

Sharks Ahead: Realizing the Potential of the Convention on Migratory Species to Conserve Elasmobranchs

Julia M. Lawson and Sonja V. Fordham



Shark
Conservation
Fund

Sharks Ahead:

Realizing the Potential of the Convention on Migratory Species to Conserve Elasmobranchs

Suggested citation Julia M. Lawson and Sonja V. Fordham. Sharks Ahead: Realizing the Potential of the Convention on Migratory Species to Conserve Elasmobranchs. Shark Advocates International, The Ocean Foundation, Washington, DC, USA. 76 pp.

Acknowledgements The authors are grateful to the Shark Conservation Fund for making this project possible. We thank the CMS Designated National Focal Points and CMS Sharks MoU Contact Points who responded to our questions. We are also indebted to Andrea Pauly, Melanie Virtue, Sandrine Polti, Debra Austin, Matt Fidler, Sophie Hulme, Ali Hood, Shelley Clarke, Olga Koubrak, Nick Dulvy, Peter Kyne, Rima Jabado, Colin Simpfendorfer, Michelle Heupel, Tobey Curtis, Cheri McCarty, Greg Skomal, Chris Lowe, Ania Budziak, Domino Albert, Ian Campbell, Rebecca Regnery, and Alejandra Goyenechea for their generous assistance and support.

About the authors Julia Lawson is a PhD student at the University of California, Santa Barbara's Bren School of Environmental Science and Management, where she focuses on the effectiveness of fisheries and conservation agreements. In her previous role as the IUCN Species Survival Commission Shark Specialist Group Program Officer (2014-2016), she led the development of a global conservation strategy for devil and manta rays, coordinated the IUCN Red List for Threatened Species assessment process for Northeast Pacific chondrichthyans, and served on the IUCN delegation to the Convention on International Trade in Endangered Species Conference of Parties. Ms. Lawson has participated as an Invited Expert in several shark-focused CMS meetings. She holds a Master of Science degree from the University of British Columbia Institute for the Oceans and Fisheries and an undergraduate degree from Dalhousie University.

Sonja Fordham is founder and president of Washington, DC-based Shark Advocates International, a non-profit project of The Ocean Foundation. Through this and past positions with Ocean Conservancy and the Shark Alliance, she has more than 25 years of experience in advocating science-based elasmobranch policies. She has been at the forefront of many landmark global actions, from the United Nations Plan of Action for Sharks to key initiatives under CMS and the Convention on International Trade in Endangered Species. Ms. Fordham serves on various relevant U.S. advisory committees and has played a leading role in securing scores of state, national, and regional shark and ray safeguards. She is deputy chair of the IUCN Shark Specialist Group and chair of the American Elasmobranch Society Conservation Committee. Shark Advocates International is a CMS Sharks MoU Cooperating Partner.

This project was funded by the Shark Conservation Fund, a philanthropic collaborative pooling expertise and resources to meet the threats facing the world's sharks and rays. The Shark Conservation Fund is a project of Rockefeller Philanthropy Advisors.

Cover photograph © James McCarthy

Contents

Executive summary	4
1. Background	5
Table 1.1: Shark and ray species included on CMS Appendices I and/or II by year of listing	
2. About this report	8
3. Methods and findings	9
Table 3.1: Measures by CMS Party Range States that are protecting all relevant Appendix I-listed elasmobranchs for which they are considered Range States	
Table 3.2: Measures by CMS Party Range States that have partially fulfilled commitments for protected Appendix I elasmobranch species	
Table 3.3: CMS Appendix I elasmobranchs (by CMS Party) for which national protections could not be located.	
Table 3.4: CMS Appendix I elasmobranchs lacking national protections (by CMS Party Range State), confirmed through in-country experts and/or clarifying documents	
Table 3.5: Treaties relevant to the CMS species.	
4. Measures to conserve Appendix II species	22
Current initiatives to improve compliance	
Additional concerns	
Relationships to other international treaties	
5. Elasmobranch species listed on CMS Appendix I & II (prior to 2017)	28
Sawfishes	
Basking shark	
White shark	
Manta and devil rays	
6. Elasmobranch species listed on CMS Appendix II (prior to 2017)	40
Whale shark	
Mako sharks	
Porbeagle shark	
Spiny dogfish	
Hammerhead sharks	
Thresher sharks	
Silky shark	
7. Conclusions	56
8. Recommendations	57
Appendix 1: CMS Appendix I & II species maps	58
Appendix 2: CMS Appendix II species maps	68

