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COMMENTS FROM RELEVANT INTERGOVERNMENTAL BODIES ON PROPOSALS FOR THE AMENDMENT OF APPENDICES SUBMITTED TO COP13 AS AT 25 OCTOBER 2019

*(Submitted by the Advisory Committee of the Sharks MOU and the Secretariat of
the Indian Ocean Tuna Commission (IOTC))*

Summary:

This document includes the comments and other contributions from the following Intergovernmental Organizations and bodies on four proposals for the inclusion of shark species in CMS Appendices:

- the Advisory Committee of the Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU AC);
- the Secretariat of the Indian Ocean Tuna Commission (IOTC).

Comments were solicited in accordance with Resolution 11.33 (Rev.COP12).



**MEMORANDUM OF UNDERSTANDING
ON THE CONSERVATION OF
MIGRATORY SHARKS**

25 October 2019

**ANALYSIS OF PROPOSALS FOR INCLUSION OF SHARK SPECIES
IN THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF
WILD ANIMALS (CMS)
AT THE 13TH MEETING OF THE CONFERENCE OF THE PARTIES (CMS COP13)**

(Prepared by the Advisory Committee of the Memorandum of Understanding on the Conservation of Migratory Sharks – Sharks MOU)

Introduction

1. The Sharks MOU Advisory Committee (AC) has reviewed proposals for the inclusion of three species of sharks in the Appendices of the Convention (Table 1), that were submitted by CMS Parties for consideration at the 13th Meeting of the Conference of the Parties (COP13) to CMS and provided its comments in this document.

Background

2. CMS Resolution 11.33 *Guidelines for Assessing Listing Proposals to Appendices I and II of the Convention*

*“Requests the Secretariat to consult other **relevant intergovernmental bodies**, including RFMOs, having a function in relation to any species subject to a proposal for amendment of the Appendices and to report on the outcome of those consultations to the relevant meeting of the Conference of Parties;”*
3. The Sharks MOU, which was concluded in accordance with Article IV(4) of CMS, represents such a relevant intergovernmental body in relation to the three species proposed. It aims to achieve and maintain a favourable conservation status for migratory sharks that are included in its Annex 1, most of which are also included in the Appendices of CMS.
4. In an exchange of letters between the Chairs of the AC and the CMS Scientific Council in July 2018, the Chair of the Scientific Council invited the AC to review all listing proposals for sharks and rays that will be submitted to COP so that they may be made available to the CMS Scientific Council for its consideration at its last meetings preceding COP.
5. At the 3rd Meeting of the Signatories to the Sharks MOU (Sharks MOS3), Signatories agreed activity 11 of the **Programme of Work 2019–2021** which requests the AC to *“provide comments on proposals for the inclusion of shark and ray species in the Appendices of CMS to the Scientific Council and the Conference of the Parties.”*
6. The AC has reviewed the listing proposals with regard to the accuracy and completeness of the information and assessed the proposals against the agreed CMS criteria for listing. Based on its findings, the AC has provided its independent expert opinion on whether the species meet the criteria for listing under CMS. Furthermore, the AC has commented on information in the proposals that were incomplete or incorrect and has provided additional scientific information relevant to the proposed listings which may be taken into account.

Table 1: Proposals for the inclusion of shark species in the Appendices of CMS, which were submitted to CMS COP13, and which are subject to this review by the Sharks MOU AC.

Species	CMS App.	Proponent	Relevant Documents
Tope Shark <i>Galeorhinus galeus</i>	App. II	EU	https://www.cms.int/sites/default/files/document/cms_cop13_doc.27.1.10_proposal-inclusion-tope-shark_eu_e.pdf
Oceanic Whitetip Shark <i>Carcharhinus longimanus</i>	App. I	Brazil	https://www.cms.int/sites/default/files/document/cms_cop13_doc.27.1.8_proposal-inclusion-oceanic-whitetip-shark_br_e.pdf
Smooth Hammerhead Shark <i>Sphyrna zygaena</i>	App. II	EU	https://www.cms.int/sites/default/files/document/cms_cop13_doc.27.1.9b_proposal-inclusion-smooth-hammerhead-shark_eu_e_0.pdf
	App. II	Brazil	https://www.cms.int/sites/default/files/document/cms_cop13_doc.27.1.9a_proposal-inclusion-smooth-hammerhead-shark_br_e.pdf

