

APPENDIX B

Recommendations for Shark and Ray Listings in the Annexes of the Nairobi Convention Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region

Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region

B1. Introduction

At the 7th Conference of the Parties (CoP7) to The Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region¹ (Maputo, Mozambique, December 2012), the Member States, recognizing increasing global concern regarding the declining status of chondrichthyans (rays, skates, wedgefishes, sawfishes), agreed to include sharks (i.e., all chondrichthyans) in the Convention's Programme of Work for 2013-2017 (Decision CP7/1) and adopted Decision CP7/12: *Conservation of Sharks*, calling for regional collaboration on the conservation and management of sharks, including with the Convention on International Trade in Endangered Species of Wild Fauna and Flora² (CITES), the Convention on the Conservation of Migratory Species of Wild Animals³ (CMS), regional fisheries management organizations, and other partners, and for preparation by the Secretariat, in collaboration with the Contracting Parties, of a regional status report on the state of chondrichthyans in the Western Indian Ocean⁴ (WIO). This document forms that report, initiated in 2014 by the Wildlife Conservation Society (WCS) in collaboration with the Nairobi Convention Secretariat and partners.

A parallel objective linked to the regional status report was to identify chondrichthyan species for consideration for listing on the Annexes of the *Nairobi Convention Protocol Concerning Protected Areas and Wild Fauna and Flora in the East African Region* (hereinafter referred to as the Nairobi Convention Protocol). The listing of species on the Nairobi Convention Protocol is intended to provide a legal instrument, in this case a centralized list of species, from which resource managers of member states can

identify chondrichthyan species that warrant specific management or legal protection.

There is a great need to improve the knowledge base and understanding of the status of chondrichthyans and their fisheries in the WIO; however, existing information from a range of assessments, such as those completed by the shark specialist group (Dulvy et al. 2014⁵) of the International Union for the Conservation of Nature⁶ (IUCN), provide a basis for considering species for inclusion in the Annexes of the Nairobi Convention Protocol. Many chondrichthyan species have also been listed in recent years on the Appendices of CITES and the Appendices of the CMS, thus increasing the mandate of governments and their environment agencies – as well as fisheries agencies – to address the conservation and management needs of these species. The Indian Ocean Tuna Commission⁷ (IOTC) also lists several chondrichthyan species that may not be captured or retained by the IOTC-linked fisheries directed at tuna and tuna-like species.

This document presents recommendations for the listing of shark and batoid species in Annexes II, III, and IV of the *Nairobi Convention Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region*. Due to the dynamic nature of threats to these species, and considering both declining populations and improving conservation measures, and as new data become available, it is likely that classifications such as CITES listings and IUCN Red List status will change over time. Therefore, the proposed listings should be treated as dynamic and adaptive, in order that they may be amended in the future as deemed necessary.

¹ UNEP. 1985. Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region. United Nations Environment Programme, Nairobi. United Nations.

² www.cites.org

³ www.cms.int/en

⁴ The geographic area referred to here by the term Western Indian Ocean includes the Indian Ocean territorial waters of the ten Nairobi Convention member states, from South Africa (including the Eastern Cape Province and Kwazulu-Natal Province only) in the southwest, to Somalia in the

northwest, and to Mauritius in the east, following the delineation of the Indian Ocean by the International Hydrographic Organization (2002), and excludes the marginal seas to the north.

⁵ Dulvy, N.K., S.L. Fowler SL, and J.A. Musick. 2014. Extinction risk and conservation of the world's sharks and rays. eLIFE 3:e00590. <http://dx.doi.org/10.7554/eLife.00590>

⁶ IUCN 2021. The IUCN Red List of Threatened Species. Version 2021-2. <http://www.iucnredlist.org>

⁷ www.iotc.org

B2. Recommendations for Listing of Sharks and Batoids in Annex II of the Nairobi Convention Protocol

Article 4 of the Nairobi Convention Protocol: *Species of Wild Fauna Requiring Special Protection* stipulates: “The Contracting Parties shall take all appropriate measures to ensure the strictest protection of the endangered wild fauna species listed in annex II. To this end, each Contracting Party shall strictly regulate and, where required, prohibit activities having adverse effects on the habitats of such species. In particular, the following activities shall, where required, be prohibited with regard to such species:

- a. all forms of capture, keeping or killing;
- b. damage to, or destruction of, critical habitats;
- c. disturbance of wild fauna, particularly during the period of breeding, rearing and hibernation;
- d. destruction or taking of eggs from the wild or keeping these eggs even if empty;
- e. possession of and internal trade in these animals, alive or dead, including stuffed animals and any readily recognizable part or derivative thereof.”

Following this definition, species proposed for listing under Annex II of the Nairobi Convention Protocol were identified based on their listing on one or more of the following:

- I. **Convention on the Conservation of Migratory Species of Wild Animals Appendix I – Endangered migratory species⁸ (CMS Appendix I):** This Appendix “comprises migratory species that have been assessed as being in danger of extinction throughout all or a significant portion of their range. The Conference of the Parties has further interpreted the term “endangered” as meaning “facing a very high risk of extinction in the wild in the near future” (Res. 11.33 paragraph 1).” Noting that CMS Appendix I requires that CMS Parties “*that are a Range State to a migratory species listed in Appendix I shall endeavour to **strictly protect** them by: prohibiting the taking of such species, with very restricted scope for exceptions; conserving and where appropriate restoring their habitats; preventing, removing or mitigating obstacles to their migration and*

controlling other factors that might endanger them”. Thus, species listed on CMS Appendix I should be strictly protected in CMS signatory states.