Executive summary

Sharks and rays (elasmobranchs) are inherently vulnerable and particularly threatened. Many are fished across multiple jurisdictions, making international agreements key to population health. Thirty-four elasmobranch species are listed under the Convention on Migratory Species (CMS), a global environmental treaty with potential to address conservation challenges faced by wide-ranging animals. For Appendix II-listed species, CMS Parties have committed to work internationally toward conservation. Appendix I species are to be strictly protected. A CMS Memorandum of Understanding (MoU) for sharks aims to facilitate conservation of listed species.

Using Parties' National Reports and other documentation of existing conservation measures, we examined CMS Parties' performance with respect to commitments for listed elasmobranch species for which they are considered Range States. We focused on species listed prior to 2017 (Appendix I and II: white shark, all five sawfishes, both manta rays, all nine devil rays, and the basking shark; Appendix II: whale shark, porbeagle, northern hemisphere spiny dogfish, both makos, all three threshers, two hammerheads, and the silky shark), and evaluated remedies based primarily on whether they limit fishing and against the CMS definition of prohibiting take. For all CMS-listed elasmobranch species, we reviewed global and regional status; for Appendix I species, we also examined national conservation measures. We paid special attention to highly endangered sawfishes and exceptionally valuable shortfin makos.

Our analysis reveals that strict national protections for Appendix I-listed species (particularly sawfishes and mobulid rays) are still lacking in many CMS Party Range States. Specifically, only 28% of CMS Parties have met these obligations. An additional 33% of Parties had protections in place for some but not all Appendix I species in their waters or had otherwise inadequate protections. Many of these protections, particularly with respect to sawfishes, were in place before the species were listed.

Most of the CMS Appendix II-listed elasmobranchs are addressed in some way by Regional Fisheries Management Organizations (RFMOs) and/or the Convention on International Trade in Endangered Species (CITES). CMS listing is used often to argue for CITES listing, but we found little evidence that CMS played any real role in RFMO elasmobranch initiatives. The universe of CMS Parties (126) is impressive, but does not (yet) include many major

elasmobranch fishing nations (notably, those of North America and most of Asia). Signatories to the CMS Sharks MoU (currently at 48) can include non-Parties (ex. USA and Colombia).

A new (2017) mechanism for reviewing compliance with CMS commitments offers hope for improved performance. Insufficient capacity within developing countries and the Secretariat is a persistent obstacle to fulfillment of CMS listing goals. Other contributing factors may include lack of clarity with respect to CMS obligations, and lack of focused critiques from conservation groups.

Most CMS-listed elasmobranch species remain seriously threatened. There is a general need for:

- Additional examination of the effectiveness of specific existing conservation measures
- National implementation of all relevant international treaty commitments (CMS, RFMOs, CITES)
- Additional national and international measures, particularly fishing limits, based on scientific advice and the precautionary approach
- Improved data on catches, discards, and trade
- Continued research and action aimed at minimizing incidental fishing mortality.

To address shortcomings specific to CMS and realize the conservation potential of its elasmobranch initiatives, we offer recommendations aimed at achieving:

- Expanded engagement in CMS and the CMS Sharks MoU processes
- Increased investment in elasmobranch-focused activities within the Secretariat
- Enhanced understanding of CMS Parties' obligations and measures for listed species
- Strict protections imposed by all CMS Party Range States for Appendix I-listed species
- Educational, compliance, and enforcement programs to maximize effectiveness of measures
- Greater cooperation between people engaged in CMS and RFMOs, and within national environment and fisheries agencies
- Multinational initiatives to secure/improve RFMO measures for CMS-listed species
- Motivation for CMS Parties to ensure elasmobranch conservation progress
- Improved national capacity (through financial, technical, and legal assistance) to meet elasmobranch commitments.

1.

Background

Sharks and rays, as a group, are particularly threatened animals. Most species are exceptionally vulnerable to overfishing because they grow slowly and produce few young¹. Many are fished across multiple jurisdictions, making international agreements central to long-term population health. Addressing conservation challenges faced by wide-ranging species like sharks and rays is the specialty of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), a global environmental treaty that provides an international problem-solving platform for governments around the world. CMS has great potential to improve the outlook for many shark and ray populations if commitments are followed up with concrete actions.