Listing criteria

7. The AC noted the following information relating to CMS listing criteria:

- A migratory species may be listed in Appendix I of the CMS “provided that reliable evidence, including the best scientific evidence available, indicates that the species is endangered”.
- According to the CMS, “Appendix II shall list migratory species which have an unfavourable conservation status, and which require international agreements for their conservation and management, as well as those which have a conservation status which would significantly benefit from the international cooperation that could be achieved by an international agreement”.
- Migratory means that “the entire population or any geographically separate part of the population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries”.
- A species is considered to have an “Unfavourable conservation status” if any of the following is not met:

- (1) *population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems;*
- (2) *the range of the migratory species is neither currently being reduced, nor is likely to be reduced, on a long-term basis;*
- (3) *there is, and will be in the foreseeable future sufficient habitat to maintain the population of the migratory species on a long-term basis; and*

- (4) *the distribution and abundance of the migratory species approach historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management;*

Review

Comments on the EU proposal to list Tope (or School) Shark (*Galeorhinus galeus*) on Appendix II of CMS

8. Given the reported distribution of Tope Shark, the AC considered the data available for the following five geographical areas (Chabot & Allen, 2009):
 - North-east Atlantic and Mediterranean Sea
 - Southern Africa (including the south-west Indian and south-east Atlantic Oceans)
 - Eastern North Pacific
 - South America (including the south-west Atlantic south-east Pacific Oceans)
 - Australasia (including Australia and New Zealand, noting that there have been some genetic differences observed between these areas)
9. Migratory nature: There is evidence of seasonal, latitudinal migrations that indicate Tope Shark move southwards from the British Isles to north-west Africa. The movements from EU waters to north-west Africa would cross jurisdictional boundaries. There is also evidence of Tope Shark moving between the national waters of Argentina, Uruguay and southern Brazil, thus crossing national jurisdictional boundaries, with this relating to a seasonal migration of Tope Shark that move north (to off Brazil) in winter, and south in spring and summer (to off Argentina), with preferred water temperatures 12–17°C (Jaureguizar et al., 2018).
10. Recent genetic studies indicate that while Tope Shark are unlikely to migrate across ocean basins in the Southern Hemisphere, the species does move across national boundaries such as between Australian and New Zealand waters (Hernandez et al., 2015; Bester-van der Merwe et al., 2017). The high level of connectivity within both New Zealand and Australian waters is supported by intensive tagging efforts (Hernandez et al., 2015). These studies consider the Australian-New Zealand Tope Shark population a single clade (Hernandez et al., 2015; Bester-van der Merwe et al., 2017). These movements appear to be linked to reproduction events (Hernandez et al., 2015; Delvoo-Delva et al., 2019; McMillan et al., 2018). Suggestions are that Tope Shark in Australia demonstrate “partial migration” (some individuals are migrants, some are residents), some tagged pregnant females were found to swim large distances from the Great Australian Bight to find nursery grounds, one tagged female swimming as far as New Zealand (McMillan et al., 2019).
11. **The AC considered that available evidence indicates that Tope Shark is a regionally migratory species that will cross national jurisdictional boundaries within each of the various parts of their biogeographic range. However, it could not be determined if this was a significant portion of the population among all regional populations.**
12. The AC also considered that Tope Shark should not be referred to as ‘highly migratory’ in the Overview section of the proposal, given that Tope Shark from the five areas have been reported to be genetically distinct. In addition, the latest indications from Australian/New Zealand waters is that this population is “partially migratory” (some individuals migrate, some remain residents). (see McMillan et al., 2018).