- II. **Indian Ocean Tuna Commission (IOTC) Prohibited Species:** IOTC resolutions prohibit the capture of several species of sharks and batoids by Contracting Parties and Cooperating Non-Contracting Parties (collectively, CPCs). Thus, *IOTC prohibited species should be **prohibited from capture** in IOTC fisheries of IOTC member states.*
- III. **International Union for the Conservation of Nature (IUCN) Red List of Threatened Species⁹:** those species assessed as Critically Endangered (CR) or Endangered (EN)¹⁰:
 - a. Critically Endangered (CR) species are “considered to be facing an extremely high risk of extinction in the wild”;
 - b. Endangered (EN) species are “considered to be facing a very high risk of extinction in the wild”.
- IV. **Convention on International Trade in Endangered Species of Wild Fauna and Flora Appendix I¹¹ (CITES Appendix I):** This Appendix lists species that are “threatened with extinction and CITES prohibits international trade in specimens of these species”. Thus, *species listed in CITES Appendix I should be prohibited from international trade, from or to a signatory state.*

In total, 49 species (28 shark species and 21 batoid species, Table 1), of the 224 shark and batoid species identified to date in the Nairobi Convention area of the WIO, are recommended for consideration for strict protection under Annex II of the Nairobi Convention Protocol, due to meeting one or more of the above criteria. Those species meeting criteria for both Annexes II and III are proposed here for listing under Annex II (i.e., requiring a higher level of protection).

⁸ cms.int/en/page/appendix-i-ii-cms

⁹ IUCN 2021. The IUCN Red List of Threatened Species. Version 2021-2. [iucnredlist.org](https://www.iucnredlist.org), accessed 15 October 2021

¹⁰ IUCN 2012. *IUCN Red List Categories and Criteria: Version 3.1*. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.

¹¹ [cites.org/eng/app/appendices.php](https://www.cites.org/eng/app/appendices.php)

Table 1: Shark and batoid species recommended for listing on Nairobi Convention Annex II, based on their listing either in CMS Appendix I (CMS I), as an IOTC prohibited species (IOTC), in CITES Appendix I (CITES I), or on the IUCN Red List of Threatened Species as Critically Endangered (IUCN CR) or Endangered (IUCN EN). The current IUCN Red List status for each species is also presented (CR = Critically Endangered, EN = Endangered, VU = Vulnerable).

Family	Species	Common name	Taxonomic reference	IUCN Red List	Criteria for listing on Annex II
Sharks					
Alopiidae	<i>Alopias pelagicus</i> ^a	pelagic thresher shark	Nakamura, 1935	EN	IOTC; IUCN EN
Alopiidae	<i>Alopias superciliosus</i> ^a	bigeye thresher shark	Lowe, 1841	VU	IOTC
Alopiidae	<i>Alopias vulpinus</i> ^a	common thresher shark	(Bonnaterre, 1788)	VU	IOTC
Carcharhinidae	<i>Carcharhinus amblyrhynchos</i>	grey reef shark	(Bleeker, 1856)	EN	IUCN EN
Carcharhinidae	<i>Carcharhinus longimanus</i> ^b	oceanic whitetip	(Poey, 1861)	CR	CMS I; IOTC; IUCN CR
Carcharhinidae	<i>Carcharhinus obscurus</i>	dusky shark	(Lesueur, 1818)	EN	IUCN EN
Carcharhinidae	<i>Carcharhinus plumbeus</i>	sandbar shark	(Nardo, 1827)	EN	IUCN EN
Carcharhinidae	<i>Negaprion acutidens</i>	sicklefin lemon shark	(Rüppell, 1837)	EN	IUCN EN
Carchariidae	<i>Carcharias taurus</i>	ragged-tooth shark	Rafinesque, 1810	CR	IUCN CR
Cetorhinidae	<i>Cetorhinus maximus</i>	basking shark	(Gunnerus, 1765)	EN	CMS I; IUCN EN
Centrophoridae	<i>Centrophorus granulosus</i>	gulper shark	(Bloch & Schneider, 1801)	EN	IUCN EN
Centrophoridae	<i>Centrophorus lesliei</i>	African gulper shark	White, Ebert & Naylor 2017	EN	IUCN EN
Centrophoridae	<i>Centrophorus squamosus</i>	leafscale gulper shark	(Bonnaterre, 1788)	EN	IUCN EN
Centrophoridae	<i>Centrophorus uyato</i>	little gulper shark	(Rafinesque, 1810)	EN	IUCN EN
Echinorhinidae	<i>Echinorhinus brucus</i>	bramble shark	(Bonnaterre, 1788)	EN	IUCN EN
Ginglymostomatidae	<i>Pseudoginglymostoma brevicaudatum</i>	shorttail nurse shark	Günther, 1867	CR	IUCN CR
Lamnidae	<i>Carcharodon carcharias</i>	great white shark	(Linnaeus, 1758)	VU	CMS I
Lamnidae	<i>Isurus oxyrinchus</i>	shortfin mako shark	Rafinesque, 1810	EN	IUCN EN
Lamnidae	<i>Isurus paucus</i>	longfin mako shark	Guitart Manday, 1966	EN	IUCN EN
Oxynotidae	<i>Oxynotus centrina</i>	angular rough shark	(Linnaeus, 1758)	EN	IUCN EN
Pentanchidae	<i>Holohalaelurus favus</i>	honeycomb izak	Human, 2006	EN	IUCN EN
Pentanchidae	<i>Holohalaelurus punctatus</i>	whitespotted izak	(Gilchrist, 1914)	EN	IUCN EN
Rhincodontidae	<i>Rhincodon typus</i> ^c	whale shark	Smith, 1828	EN	CMS I; IOTC; IUCN EN
Scyliorhinidae	<i>Haploblepharus edwardsii</i>	puffadder shyshark	(Schinz, 1822)	EN	IUCN EN
Sphyrnidae	<i>Sphyrna lewini</i>	scalloped hammerhead	(Griffith & Smith, 1834)	CR	IUCN CR
Sphyrnidae	<i>Sphyrna mokarran</i>	great hammerhead	(Rüppell, 1837)	CR	IUCN CR
Stegostomatidae	<i>Stegostoma tigrinum</i>	zebra shark	(Hermann, 1783)	EN	IUCN EN
Triakidae	<i>Mustelus manazo</i>	starspotted smoothhound	Bleeker, 1855	EN	IUCN EN
Triakidae	<i>Mustelus mustelus</i>	common smoothhound	(Linnaeus, 1758)	EN	IUCN EN