Thirty-four species of sharks and rays (collectively known as elasmobranchs) have been listed on the CMS Appendices since 1999. For the Appendix II-listed species, CMS Parties have committed to work internationally toward conservation. Appendix I species are to be "strictly protected," defined by CMS as "prohibiting the take of such species" where "taking" means "taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct." CMS Appendices are amended by Parties at each Conference of Parties (CoP), which occurs approximately every three years.

By the eleventh CMS CoP in 2014, the white shark, all five sawfishes, both manta rays, all nine devil rays, and the basking shark, had been listed on Appendices I and II, while the whale shark, porbeagle, northern hemisphere spiny dogfish, both makos, all three threshers, two hammerheads, and the silky shark were listed on Appendix II (Figure 1.2). In 2017, at the twelfth CoP (CoP12), the whale shark was included on Appendix I, the angel shark and Mediterranean Sea common guitarfish were listed on both Appendices I and II, and other populations of common guitarfish, along with the blue shark, dusky shark, and white-spotted wedgetfish were added to Appendix II. The primary threat to all of these elasmobranch species is fishing, be it intentional, incidental, or accidental. Habitat degradation and loss also poses risk¹. Some of these species, particularly basking sharks, manta rays, and whale sharks, are

also vulnerable to gear entanglement and negative encounters associated with tourism^{2,3,4}.

CMS Parties developed and, in 2010, adopted a Memorandum of Understanding (MoU) for the Conservation of Migratory Sharks aimed at facilitating and coordinating conservation activities for CMS-listed elasmobranch species. The MoU is open to signature for both Parties and non-Parties to CMS, as well as non-governmental organizations and to date has been signed by 48 States (Figure 1.1) and 11 cooperating partners. An accompanying Conservation Action Plan aims to improve research, fisheries management, habitat protection, public awareness, and cooperation at national and international scales. Signatories are encouraged to pursue these activities through Regional Fisheries Management Organizations (RFMOs), and other bodies. The overlap between CMS Parties, Sharks MoU Signatories, and major shark fishing nations is shown in Figure 1.3.

So far, the 29 shark and ray species listed before 2017 are covered by the MoU (Annex I). In December 2018, MoU Signatories will consider adding more species (some CMS-listed, some not) to Annex I.

© Nature PL/Alamy



The primary threat to all of these elasmobranch species is overfishing.

¹ Dulvy NK, Fowler SL, Musick JA, Cavanagh R, Kyne PM, Harrison LR, Carlson JK, Davidson LNK, Fordham SV, Francis MP, Pollock CM, Simpfendorfer CA, Burgess GH, Carpenter KE, Compagno LJV, Ebert DA, Gibson C, Heupel MR, Livingstone SR, Sanciangco JC, Stevens JD, Valenti S, White WT. 2014. Extinction risk and conservation of the world's sharks and rays. *eLife* 2014;3:e00590.

² Deakos MH, Baker JD, and Bejder L. 2011. Characteristics of a manta ray (*Manta alfredi*) population off Maui, Hawaii, and implications for management. *Marine Ecology Progress Series* 429: 245-260.

³ Inman A, Brooker E, Dolman S, McCann R, Wilson AMW. 2016. The use of marine wildlife-watching codes and their role in managing activities within marine protected areas in Scotland. *Ocean & Coastal Management* 132: 1-11.

⁴ Quiros AL. 2007. Tourist compliance to a code of conduct and the resulting effects on whale shark (*Rhincodon typus*) behavior in Donsol, Philippines. *Fisheries Research* 84(1): 102-108.

TABLE 1.1: Shark and ray species included on CMS Appendices I and/or II by year of listing.