13. The AC also noted that when some of the longer distances are recorded from tagging studies (e.g. from the British Isles to the Mediterranean), it should be recognised that these may be based on limited observations (sometimes individual fish) and so would be better referred to as 'longer-distance movements'. There is no evidence that these longer-distance movements are 'migrations', given that there is no evidence that a significant proportion of the population display that behaviour, or that these are cyclical.
14. Conservation status: Tope Shark is listed as Vulnerable globally on the IUCN Red List (Walker et al. 2006). However, there are regional variations in the assessments, ranging from Least Concern (eastern North Pacific) to Critically Endangered (Southwest Atlantic). The scientific basis for the listings varies between regions.
15. There should be concern over the exact status of Tope Shark in the south-west Atlantic, given the (2006) Critically Endangered listing. However, whilst both the IUCN Red List and the proposal refer to "drastic declines" the underlying evidence to support this is unclear. For example, whilst Elias et al. (2005) reported a decline in Catch per Unit Effort (CPUE), this was between periods of different fishing practices ('experimental' and 'commercial' fishing). More recently, Bovcon et al. (2018) noted that "*These [Tope Shark] fisheries have been described as over-exploited, although their status has not been properly evaluated (Chiaramonte, 1998; Nion, 1999; J. A. Peres, unpublished data, 1998)*". The Red List assessment for Tope Shark (from 2006) is currently being updated and the regional listing for the south-west Atlantic could usefully be better substantiated in any future Red List assessment.
16. The status of Tope Shark elsewhere in their range is mostly uncertain, but the species is regarded as Vulnerable by the IUCN. In terms of whether "*population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems*", the only assessed stock is that occurring in Australian waters, where it is classed as 'overfished'. It may be noted, however, that there are conservative management measures in place and Patterson et al. (2018) reported some positive signs in stock recovery, though this should be treated with caution given the large uncertainty associated with the trend data. The Australian National Threatened Species Scientific Committee assessed this species for listing as a threatened species in 2009 (<https://www.environment.gov.au/biodiversity/threatened>). Their assessment recommended the species (in Australian waters) was eligible for listing as Endangered. This assessment remains current.
17. In terms of "*there is and will be in the foreseeable future sufficient habitat to maintain the population of the migratory species on a long-term basis*", the AC note that Tope Shark typically give birth to their pups in the outer reaches of large estuaries and bays. Such habitats are often subject to a range of anthropogenic activities that may impact on both habitat and water quality.
18. **Overall, the AC did consider that the available evidence would allow the conservation status of Tope Shark to be considered as 'unfavourable'.**
19. International cooperation: Although Tope Shark may move into oceanic environments, these do not appear to be regular migrations into the high seas (international waters), and Tope Shark is typically found in continental shelf seas (national waters). The stock units for Tope Shark are not fully defined. There are five distinct geographical regions where Tope Shark occurs, with published studies indicating these areas have genetically distinct populations (Chabot & Allen, 2009). However, there is evidence of mixing between adjacent range states and migrations between management jurisdictions within each of these five broad areas.

20. Consequently, the AC considered that the management and conservation status of Tope Shark would benefit from international cooperation.

21. Comments on the proposal: The AC considered that the proposal contained the majority of available scientific information, but would note the following:

- The taxonomy of species is not correct because the author and year must be put in parenthesis: (Linnaeus, 1758). Moreover, the species has numerous synonyms used in the past (e.g. *Galeus australis*, *Galeus chilensis*, *Galeorhinus vitaminicus*, etc.) see Eschmeyer's Catalog of Fishes¹.
- The second paragraph in the Overview should refer to “Animals tagged around the British Isles...”, as both the UK and Ireland have been involved in tagging studies.
- Section 4.2 (Population) stated that “In the North Eastern Pacific (west coast of North America), CPUE data –albeit inconsistent- showed a strong decline/stock collapse after an industrialized fishery targeting tope for their liver oil in the first half of the 20th century, and there currently are no indications that the stock has returned to its original level (Holts, 1988), although Pondella & Allen (2008) noted an increasing trend in CPUE from a gill-net monitoring program between 1995 and 2004 and also first time observations of tope during scientific SCUBA monitoring programs” could usefully be reworded, as it seems strange to use information from 1988 as ‘currently’. This section would be better as “In the North Eastern Pacific (west coast of North America), CPUE data - albeit inconsistent - showed a strong decline/stock collapse after an industrialized fishery targeted tope for their liver oil in the middle of the 20th century, with limited evidence of stock recovery in subsequent decades (Holts, 1988). More recently, Pondella & Allen (2008) noted an increasing trend in CPUE from a gill-net monitoring program between 1995 and 2004 and also first-time observations of tope during scientific SCUBA monitoring programs.”
- Section 6.2 (International protection status) includes information on OSPAR, but Tope Shark is not included on the OSPAR List of Threatened and/or Declining Species. Hence such text is superfluous.
- Section 6.2 also includes HELCOM, although Tope Shark is a marine species that would not be expected to be anything but a vagrant to the Kattegat and Baltic. It may occur in those parts of the Skagerrak outside the HELCOM area. Hence, information on HELCOM is not relevant.
- Section 6.3 (Management measures) contains some ambiguous statements. The text “EU vessels have not been allowed to land line-caught tope from EU and some international waters since 2010. The EU Council Regulation 2018/120 lists tope on the EU list of prohibited species, effectively prohibiting longline fisheries for this species in Union waters of ICES Division 2a, ICES Subarea 4 as well as in Union and international waters of ICES Subareas 1, 5, 6, 7, 8, 12 and 14 (EU, 2018)” should be re-written as “EU fishing regulations prohibit landing tope when it has been caught by longline in EU waters of ICES Division 2.a and Subarea 4 and from EU and international waters of ICES Subareas 1, 5–8, 12 and 14 (EU, 2018).”
- The proposal indicated some of the publications that had shown recent increases trends in Tope Shark (e.g. Pondella & Allen, 2008). Patterson et al. (2018) was used to correctly state that the Australian Tope Shark population was overfished, but that this report also stated, “There are indicators that school shark biomass may be increasing”, which was seemingly overlooked in the proposal. More recently, Emery et al. (2019)