Batoids (rays, skates, wedgefishes, sawfishes)

Dasyatidae	<i>Himantura uarnak</i>	honeycomb stingray	(Gmelin, 1789)	EN	IUCN EN
Glaucostegidae	<i>Glaucostegus halavi</i>	Halavi guitarfish	Forsskål, 1775	CR	IUCN CR
Mobulidae	<i>Mobula alfredi</i> ^d	reef manta ray	(Kreff 1868)	VU	CMS I; IOTC
Mobulidae	<i>Mobula birostris</i> ^d	giant manta ray	(Walbaum 1792)	EN	CMS I; IOTC; IUCN EN
Mobulidae	<i>Mobula eregoodoo</i> ^d	longhorned pygmy devil ray	(Cantor 1849)	EN	CMS I; IOTC; IUCN EN
Mobulidae	<i>Mobula kuhlii</i> ^d	shortfin devil ray	(Valenciennes, 1841)	EN	CMS I; IOTC; IUCN EN
Mobulidae	<i>Mobula mobular</i> ^d	spinetail devil ray	(Bonnaterre, 1788)	EN	CMS I; IOTC; IUCN EN
Mobulidae	<i>Mobula tarapacana</i> ^d	sicklefin devil ray	(Philippi, 1892)	EN	CMS I; IOTC; IUCN EN
Mobulidae	<i>Mobula thurstoni</i> ^d	bentfin devil ray	(Lloyd, 1908)	EN	CMS I; IOTC; IUCN EN
Myliobatidae	<i>Aetomylaeus bovinus</i>	duckbill ray	(Saint-Hilaire, 1817)	CR	IUCN CR
Myliobatidae	<i>Aetomylaeus vespertilio</i>	ornate eagle ray	(Bleeker, 1852)	EN	IUCN EN
Myliobatidae	<i>Myliobatis aquila</i>	common eagle ray	(Linnaeus, 1758)	CR	IUCN CR
Pristidae	<i>Pristis pristis</i>	largetooth sawfish	(Linnaeus, 1758)	CR	CMS I; IUCN CR; CITES I
Pristidae	<i>Pristis zijsron</i>	green sawfish	Bleeker, 1851	CR	CMS I; IUCN CR; CITES I
Rajidae	<i>Raja ocellifera</i>	twineyed skate	Regan, 1906	EN	IUCN EN
Rajidae	<i>Rostroraja alba</i>	spearnose skate	(Lacepède, 1803)	EN	IUCN EN
Rhinidae	<i>Rhina ancylostomus</i>	bowmouth guitarfish	Bloch & Schneider, 1801	CR	IUCN CR
Rhinidae	<i>Rhynchobatus australiae</i>	bottlenose wedgefish	Whitley, 1939	CR	IUCN CR
Rhinidae	<i>Rhynchobatus djiddensis</i>	whitespotted wedgefish	(Forsskål, 1775)	CR	IUCN CR
Rhinobatidae	<i>Acroteriobatus leucospilus</i>	greyspot guitarfish	Norman, 1926	EN	IUCN EN
Rhinopteraidae	<i>Rhinoptera jayakari</i>	shorttail cownose ray	Boulenger, 1895	EN	IUCN EN

^a IOTC Resolution 12/09 (<http://www.iotc.org/cmm/resolution-1209-conservation-thresher-sharks-family-alopiidae-caught-association-fisheries-iotc>) "Fishing Vessels flying the flag of an IOTC Member or Cooperating Non-Contracting Party (CPCs) are prohibited from retaining on board, transshipping, landing, storing, selling or offering for sale any part or whole carcass of thresher sharks of all the species of the family Alopiidae";

^b IOTC Resolution 13/06 (<http://www.iotc.org/cmm/resolution-1306-scientific-and-management-framework-conservation-sharks-species-caught>) "CPCs shall prohibit, as an interim pilot measure, all fishing vessels flying their flag and on the IOTC Record of Authorised Vessels, or authorised to fish for tuna or tuna-like species managed by the IOTC on the high seas to retain onboard, transship, land or store any part or whole carcass of oceanic whitetip sharks";

^c IOTC Resolution 13/05 (<http://www.iotc.org/cmm/resolution-1305-conservation-whale-sharks-rhincodon-typus>) CPC's "shall prohibit their flagged vessels from intentionally setting a purse seine net around a whale shark in the IOTC area of competence, if it is sighted prior to the commencement of the set" and that "in the event that a whale shark is unintentionally encircled in the purse seine net, the master of the vessel shall: a) take all reasonable steps to ensure its safe release";