Scientific Name	Common Name(s)	Appendix I	Appendix II
<i>Rhincodon typus</i>	Whale Shark	2017	1999
<i>Carcharodon carcharias</i>	White Shark	2002	2002
<i>Cetorhinus maximus</i>	Basking Shark	2005	2005
<i>Isurus oxyrinchus</i>	Shortfin Mako Shark		2008
<i>Isurus paucus</i>	Longfin Mako Shark		2008
<i>Lamna nasus</i>	Porbeagle Shark		2008
<i>Squalus acanthias</i> (Northern Hemisphere)	Spiny Dogfish, Spurdog		2008
<i>Manta birostris</i>	Giant/Oceanic Manta Ray	2011	2011
<i>Anoxypristis cuspidata</i>	Narrow Sawfish	2014	2014
<i>Pristis clavata</i>	Dwarf Sawfish	2014	2014
<i>Pristis pectinata</i>	Smalltooth Sawfish	2014	2014
<i>Pristis pristis</i>	Largetooth Sawfish	2014	2014
<i>Pristis zijsron</i>	Green Sawfish	2014	2014
<i>Manta alfredi</i>	Reef Manta Ray	2014	2014
<i>Mobula eregoodootenkee</i>	Pygmy Devil Ray	2014	2014
<i>Mobula hypostoma</i>	Atlantic Devil Ray	2014	2014
<i>Mobula japonica</i>	Spinetail Devil Ray	2014	2014
<i>Mobula kuhlii</i>	Shortfin Devil Ray	2014	2014
<i>Mobula mobular</i>	Giant Devil Ray	2014	2014
<i>Mobula munkiana</i>	Pygmy Devil Ray	2014	2014
<i>Mobula rochebrunei</i>	Lesser Guinean Devil Ray	2014	2014
<i>Mobula tarapacana</i>	Chilean Devil Ray	2014	2014
<i>Mobula thurstoni</i>	Bentfin Devil Ray	2014	2014
<i>Alopias pelagicus</i>	Pelagic Thresher Shark		2014
<i>Alopias superciliosus</i>	Bigeye Thresher Shark		2014
<i>Alopias vulpinus</i>	Common Thresher Shark		2014
<i>Sphyrna lewini</i>	Scalloped Hammerhead shark		2014
<i>Sphyrna mokarran</i>	Great Hammerhead shark		2014
<i>Carcharhinus falciformis</i>	Silky Shark		2014
<i>Squatina squatina</i>	Angelshark	2017	2017
<i>Rhinobatos rhinobatos</i> (Mediterranean)	Common Guitarfish	2017	2017
<i>Rhinobatos rhinobatos</i>	Common Guitarfish		2017
<i>Carcharhinus obscurus</i>	Dusky Shark		2017
<i>Prionace glauca</i>	Blue Shark		2017
<i>Rhynchobatus australiae</i>	White-spotted Wedgefish		2017