¹ <https://www.calacademy.org/scientists/projects/catalog-of-fishes>

presented status information for School Shark, and noted "Although there were indications in the CKM (close-kin monitoring) that some stock recovery occurred during 2000–2017, there was large uncertainty associated with this trend". Such information could usefully also be included.

- The proposal brought together much information from disparate sources, but a more consistent approach to presenting information by each of the five main geographical areas would have helped the reader.
- A reference in the bibliography was wrong (Vacchi et al., 2002) and should be: Duarte P. N., A. Silva, and G. M. Menezes. 2002. First results of a tagging program on tope shark, *Galeorhinus galeus*, and thornback ray, *Raja clavata*, in Azorean waters. 4th Meeting of the European Elasmobranch Association Proceedings. M. Vacchi, G. La-Mesa, F. Serena, and B. Séret (eds.) Paris France Societe francaise d'Ichtyologie, p. 197.

Comments on the EU and Brazilian proposals to list Smooth Hammerhead Shark (*Sphyrna zygaena*) on Appendix II of CMS

22. The AC provided comments on an earlier proposal to list Smooth Hammerhead Shark on the Sharks MoU². This document highlighted the following points:
 - The proposal highlights that, although robust species-specific population trends for *S. zygaena* are unavailable, populations of hammerhead sharks (at a generic level) have declined in various parts of their ranges.
 - The proposal provides evidence of both latitudinal migrations (which would mean they may move between the waters of different range states) and inshore-offshore migrations (which means they may move into international waters). The latter was supported by recent tagging data and the presence of oceanic cephalopods in their diet. Cyclical or predictable migratory patterns have not been shown in a significant proportion of the population, largely due to few studies. However, the AC assumed cyclical and predictable movement/migration (e.g., females to shallower pupping areas in summer (as proposed by Santos & Coelho, 2019 and Francis, 2016).
23. The proposal also notes that two other species of hammerheads are listed, and as such the issue of look-alike species is an additional factor to be considered. The AC notes that there is no look-alike provision in the Appendices of CMS. However, as was in the case of the listing of Mobulids, the difficulty in differentiating these species and the fact that the conservation status is poor for the great (*S. mokarran*) and scalloped hammerhead (*S. lewini*) shark should be considered.
24. **The AC has previously acknowledged that Smooth Hammerhead Shark meets the criteria for “migratory” and meets the criteria for “unfavourable” status.**
25. Conservation Status: The stock units of Smooth Hammerhead Shark are undefined. While no stock assessments have been directed specifically at Smooth Hammerhead Shark, the 2005 IUCN Red List assessment for the species lists it as Vulnerable worldwide (Casper et al., 2009). This listing was, however, heavily based on declines observed in data for hammerhead shark species grouped together. The IUCN also lists the Mediterranean population as Critically Endangered (Ferretti et al., 2016) and the European population as Data Deficient (Ferretti et al., 2015), although these listings were based largely on the reported findings from one published study.