^d IOTC Resolution 19/03 (<https://iotc.org/cmm/resolution-1903-conservation-mobulid-rays-caught-in-association-fisheries-iotc-area-competence>) CPC's "shall prohibit all vessels from intentionally setting any gear type for targeted fishing of mobulid rays in the IOTC Area of Competence, if the animal is sighted prior to commencement of the set" and "shall prohibit all vessels retaining onboard, transshipping, landing, storing, any part or whole carcass of mobulid rays caught in the IOTC Area of Competence" and "shall require all their fishing vessels, other than those carrying out subsistence fishery, to promptly release alive and unharmed, to the extent practicable, mobulid rays as soon as they are seen in the net, on the hook, or on the deck, and do it in a manner that will result in the least possible harm to the individuals captured".

B3. Recommendations for Listing of Sharks and Batoids in Annex III of the Nairobi Convention Protocol

Article 5 of the Nairobi Convention Protocol: *Harvestable Species of Wild Fauna* stipulates:

“1. The Contracting Parties shall take all appropriate measures to ensure the protection of the depleted or threatened wild fauna species listed in annex III.

2. Any exploitation of such wild fauna species shall be regulated in order to restore and maintain the populations at optimum levels. Each Contracting Party shall develop, adopt and implement management plans for the exploitation of such species which may include:

1. the prohibition of the use of all indiscriminate means of capture and killing and of the use of all means capable of causing local disappearance of, or serious disturbance to, populations of a species;
2. closed seasons and other procedures regulating exploitation;
3. the temporary or local prohibition of exploitation, as appropriate, in order to restore viable population levels;
4. the regulation, as appropriate, of sale, keeping for sale, transport for sale or offering for sale of live and dead wild animals;
5. the safeguarding of breeding stocks of such species and their critical habitats in protected areas designated in accordance with article 8 of this Protocol;
6. exploitation in captivity.”

Following this definition, species proposed for listing under Annex III of the Nairobi Convention Protocol were identified based on their listing on one or more of the following:

- I. **IUCN Red List of Threatened Species**¹²: those species assessed as either Vulnerable (VU) or Near Threatened (NT)¹³:
 - a. Vulnerable (VU) species are “considered to be facing a high risk of extinction in the wild”;

- b. Near Threatened (NT) – a Near Threatened species “does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future”.

- II. **CMS Appendix II – Migratory species conserved through Agreements**¹⁴: This Appendix comprises “migratory species that have an unfavourable conservation status and that require international agreements for their conservation and management, as well as those that have a conservation status which would significantly benefit from the international cooperation that could be achieved by an international agreement. The Convention encourages the Range States to species listed on Appendix II to conclude global or regional Agreements for the conservation and management of individual species or groups of related species.” This list excludes those species listed in CMS Appendix II that are also listed on CMS Appendix I and have already been included in the preceding section as proposed for inclusion on Annex II of the Nairobi Convention.

- III. **CITES Appendix II**¹⁵: This Appendix lists species that are “not necessarily now threatened with extinction but that may become so unless trade is closely controlled”.

In total, 68 species (47 shark species and 21 batoid species, Table 2) are recommended for listing on Annex III of the Nairobi Convention Protocol, due to their being listed as Vulnerable or Near Threatened on the IUCN Red List of Threatened Species, on CITES Appendix II or on CMS Appendix II. This list excludes those species already included in the preceding section as proposed for inclusion on Annex II of the Nairobi Convention.

¹² IUCN 2021. The IUCN Red List of Threatened Species. Version 2021-2. [iucnredlist.org](https://www.iucnredlist.org), accessed 15 October 2021

¹³ IUCN 2012. *IUCN Red List Categories and Criteria: Version 3.1*. Second edition. Gland, Switzerland and Cambridge, UK: IUCN. iv + 32pp.

¹⁴ cms.int/en/page/appendix-i-ii-cms

¹⁵ cites.org/eng/app/appendices.php

Table 2: Shark and batoid species recommended for listing on Nairobi Convention Annex III, based on their listing on the IUCN Red List of Threatened Species as Vulnerable (IUCN VU) or Near Threatened (IUCN NT), in CMS Appendix II (CMS II) or CITES Appendix II (CITES II). The current IUCN Red List status for each species is also presented.

