considering all fishing methods across the whole SIOFA Area and considering as a priority the key areas and methods for which sharks are caught.**
- **review the list of species of concern in CMM 2019/12 (Sharks) with respect to sharks.**
- **develop identification guides to assist the recording of species by the vessel crew and observers.**

Note that, to be able to develop further scientific advice on shark bycatch mitigation, it is important to have access to all CCPs' shark bycatch data.

Note that the SC recommended that a data call be made in preparation for the shark-related workshop to gather all available data.

Recommended that, in areas where vessels are experiencing high shark bycatch, CCPs consider interim voluntary guidelines to reduce that bycatch.

Note the need to hold more detailed discussions on potential gear modifications that could mitigate shark bycatch, including information on the survival rates of sharks hooked by such gear.

Note that, regarding the voluntary EU measure of releasing all shark species listed as a "high risk" in Annex 1 of the CMM 2019/12 (Sharks) that are alive and in good condition, "in good condition" is

ambiguous and open to interpretation and the measure should be modified to require the release of all the aforementioned shark species that "are alive".

Para 178. With regard to ERAs, the **SC recommended** that the MoP NOTE:

- **that the SC RECOMMENDED conducting spatio-temporal analyses of bycatch, such as analyses by SIOFA subarea, and comparisons of the periods before and after 2019, when CMM 2019/12 (Sharks) entered into force.**

Agenda item 12 – Cooperation with external bodies Agenda item 12.1 ABNJ Deep Sea Project

Para 225. FAO informed the SC that the DSF Project Document is currently going through the final stages of approval with the Global Environmental Facility (GEF) Secretariat and FAO. Final approval is expected in the coming weeks. A DSF Inception Workshop will then be held around May 2022 to identify the work with partners during the first year or so. This is most likely to concentrate on methods to improve data collection for data- limited stocks, deepwater sharks, VME indicators, and discards. This will support ongoing work by many RFMOs and provide a sound basis for future project and partner work. FAO looks forward to working with SIOFA and other RFMOs, as well as SIODFA and other industry partners, over the coming years.

Agenda item 14 – Future meeting arrangement

Summary of paper

Para 255. **The SC discussed** the possible meeting schedule and suggested the following options: ii. 17-18 March: Workshop on deepwater sharks in the SIOFA area

8.2. MoP9 report (2021) noted the following

Para 87. The Meeting of the Parties ENDORSED the recommendations in paragraph 177 of the SC7 report regarding deep-water sharks.

Para 88. Australia and the Cook Islands expressed concern regarding the very high level of shark bycatch occurring in the Agreement Area, particularly in sub-area 2. They highlighted the urgent need for action, noting that deepwater sharks taken in demersal longline fisheries included the greatest number of high-risk species, that shark bycatch is much higher than the catch of reported target species, and that there appears to be deliberate targeting of sharks. Australia thanked the European Union for offering to host a workshop on deep-water sharks and stated its expectation that the outcomes of the workshop would be urgently implemented at the Meeting of the Parties to drastically reduce the amount of shark bycatch. Australia and the Cook Islands noted that the SC report calls on CCPs to consider implementing interim measures in areas where vessels are experiencing high shark bycatch and the Cook Islands encouraged the adoption of legally binding, rather than voluntary, measures.

Para 89. The European Union stated that it shared the concerns of Australia and the Cook Islands regarding the high level of shark bycatch. The European Union explained that it is implementing voluntary measures to address the issue and intends to strengthen measures further, as described in MoP-09-INFO-15, through enhanced data collection, precautionary measures, and the funding of additional research. The EU called on all CCPs to make their shark catch data available for this purpose.

Para 90. The Cook Islands noted that MoP-09-INFO-15 did not include information about two measures that most studies indicate are the most effective way to reduce shark bycatch, namely the

use of non-wire traces on longline snoods, as discussed also at the SC, and the use of non-fish bait. The Cook Islands encouraged the European Union to include these methods in future analyses.

Para 91. The European Union explained that it had given consideration to potential gear modifications but that it would not be feasible to implement such measures in the timeframe envisaged in MoP-09-INFO-15. The European Union stated that potential gear modifications that could mitigate shark bycatch should be examined at next year's workshop on deep-water sharks given that the SC had noted that more detailed discussions need to be held on this issue.

Para 92. The DSCC echoed the concerns expressed by Australia and the Cook Islands regarding the level of shark bycatch and expressed its support for the proposal that the European Union's vessel use non-wire traces, such as nylon ones, which is a proven measure for reducing shark bycatch that is used in other fisheries.

Agenda item 8.4. Other amendments and recommendations to CMMs following CC6 discussion:

Para 195. The Meeting of the Parties ADOPTED the amendment to CMM 2018/06 (IUU Vessel List) outlined in Annex G of the CC6 Report (Annex O).

Para 196. The Meeting of the Parties ADOPTED the amendments to CMM 2018/09 (Control) outlined in Annex H of the CC6 Report (Annex P).

Para 197. The Meeting of the Parties ADOPTED the amendments to CMM 2019/12 (Sharks) outlined in Annex J of the CC6 Report (Annex Q).

Agenda item 17 – 2023 meeting arrangements

Para 266. The Meeting of the Parties AGREED that the seventh meeting of the Compliance Committee will take place from 28 June to 30 June 2023 and the 10th Meeting of the Parties will take place from 3 to 7 July 2023.

Para 267. Mauritius confirmed its intention to host the seventh meeting of the Compliance Committee and the 10th Meeting of the Parties.

Para 268. The Meeting of the Parties AGREED that the joint MoP-SC workshop on harvest strategy pre-assessment will take place from 17 to 18 March 2023, the workshop on deepwater sharks in the SIOFA Area will take place from 20 to 21 March 2023, and the eighth meeting of the SC will take place from 22 to 31 March 2023, in Tenerife, Spain.