² See Annex II of https://www.cms.int/sharks/sites/default/files/document/cms_sharks-mos3_doc.9.1_rev.1_listing-proposals_e.pdf

26. These listing are however heavily based on declines observed in data for hammerhead shark species grouped together. The species is afforded some refuge in southern Australia where fishing pressure is low. The 2014 Australia CITES Non-Detriment Finding (<http://www.environment.gov.au/biodiversity/wildlife-trade/publications/non-detriment-finding-five-shark-species>) states that: “*There is currently no assessment of S. zygaena populations in Australian waters; however, an analysis of catch per unit of effort (CPUE) data from the Joint Authority Southern Demersal Gillnet and Demersal Longline Fishery (JASDGDLF) and the West Coast Demersal Gillnet and Demersal Longline Fishery (WCDGDLF) from 1989/90 showed that CPUE had increased steadily over time (Simpfendorfer, 2014; http://www.environment.gov.au/system/files/resources/39c06695-8436-49c2-b24f-c647b4672ca2/files/cites-listed-sharks.pdf). This rise in CPUE may be attributed to catch being identified to species level rather than an increase in species abundance. The data does suggest moreover, that the abundance of S. zygaena had not significantly declined over time (Simpfendorfer, 2014). A study using data from 1994 to 1999, suggests that fishing was not conducted at a level that would lead to a decline in populations due to those relatively low catch levels continuing over time. This supports the above analysis that a major decline in population had not occurred (McAuley and Simpfendorfer, 2003)*”.
27. Overall, the observed and inferred declines in Smooth Hammerhead populations, which are still ongoing due to continued fishing pressure, have warranted it eligible for IUCN Vulnerable (globally). Based on this information, and taking into consideration similar life history, range overlap and look-alike issues (particularly with Scalloped Hammerhead Shark), global indications are its overall conservation status is unfavourable as it does not meet “population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems”.
28. **Overall, the AC therefore consider that the available evidence would allow the conservation status of Smooth Hammerhead Shark to be considered as ‘unfavourable’.**
29. Migratory Nature: The adults of this species move into oceanic environments, and there is evidence of latitudinal migrations in shelf seas. The migratory behaviour of Smooth Hammerhead Shark is largely assumed due to the species mobile behaviour, large body size and similar species movements (Great and Scalloped Hammerhead Sharks). Evidence of migratory behaviour presented in the proposal is from only a few individual animals. Evidence of latitudinal migration across jurisdictions is from one individual tracked return movement between California and Mexico. There is also indications in the literature of seasonal migrations toward cooler waters in summer and warmer waters in winter, but no specific data. In Australia, there is evidence that in New South Wales, smooth hammerheads are more common between December and May (Stevens, 1984), which may indicate seasonal migrations.
30. A recent study (Santos and Coelho, 2018) tagged seven individual Smooth Hammerhead Sharks and reported that this is a ‘highly mobile species’ and recorded movement of over 6600km. This paper also noted that tagged sharks roamed widely from shelf to oceanic waters, however that no clear, predictable movement patterns were identified. A study of movements of juvenile Smooth Hammerhead Sharks in New Zealand indicated local movements of up to 155 km (Francis, 2016). This study noted significant population structuring of the species among ocean basins, and in some case within ocean basins (e.g. between the southwest and southeast Pacific Ocean) but that there is also no evidence of genetic structuring between New Zealand and Australia, suggesting the existence of gene flow across the Tasman Sea.

31. **Overall, the AC therefore consider that the available evidence would allow Smooth Hammerhead Shark to be considered to meet the criteria for ‘migratory’.**
32. International cooperation: Although species specific data are lacking for Smooth Hammerhead Shark, there is evidence that all hammerhead sharks have declined significantly and continue to be overfished (Ferretti et al., 2016). The AC supports the assertions made in the EU proposal, that international cooperation is required to fully address the data deficiencies for the species and that regional monitoring and management measures are required across the species range.
33. **Consequently, the AC considered that the management and conservation status of Smooth Hammerhead Shark would benefit from international cooperation.**
34. The AC made the following further comments on the EU proposal to list Smooth Hammerhead Shark on CMS:
- The distribution map provided does not support the statement in the overview that Smooth Hammerhead Shark occurs from 59°N to 55°S (which is given by FishBase). A latitudinal range of ca. 50°N to 50°S would be more in keeping with the distributional information available. This should also be amended in Section 4.1. The range is also incorrect for the northwest Indian Ocean where it shows occurrence in the Arabian/Persian Gulf (where it does not occur) and does not show the known range in the Arabian Sea.
 - The overview should correct the sentence (new text underlined) “...and the presence of oceanic squid in the stomach contents of on larger individuals.”
 - The overview should amend the sentence (new text underlined) “... significant increase in reported landings of ...”
35. The AC made the following comments on the Brazilian proposal to list Smooth Hammerhead Shark (in the waters of Brazil, Uruguay and Argentina):
- Figure 3 shows the reported kg/boat of *S. zygaena* (2000–2012), although much more detailed information of the underlying data (and further analyses) would be required to use such information to inform on population trends. For example, these data should explicitly state whether they refer to landings or catches. Have there been temporal changes in the reporting categories used for the various hammerhead species and generic categories? Have there been any temporal changes in management regulations applicable? Have there been any temporal changes in fleet dynamics?
 - Figure 4 shows reported landings of the hammerhead category *Sphyrna* spp. (2000–2010). Once again, the lack of all relevant information in the proposal means that the underlying trends cannot be used as reliable indicators of declines. That the nominal landings of hammerheads fluctuated from >60 t (2001) to just over 0 t (2002) and then to >100 t (2003) is suggestive of temporal differences in reporting.
 - Figure 5 shows the reported landings (2000–2012) for the same fishery shown in Figure 3. Whilst the overall trends are the same for the bottom gillnet fleet, the large decline in kg/boat for surface longliners between 2000–2001 is not especially pronounced in Figure 5, which is suggestive of potential issues in the quality of the underlying data.
 - The AC notes that commercial fisheries data (catches, landings, catch per unit effort, etc.) can be susceptible to temporal changes in reporting requirements, use of reporting codes, management applicable and fleet dynamics. Hence, such data need very careful