Family	Species	Common name	Taxonomic reference	IUCN Red List	Criteria for listing on Annex III
Sharks					
Carcharhinidae	<i>Carcharhinus albimarginatus</i>	silvertip shark	(Rüppell, 1837)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus altimus</i>	bignose shark	(Springer, 1950)	NT	IUCN NT
Carcharhinidae	<i>Carcharhinus amblyrhynchoides</i>	graceful shark	(Whitley, 1934)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus amboinensis</i>	pigeye shark	(Müller & Henle, 1839)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus brachyurus</i>	copper shark	(Günther, 1870)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus brevipinna</i>	spinner shark	(Valenciennes, 1839)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus falciformis</i>	silky shark	(Müller & Henle, 1839)	VU	IUCN VU; CMS II; CITES II
Carcharhinidae	<i>Carcharhinus leucas</i>	bull shark	(Valenciennes, 1839)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus limbatus</i>	blacktip shark	(Valenciennes, 1839)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus macloti</i>	hardnose shark	(Müller & Henle, 1839)	NT	IUCN NT
Carcharhinidae	<i>Carcharhinus melanopterus</i>	blacktip reef shark	(Quoy & Gaimard, 1824)	VU	IUCN VU
Carcharhinidae	<i>Carcharhinus sorrah</i>	spottail shark	(Valenciennes, 1839)	NT	IUCN NT
Carcharhinidae	<i>Loxodon macrorhinus</i>	Sliteye shark	(Müller & Henle, 1839)	NT	IUCN NT
Carcharhinidae	<i>Prionace glauca</i>	blue shark	(Linnaeus, 1758)	NT	IUCN NT; CMS II
Carcharhinidae	<i>Rhizoprionodon acutus</i>	milk shark	(Rüppell, 1837)	VU	IUCN VU
Carcharhinidae	<i>Scoliodon laticaudus</i>	spadenose shark	Müller & Henle, 1838	NT	IUCN NT
Carcharhinidae	<i>Triaenodon obesus</i>	whitetip reef shark	(Rüppell, 1837)	VU	IUCN VU
Centrophoridae	<i>Centrophorus moluccensis</i>	smallfin gulper shark	Bleeker, 1860)	VU	IUCN VU
Centrophoridae	<i>Deania calceus</i>	birdbeaked dogfish	(Lowe, 1839)	NT	IUCN NT
Centrophoridae	<i>Deania profundorum</i>	arrowhead dogfish	(Smith & Radcliffe, 1912)	NT	IUCN NT
Centrophoridae	<i>Deania quadrispinosa</i>	longsnout dogfish	(McCulloch, 1915)	VU	IUCN VU
Dalatiidae	<i>Dalatias licha</i>	kitefin shark	(Bonnaterre, 1788)	VU	IUCN NT
Galeoceridae	<i>Galeocerdo cuvier</i>	tiger shark	(Peron & Lesueur, in Lesueur, 1822)	NT	IUCN NT
Ginglymostomatidae	<i>Nebrius ferrugineus</i>	tawny nurse shark	(Lesson, 1830)	VU	IUCN VU
Hemigaleidae	<i>Hemigaleus microstoma</i>	sicklefin weasel shark	Bleeker 1852	VU	IUCN VU
Hemigaleidae	<i>Hemipristis elongata</i>	snaggletooth shark	(Klunzinger, 1871)	VU	IUCN VU
Hemigaleidae	<i>Paragaleus leucomolatus</i>	whitetip weasel shark	Compagno & Smale, 1985	VU	IUCN VU
Hexanchidae	<i>Heptranchias perlo</i>	sharpnose sevengill shark	(Bonnaterre, 1788)	NT	IUCN NT
Hexanchidae	<i>Hexanchus griseus</i>	bluntnose sixgill shark	(Bonnaterre, 1788)	NT	IUCN NT
Hexanchidae	<i>Hexanchus nakamurai</i>	bigeyed sixgill shark	Teng, 1962	NT	IUCN NT
Hexanchidae	<i>Notorynchus cepedianus</i>	broadnose sevengill shark	(Peron, 1807)	VU	IUCN VU
Odontaspidae	<i>Odontaspis ferox</i>	smalltooth sand tiger shark	(Risso, 1810)	VU	IUCN VU
Pentanchidae	<i>Bythaelurus hispidus</i>	bristly catshark	(Alcock, 1891)	NT	IUCN NT
Pentanchidae	<i>Halaelurus boesemani</i>	speckled catshark	Springer & D'Aubrey, 1972	VU	IUCN VU