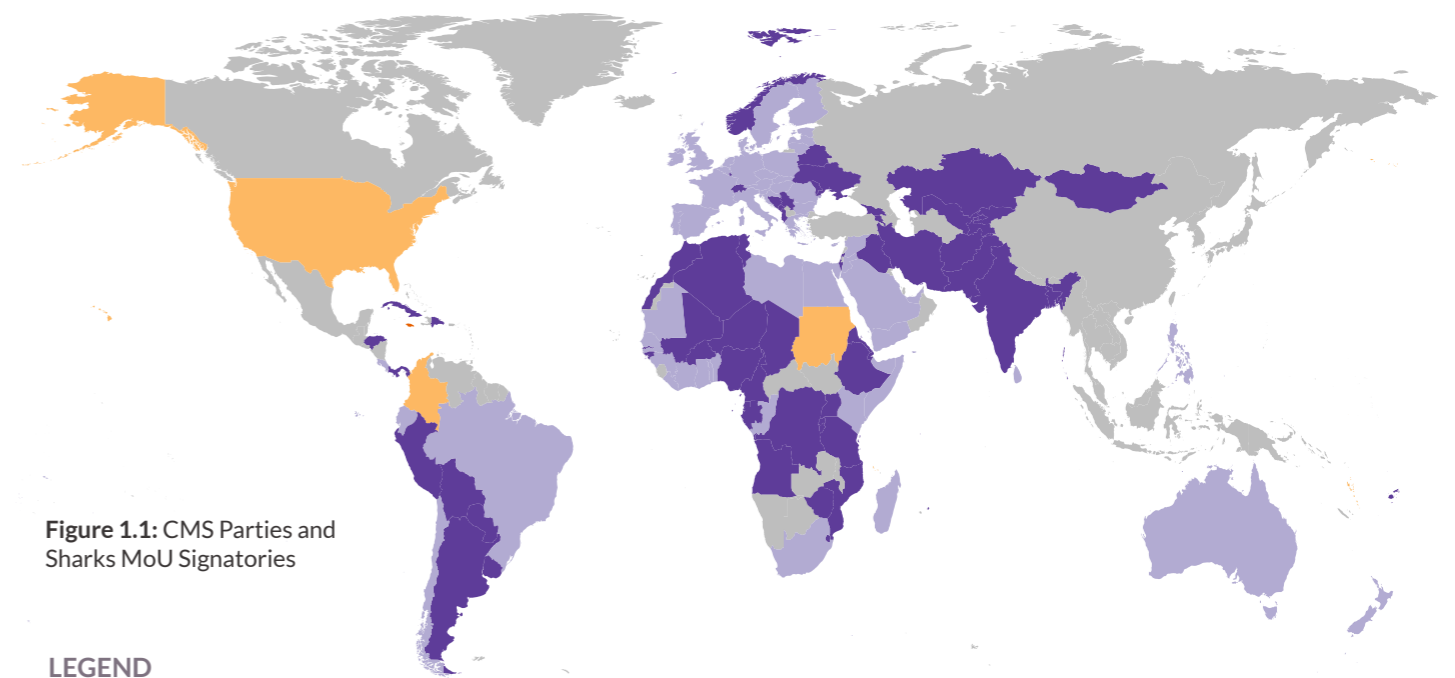


Figure 1.1: CMS Parties and Sharks MoU Signatories

LEGEND

- CMS Parties that are also Sharks MoU Signatories
- CMS Parties that are not (yet) Sharks MoU Signatories
- Sharks MoU Signatories that are not (yet) CMS Parties

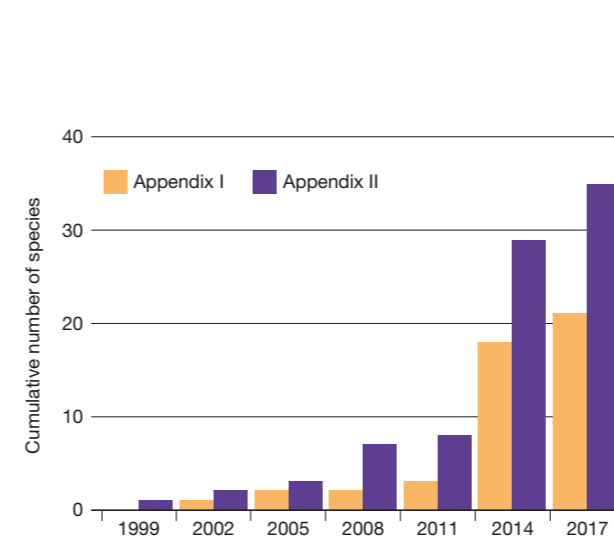


Figure 1.2. The cumulative (total) number of elasmobranch species listed on CMS Appendices I and II over time.

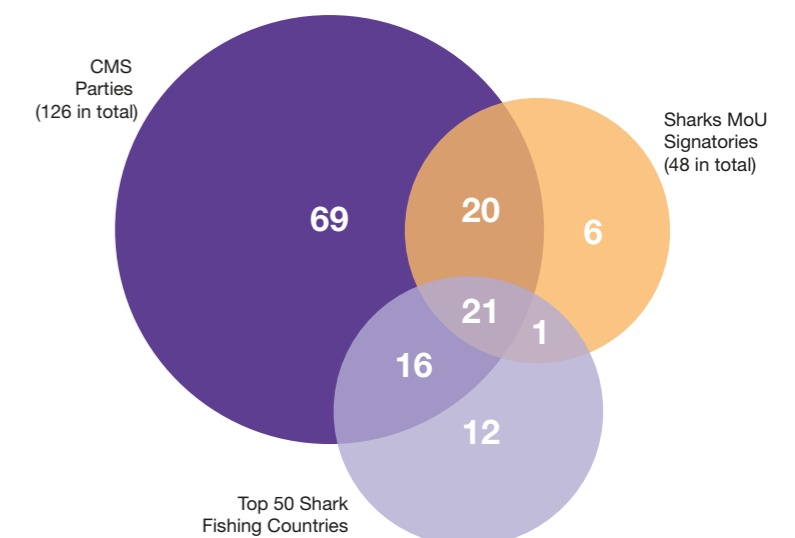


Figure 1.3. Country overlap between the top 50 shark fishing countries (by total landings reported to FAO), the CMS Parties, and the CMS Sharks MoU Signatories.