appraisal, analysis and peer-review before they can be used as robust evidence on population status.

Comments on the Brazilian proposals to list Oceanic Whitetip Shark (*Carcharhinus longimanus*) on Appendix I of CMS

36. The AC provided comments on the earlier proposal to list Oceanic Whitetip Shark on the Sharks MoU³.
37. **The AC has previously acknowledged that the Oceanic Whitetip Shark meets the criteria for “migratory” and meets the criteria for “unfavourable” status. This previous review, however, did not comment on whether or not the AC considered Oceanic Whitetip Shark meets the criteria for ‘Endangered’, as required for an Appendix I listing.**
38. The proposal provides evidence of migrations across national jurisdictional boundaries within each of the various parts of their biogeographic range and it is a logical assumption this is for a significant portion of the population. Cyclical or predictable migratory patterns were not documented in the proposal. However, there is evidence of cyclical and predictable movements of oceanic whitetip sharks from archival satellite tagging studies in the Bahamas (see Howey-Jordan et al. 2013). Oceanic whitetip sharks emigrate from the central Bahamas to southern Caribbean waters and the US east coast beginning around May but return to the central Bahamas the following January.
39. The current IUCN Red List assessment still lists Oceanic Whitetip Shark as Vulnerable (Baum et al., 2015), although this is based on an earlier (2006) assessment. An updated assessment is expected to be published on 5 December 2019. The AC also considered a recent stock assessment for oceanic whitetip shark for the Indo-Pacific region (Tremblay-Boyer et al., 2019). The assessment determined the depletion of the spawning biomass has declined by more than 95% and the “population should go extinct on the long-term under current levels of fishing mortality”.
40. A recent US National Marine Fisheries Service (NMFS) review by Young et al. (2018) provides an up-to-date synthesis on the status of Oceanic Whitetip Shark, including an Extinction Risk Analysis. Whilst this review “*did not make recommendations as to whether the oceanic whitetip shark should be listed as threatened or endangered*”, the ERA team stated that “*the once abundant and ubiquitous oceanic whitetip shark has likely experienced significant historical population declines throughout its global range, with multiple data sources and analyses, including a stock assessment and trends in relative abundance, suggesting declines in excess of 80% in most areas*”.
41. **The AC therefore considered the current status of Oceanic Whitetip Shark meets the criteria for being considered as ‘Endangered’ and therefore the criteria to be listed in CMS Appendix I.**

³ See Annex II of https://www.cms.int/sharks/sites/default/files/document/cms_sharks-mos3_doc.9.1_rev.1_listing-proposals_e.pdf