Pentanchidae	<i>Halaelurus natalensis</i>	tiger catshark	(Regan, 1904)	VU	IUCN VU
Pentanchidae	<i>Haploblepharus fuscus</i>	brown shyshark	Smith, 1950	VU	IUCN VU
Pentanchidae	<i>Haploblepharus kistnasamyi</i>	Natal shyshark	Human & Compagno, 2006	VU	IUCN VU
Scyliorhinidae	<i>Cephaloscyllium sufflans</i>	balloon shark	(Regan, 1921)	NT	IUCN NT
Scyliorhinidae	<i>Scyliorhinus capensis</i>	yellowspotted catshark	(Müller & Henle, 1838)	NT	IUCN NT
Somniosidae	<i>Centroscymnus coelolepis</i>	Portuguese dogfish	Barbosa du Bocage & de Brito Capello, 1864	NT	IUCN NT
Somniosidae	<i>Centroscymnus owstoni</i>	roughskin dogfish	Gaman, 1906	VU	IUCN VU
Somniosidae	<i>Centroselachus crepidater</i>	longnose velvet dogfish	(Barbosa du Bocage & de Brito Capello, 1864)	NT	IUCN NT
Sphyrnidae	<i>Sphyrna zygaena</i>	smooth hammerhead	(Linnaeus, 1758)	VU	IUCN VU; CMS II; CITES II
Squalidae	<i>Squalus acutipinnis</i>	bluntnose spurdog	Regan, 1906	NT	IUCN NT
Squatinae	<i>Squatina africana</i>	African angelshark	Regan, 1908	NT	IUCN NT
Triakidae	<i>Mustelus mosis</i>	Arabian smoothhound	Hemprich & Ehrenberg, 1899	NT	IUCN NT
Triakidae	<i>Scylliogaleus queckettii</i>	flapnose houndshark	Boulenger, 1902	VU	IUCN VU
Batoids (rays, skates, wedgefishes, sawfishes)					
Anacanthobatidae	<i>Anacanthobatis marmorata</i>	spotted legskate	(Von Bonde & Swart, 1923)	NT	IUCN NT
Aetobatidae	<i>Aetobatus ocellatus</i>	Indian eagle ray	(Kuhl, 1823)	VU	IUCN VU
Dasyatidae	<i>Bathytoshia lata</i>	brown stingray	(Garman, 1880)	VU	IUCN VU
Dasyatidae	<i>Dasyatis chrysonota</i>	blue stingray	(Smith, 1828)	NT	IUCN NT
Dasyatidae	<i>Himantura leoparda</i>	leopard whipray	Manjaji-Matsumoto & Last, 2008	VU	IUCN VU
Dasyatidae	<i>Maculabatis ambigua</i>	Baraka's whipray	Last, Bogorodsky, & Alpermann, 2016	NT	IUCN NT
Dasyatidae	<i>Pastinachus ater</i>	broad cowtail ray	(Macleay, 1883)	VU	IUCN VU
Dasyatidae	<i>Pateobatis fai</i>	pink whipray	(Jordan & Seale, 1906)	VU	IUCN VU
Dasyatidae	<i>Pateobatis jenkinsii</i>	Jenkins' whipray	(Annandale, 1909)	VU	IUCN VU
Dasyatidae	<i>Taeniurops meyeri</i>	blotched stingray	(Müller & Henle, 1841)	VU	IUCN VU
Dasyatidae	<i>Urogymnus asperrimus</i>	porcupine ray	(Bloch & Schneider, 1801)	VU	IUCN VU
Dasyatidae	<i>Urogymnus granulatus</i>	mangrove whipray	(Macleay, 1883)	VU	IUCN VU
Gymnuridae	<i>Gymnura poecilura</i>	longtail butterfly ray	(Shaw, 1804)	VU	IUCN VU
Narkidae	<i>Heteronarce garmani</i>	Natal electric ray	Regan, 1921	NT	IUCN NT
Rajidae	<i>Dipturus campbelli</i>	blackspot skate	(Wallace, 1967)	NT	IUCN NT
Rajidae	<i>Dipturus crosnieri</i>	Madagascar skate	(Séret, 1989)	VU	IUCN VU
Rajidae	<i>Leucoraja wallacei</i>	yellowspotted skate	(Hully, 1970)	VU	IUCN VU
Rajidae	<i>Raja clavata</i>	thornback skate	Linnaeus, 1758	NT	IUCN NT
Rajidae	<i>Raja straeleni</i>	biscuit skate	Poll, 1951	NT	IUCN NT
Rhinobatidae	<i>Acroteriobatus annulatus</i>	lesser guitarfish	Smith, 1841	VU	IUCN VU
Rhinobatidae	<i>Acroteriobatus zanzibarensis</i>	Zanzibar guitarfish	(Norman, 1926)	NT	IUCN NT

B4. Recommendations for Listing of Sharks and Batoids in Annex IV of the Nairobi Convention Protocol

Article 6 of the Nairobi Convention Protocol: Migratory Species stipulates: “The Contracting Parties shall, in addition to the measures specified in articles 3, 4 and 5, co-ordinate their efforts for the protection of migratory species listed in annex IV whose range extends into their territories. To this end, each Contracting Party shall ensure that, where appropriate, the closed seasons and other measures referred to in paragraph 2 of article 5 are also applied with regard to such migratory species.”

Following this definition, species proposed for listing under Annex III of the Nairobi Convention Protocol were identified based on their listing on one or more of the following:

- I. **CMS¹⁶ Appendix I – Endangered migratory species (CMS Appendix I) or Appendix II – Migratory species conserved through Agreements:** The appendices of CMS list threatened migratory species, including sharks and batoids. Therefore, all species listed on these two CMS appendices are proposed for Annex IV of the Nairobi Convention Protocol.
- II. **CMS Memorandum of Understanding on the Conservation of Migratory Sharks (CMS Sharks MOU), Annex I¹⁷:** In addition to the listing of shark and batoid species on Appendices I and II of CMS, a taxon-specific MOU was developed for migratory shark and batoid species (CMS Sharks MOU). This MOU provides an instrument under the CMS for achieving a favourable conservation status for migratory sharks and batoids. The CMS Sharks MOU is non-binding, but encourages signatories “to strengthen and improve their role in taking measures to improve or restore a favourable conservation status of sharks listed in Annex 1 of the Memorandum of Understanding”. Annex I lists migratory species of sharks and batoids for which this conservation measure is intended to apply, including 25 species of sharks and batoids that occur in the WIO.

- III. **Fowler¹⁸ (2014):** In a global review of migratory chondrichthyan fishes, Fowler (2014) identified and listed a number of shark and batoid species that can be defined as migratory or possibly migratory. These include 30 migratory shark species and 14 migratory batoid species, as well as 12 possibly migratory shark species and 9 possibly migratory batoid species, that occur within the WIO. Fowler (2014) used the definitions presented in CMS Article I¹⁹ and defined “migratory species” as species for which “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”.
- IV. **The United Nations Convention on the Law of the Sea²⁰ (UNCLOS) Annex I *Highly Migratory Species*²¹:** UNCLOS Annex I lists three species of sharks as being, and four families of sharks as containing, “highly migratory species”, most of which were also identified by Fowler (2014). No batoid species are listed on UNCLOS Annex I.

In total, 71 species (46 shark species and 25 batoid species, Table 3) are proposed for listing on Annex IV of the Nairobi Convention Protocol, based on their listing on CMS Appendix I and/or II, the CMS Sharks MOU Annex I, identification by Fowler (2014) as migratory (M) or possibly migratory (PM), or their listing on UNCLOS Annex I at the family level (UNCLOS) or species level (UNCLOS species) as “highly migratory species”. Several species proposed for listing on Annexes II or III are also proposed here for listing in Annex IV, as Annex IV listing is based on the species’ migratory ecology, rather than threat status, thus warranting separate listing.

¹⁶ cms.int/en/page/appendix-i-ii-cms

¹⁷ cms.int/sharks/en/species

¹⁸ Fowler, S. 2014. *The Conservation Status of Migratory Sharks*. UNEP/CMS Secretariat. Bonn, Germany. 30pp.

¹⁹ cms.int/en/convention-text

²⁰

un.org/depts/los/convention_agreements/convention_overview_convention.htm

²¹ un.org/depts/los/convention_agreements/texts/unclos/annex1.htm

Table 3: Shark and batoid species recommended for listing on Nairobi Convention Annex IV, based on their listing on CMS Appendix I (CMS I), CMS Appendix II (CMS II) or the CMS Sharks MOU (if not listed on CMS Appendix I or II), or being identified as migratory (M) or possibly migratory (PM) as defined by Fowler (2014), or their listing as migratory on UNCLOS Annex I at the family level (UNCLOS) or species level (UNCLOS species).

Family	Species	Common name	Taxonomic reference	IUCN Red List	Criteria for listing on Annex IV
Sharks					
Alopiidae ^a	<i>Alopias pelagicus</i>	pelagic thresher shark	Nakamura, 1935	EN	CMS II; M; UNCLOS
Alopiidae ^a	<i>Alopias superciliosus</i>	bigeye thresher shark	Lowe, 1841	VU	CMS II; M; UNCLOS
Alopiidae ^a	<i>Alopias vulpinus</i>	common thresher shark	(Bonnaterre, 1788)	VU	CMS II; M; UNCLOS
Carcharhinidae ^a	Carcharhinidae family	requiem sharks	Jordan & Evermann, 1986	-	UNCLOS
Carcharhinidae ^a	<i>Carcharhinus albimarginatus</i>	silvertip shark	(Rüppell, 1837)	VU	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus altimus</i>	bignose shark	(Springer, 1950)	NT	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus amblyrhynchoides</i>	graceful shark	(Whitley, 1934)	VU	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus amblyrhynchos</i>	grey reef shark	(Bleeker, 1856)	EN	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus amboinensis</i>	pigeeye shark	(Müller & Henle, 1839)	VU	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus brachyurus</i>	copper shark	(Günther, 1870)	VU	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus brevipinna</i>	spinner shark	(Valenciennes, 1839)	VU	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus falciformis</i>	silky shark	(Müller & Henle, 1839)	VU	CMS II; M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus galapagensis</i>	Galapagos shark	(Snodgrass & Heller, 1905)	LC	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus humani</i>	Human's whaler shark	White & Weigmann, 2014	DD	UNCLOS
Carcharhinidae ^a	<i>Carcharhinus leucas</i>	bull shark	(Valenciennes, 1839)	VU	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus limbatus</i>	blacktip shark	(Valenciennes, 1839)	VU	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus longimanus</i>	oceanic whitetip	(Poey, 1861)	CR	CMS I; M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus macloti</i>	hardnose shark	(Müller & Henle, 1839)	NT	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus melanopterus</i>	blacktip reef shark	(Quoy & Gaimard, 1824)	VU	PM; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus obscurus</i>	dusky shark	(Lesueur, 1818)	EN	CMS II; M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus plumbeus</i>	sandbar shark	(Nardo, 1827)	EN	M; UNCLOS
Carcharhinidae ^a	<i>Carcharhinus sorrah</i>	spottail shark	(Valenciennes, 1839)	NT	PM; UNCLOS
Carcharhinidae ^a	<i>Loxodon macrorhinus</i>	sliteye shark	(Müller & Henle, 1839)	NT	UNCLOS
Carcharhinidae ^a	<i>Negaprion acutidens</i>	sicklefin lemon shark	(Rüppell, 1837)	EN	M; UNCLOS
Carcharhinidae ^a	<i>Prionace glauca</i>	blue shark	(Linnaeus, 1758)	NT	CMS II; M; UNCLOS
Carcharhinidae ^a	<i>Rhizoprionodon acutus</i>	milk shark	(Rüppell, 1837)	VU	PM; UNCLOS
Carcharhinidae ^a	<i>Scoliodon laticaudus</i>	spadenose shark	Müller & Henle, 1838	NT	UNCLOS
Carcharhinidae ^a	<i>Triaenodon obesus</i>	whitetip reef shark	(Rüppell, 1837)	VU	UNCLOS
Carchariidae	<i>Carcharias taurus</i>	ragged-tooth shark	Rafinesque, 1810	CR	M
Cetorhinidae	<i>Cetorhinus maximus</i>	basking shark	(Gunnerus, 1765)	EN	CMS I; M; UNCLOS species
Galeoceridae ^b	<i>Galeocerdo cuvier</i>	tiger shark	(Peron & Lesueur, 1822)	NT	M; UNCLOS
Ginglymostomatidae	<i>Nebrius ferrugineus</i>	tawny nurse	(Lesson, 1830)	VU	M
Hemigaleidae	<i>Hemipristis elongata</i>	snaggletooth shark	(Klunzinger, 1871)	VU	PM
Hexanchidae	<i>Hexanchus griseus</i>	bluntnose sixgill shark	(Bonnaterre, 1788)	NT	M; UNCLOS species
Hexanchidae	<i>Notorynchus cepedianus</i>	sevengill shark	(Peron, 1807)	VU	M
Lamnidae ^{a, c}	<i>Carcharodon carcharias</i>	great white shark	(Linnaeus, 1758)	VU	CMS I; M; UNCLOS