42. Some of the comments provided by the AC relating to the Brazilian proposal to include Oceanic Whitetip Shark on Annex I of the Sharks-MoU were not addressed in the subsequent proposal to list the species on the CMS, and are so reiterated below:
- Section 2 states that Oceanic Whitetip Shark is the “only true oceanic species within the *Carcharhinus* genus”, which is questionable, as Silky Shark is also an important oceanic carcharhinid.
 - Section 4.2 states “*C. longimanus*, once among the most abundant oceanic sharks, has experienced serious declines as high as 70% within the western North Atlantic between 1992 and 2000”, without citing scientific sources for the statement.
 - Section 4.2 refers to the study of Baum et al. (2003), and this study may not be the most appropriate source of information (Burgess et al., 2005), and so the more robust study of Cortés et al. (2007) should have been given more weight.
 - Section 2.2 could have better separated information on species composition from studies providing information on population estimates and trends.
 - There have been several studies conducted under the auspices of the WCPFC that could usefully have been incorporated for the Pacific Ocean (e.g. Rice, 2012; Rice & Harley, 2012; Rice et al., 2015; Tremblay-Boyer et al. 2019). Similarly, studies conducted under the auspices of the Indian Ocean Tuna Commission (IOTC) (e.g. Ramos-Cartelle et al., 2012; Yokawa & Semba, 2012) have provided relevant information for the Indian Ocean. These studies would have provided further support for the species meeting the criteria for “unfavourable”.
 - Section 3.1 states that Kohler et al. (1998) reported a maximum distance travelled of 1,226 km, when this study reported it to be 1,226 nm (=2,270 km).
43. The AC also made the following additional comments on the proposal to list Oceanic Whitetip Shark on Appendix I of CMS:
- Section 3.2 states that “Unknown but probably 100%”, unreferenced.
 - Section 5.3 states that “The Oceanic Whitetip Shark is caught globally as target and bycatch in pelagic commercial large-scale and small-scale longline fisheries”, which is not correct, given that relevant RFMOs have prohibited retention of Oceanic Whitetip. This would have been better written as “Whilst the retention and landing of Oceanic Whitetip Shark is now prohibited in the main RFMO areas, this species is still caught as a bycatch in large scale commercial and small-scale pelagic longline fisheries, and the current levels of mortality are uncertain”.
 - New genetic studies on Ocean Whitetip Shark by Camargo et al. (2016) in the Atlantic Ocean demonstrated that there are evidences of two distinct differences in genetic structure between populations from the east and west of the basin. Camargo et al. (2016) also demonstrated that there is low genetic diversity and strong linkages between animals caught in the eastern Atlantic Ocean and Indian Ocean

References:

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COMMENTS ON INCLUSION OF THE OCEANIC WHITETIP SHARK IN THE APPENDICES OF THE CONVENTION ON THE CONSERVATION OF MIGRATORY SPECIES OF WILD ANIMALS (CMS) AT THE 13TH MEETING OF THE CONFERENCE OF THE PARTIES (CMS COP13)

(Prepared by the Indian Ocean Tuna Commission – IOTC)

APPENDIX 24 EXECUTIVE SUMMARY: OCEANIC WHITETIP SHARK

Status of the Indian Ocean oceanic whitetip shark (OCS: *Carcharhinus longimanus*)

CITES APPENDIX II species

TABLE 1. Oceanic whitetip shark: Status of oceanic whitetip shark (*Carcharhinus longimanus*) in the Indian Ocean.

Area ¹	Indicators	2018 stock status determination
Indian Ocean	Reported catch 2017: Not elsewhere included (nei) sharks ² 2017: Average reported catch 2013-17: Av. not elsewhere included 2013-2017 (nei) sharks ² :	48 t 56,883 t 230 t 51,712 t
	MSY (1,000 t) (80% CI): F _{MSY} (80% CI): SB _{MSY} (1,000 t) (80% CI): F _{current} /F _{MSY} (80% CI): SB _{current} /SB _{MSY} (80% CI): SB _{current} /SB ₀ (80% CI):	unknown

¹Boundaries for the Indian Ocean = IOTC area of competence

²Includes all other shark catches reported to the IOTC Secretariat, which may contain this species (i.e., SHK: sharks various nei; RSK: requiem sharks nei)

Colour key	Stock overfished (SB _{year} /SB _{MSY} < 1)	Stock not overfished (SB _{year} /SB _{MSY} ≥ 1)
Stock subject to overfishing (F _{year} /F _{MSY} > 1)		
Stock not subject to overfishing (F _{year} /F _{MSY} ≤ 1)		
Not assessed/Uncertain		

TABLE 2. Oceanic whitetip shark: IUCN threat status of oceanic whitetip shark (*Carcharhinus longimanus*) in the Indian Ocean.