Lamnidae ^{a, c}	<i>Isurus oxyrinchus</i>	shortfin mako shark	Rafinesque, 1810	EN	CMS II; M; UNCLOS
Lamnidae ^{a, c}	<i>Isurus paucus</i>	longfin mako shark	Guitart Manday, 1966	EN	CMS II; M; UNCLOS
Odontaspidae	<i>Odontaspis ferox</i>	smalltooth sand tiger shark	(Risso, 1810)	VU	PM
Odontaspidae	<i>Odontaspis noronhai</i>	bigeye sand tiger shark	(Maul, 1955)	LC	PM
Pseudocarchariidae	<i>Pseudocarcharias kamoharai</i>	crocodile shark	(Matsubara, 1936)	LC	PM
Rhincodontidae	<i>Rhincodon typus</i>	whale shark	Smith, 1828	EN	CMS I; M; UNCLOS species
Somniosidae	<i>Somniosus antarcticus</i>	southern sleeper shark	Whitley, 1939	LC	M
Sphyrnidae ^a	<i>Sphyrna lewini</i>	scalloped hammerhead	(Griffith & Smith, 1834)	CR	CMS II; M; UNCLOS
Sphyrnidae ^a	<i>Sphyrna mokarran</i>	great hammerhead	(Rüppell, 1837)	CR	CMS II; M; UNCLOS
Sphyrnidae ^a	<i>Sphyrna zygaena</i>	smooth hammerhead	(Linnaeus, 1758)	VU	CMS II; M; UNCLOS
Triakidae	<i>Mustelus mustelus</i>	smoothhound shark	(Linnaeus, 1758)	EN	M
Batoids (rays, skates, wedgefishes, sawfishes)					
Aetobatidae	<i>Aetobatus ocellatus</i> ^d	Indian eagle ray	(Kuhl, 1823)	VU	M
Dasyatidae	<i>Dasyatis chrysonota</i>	blue stingray	(Smith, 1828)	NT	PM
Dasyatidae	<i>Himantura uarnak</i>	honeycomb stingray	(Gmelin, 1789)	EN	M
Dasyatidae	<i>Megatrygon microps</i>	smalleye stingray	(Annandale, 1908)	DD	M
Dasyatidae	<i>Pateobatis fai</i> ^d	pink whipray	(Jordan & Seale, 1906)	VU	M
Dasyatidae	<i>Pteroplatytrygon violacea</i>	pelagic stingray	(Bonaparte, 1832)	LC	M
Gymnuridae	<i>Gymnura natalensis</i>	diamond ray	(Gilchrist & Thompson, 1911)	LC	PM
Mobulidae	<i>Mobula alfredi</i>	reef manta ray	(Krefft 1868)	VU	CMS I; M
Mobulidae	<i>Mobula birostris</i>	giant manta ray	(Walbaum 1792)	EN	CMS I; M
Mobulidae	<i>Mobula eregoodoo</i>	longhorned pygmy devil ray	(Cantor 1849)	EN	CMS I; PM
Mobulidae	<i>Mobula kuhlii</i>	shortfin devil ray	(Valenciennes, 1841)	EN	CMS I; M
Mobulidae	<i>Mobula mobular</i>	spinetail devil ray	(Bonnaterre, 1788)	EN	CMS I; M
Mobulidae	<i>Mobula tarapacana</i>	sicklefin devil ray	(Philippi, 1892)	EN	CMS I; M
Mobulidae	<i>Mobula thurstoni</i>	bentfin devil ray	(Lloyd, 1908)	EN	CMS I; PM
Myliobatidae	<i>Aetomylaeus bovinus</i> ^d	Duckbill ray	(Saint-Hilaire, 1817)	CR	PM
Myliobatidae	<i>Aetomylaeus vespertilio</i>	Ornate eagle ray	(Bleeker, 1852)	EN	PM
Myliobatidae	<i>Myliobatis aquila</i>	Bull ray	(Linnaeus, 1758)	CR	PM
Pristidae	<i>Pristis pristis</i>	largetooth sawfish	(Linnaeus, 1758)	CR	CMS I; M
Pristidae	<i>Pristis zijsron</i>	green sawfish	(Bleeker, 1851)	CR	CMS I
Rajidae	<i>Raja clavata</i>	thornback skate	Linnaeus, 1758	NT	PM
Rajidae	<i>Raja straeleni</i>	biscuit skate	Poll, 1951	NT	M
Rhinidae	<i>Rhynchobatus australiae</i>	bottlenose wedgefish	Whitley, 1939	CR	CMS II
Rhinidae	<i>Rhynchobatus djiddensis</i>	whitespotted wedgefish	(Forsskål, 1775)	CR	CMS Sharks MOU; M
Rhinobatidae	<i>Acroteriobatus annulatus</i> ^d	lesser guitarfish	(Smith, 1841)	VU	M
Torpedinidae	<i>Torpedo fuscomaculata</i>	blackspotted electric ray	Peters, 1855	DD	PM

^a Listed by family in UNCLOS Annex I: un.org/depts/los/convention_agreements/texts/unclos/annex1.htm

^b Previously in family Carcharhinidae and therefore listed by family in UNCLOS Annex I

^c Listed on UNCLOS Annex I under previous taxonomic family name - Isuridae

^d Taxonomic update since Fowler (2014)