Common name	Scientific name	IUCN threat status ³		
		Global status	WIO	EIO
Oceanic whitetip shark	<i>Carcharhinus longimanus</i>	Vulnerable	–	–

IUCN = International Union for Conservation of Nature; WIO = Western Indian Ocean; EIO = Eastern Indian Ocean

³The process of the threat assessment from IUCN is independent from the IOTC and is presented for information purpose only
Sources: IUCN 2007, Baum et al. 2006

CITES - In March 2013, CITES agreed to include oceanic whitetip shark to Appendix II to provide further protections prohibiting the international trade; which will become effective on September 14, 2014.

INDIAN OCEAN STOCK – MANAGEMENT ADVICE

Stock status. There remains considerable uncertainty about the relationship between abundance, standardised CPUE series and total catches over the past decade (Table 1). The ecological risk assessment (ERA) conducted for the Indian Ocean by the WPEB and SC in 2018/37 consisted of a semi-quantitative risk assessment analysis to evaluate the resilience of shark species to the impact of a given fishery, by combining the biological productivity of the species and its susceptibility to each fishing gear type. Oceanic whitetip shark received a medium vulnerability ranking (No. 9) in the ERA rank for longline gear because it was estimated as one of the least productive shark species, but was only characterised by a medium susceptibility to longline gear. Oceanic whitetip shark was estimated as being the 11th most vulnerable shark species to purse seine gear, as it was characterised as having a relatively low productive rate, and medium susceptibility to the gear. The current IUCN threat status of 'Vulnerable' applies to oceanic whitetip sharks globally (Table 2). There is a paucity of information available on this species in the Indian Ocean and this situation is not expected to improve in the short to medium term. Oceanic whitetip sharks are commonly taken by a range of fisheries in the Indian Ocean. Because of their life history characteristics – they are relatively long lived, mature at 4–5 years, and have relatively few offspring (<20 pups every two years), the oceanic whitetip shark is likely vulnerable to overfishing. Despite the limited amount of data, recent studies (Tolotti et al., 2016) suggest that oceanic whitetip shark abundance has declined in recent years (2000-2015) compared with historic years (1986-1999). Available pelagic longline standardised CPUE indices from Japan and EU, Spain indicate conflicting trends as discussed in the IOTC Supporting Information for oceanic whitetip sharks. There is no quantitative stock assessment and limited basic fishery indicators currently available for oceanic whitetip sharks in the Indian Ocean therefore the stock status is **unknown** (Table 1).

Outlook. Maintaining or increasing effort with associated fishing mortality can result in declines in biomass, productivity and CPUE. Piracy in the western Indian Ocean resulted in the displacement and subsequent concentration of a substantial portion of longline fishing effort into certain areas in the southern and eastern Indian Ocean. Some longline vessels have returned to their traditional fishing areas in the northwest Indian Ocean, due to the increased security onboard vessels, with the exception of the Japanese fleet which has still not returned to the levels seen before the start of the piracy threat. It is therefore unlikely that catch and effort on oceanic whitetip sharks declined in the southern and eastern areas, and may have resulted in localised depletion there.

Management advice. A cautious approach to the management of oceanic whitetip shark should be considered by the Commission, noting that recent studies suggest that longline mortality at haulback is high (50%) in the Indian Ocean (IOTC-2016-WPEB12-26), while mortality rates for interactions with other gear types such as purse seines and gillnets may be higher. While mechanisms exist for encouraging CPCs to comply with their recording and reporting requirements (Resolution 18/07), these need to be further implemented by the Commission, so as to better inform scientific advice. IOTC Resolution 13/06 *on a scientific and management framework on the conservation of shark species caught in association with IOTC managed fisheries*, prohibits retention onboard, transhipping, landing or storing any part or whole carcass of oceanic whitetip sharks. Given that some CPCs are still reporting oceanic whitetip shark as landed catch, there is a need to strengthen mechanisms to ensure CPCs comply with Resolution 13/06.

The following key points should be also noted:

- **Maximum Sustainable Yield (MSY):** Not applicable. Retention prohibited.
- **Reference points:** Not applicable.

- **Main fishing gear** (2013-17): Gillnet; gillnet-longline.
- **Main fleets** (2013-2017): Comoros; I.R. Iran; Sri Lanka; India; and Maldives; (Reported as discarded/released alive by China, Maldives, Korea, France, Mauritius, Australia, South Africa, Sri Lanka, Japan).

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