2. About this report

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) has great potential to improve the outlook for many threatened sharks and rays. We hypothesized, based on cursory evaluation and direct experience, that the listing of species under this treaty is outpacing implementation of associated conservation commitments.

With the goal of enhancing the CMS contribution to shark and ray conservation, we examined and assessed CMS Parties' performance with respect to obligations and commitments for listed species. Based on these analyses, we aim to highlight opportunities for meaningful conservation action and assist with future progress. Our main objectives are to:

- catalyze improved compliance with CMS Parties' binding obligations to strictly protect shark and ray species listed on Appendix I, and

- encourage national, regional, and global collaboration to protect and conserve species listed on CMS Appendix I and II.

We focused on the elasmobranchs listed prior to 2017, with special attention to the most endangered species (sawfishes) and an exceptionally migratory, commercially valuable, and under-protected species listed a decade ago (the shortfin mako). Because overfishing is the primary threat to elasmobranchs, we evaluate measures based on whether they include concrete limits on fishing, especially catch. To the CMS Secretariat, relevant government officials, and fellow conservationists, we offer specific recommendations for improvement at national and international levels. We hope this document will also serve as a useful reference and tool for additional analyses and strategic conservation planning.

© Martin Strmiska/Alamy



3. Methods and findings

Range State confirmation process

We reviewed all National Reports submitted to the CMS Secretariat, which are publicly available on the CMS website⁵. We primarily gathered information from National Reports submitted ahead of CoP12 (reporting period was from May 2014 to April 2017). For Parties that did not submit National Reports prior to CoP12, we examined the most recently submitted National Report instead (2002, 2005, 2008, 2011, or 2014).

In order to determine whether or not Parties had taken action to advance the conservation of Appendix I and II-listed species, we needed to establish the species for which each country was considered to be a Range State. Lists of Range States for each CMS Appendix I and Appendix II-listed species were available from three primary sources: (a) the original species proposal, (b) on the CMS website, and (c) in the National Report for each Party.

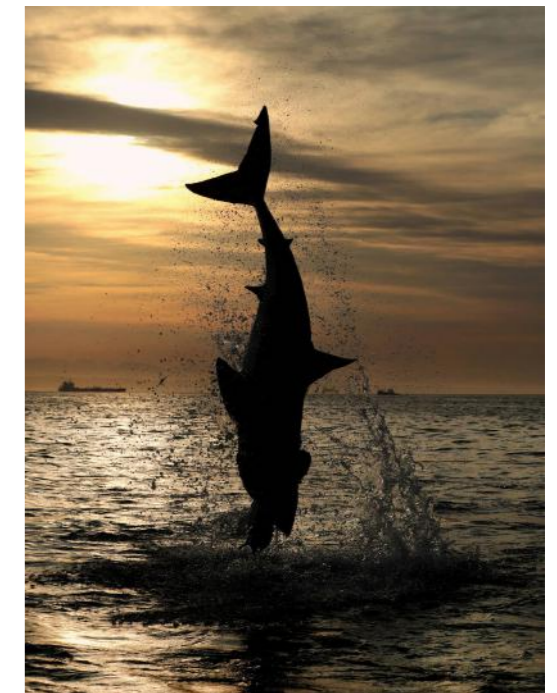
“Because overfishing is the primary threat to elasmobranchs, we evaluate measures based on whether they include concrete limits on fishing, especially catch.”

We considered a country to be a confirmed Range State for a given species if it was listed as a Range State on both the original listing proposal and the CMS website. In cases of conflict between original proposals and the CMS website, we noted inconsistencies on our species maps (see Appendix 1: CMS Appendix I & II species maps). Not all Parties had detailed Range State information in their National Reports, so this information was treated separately from what was found on the website or species proposal. We noted whether or not a Party identified as a Range State and included this information as a separate data layer on our species maps. For each of these Parties, information on Range State status was primarily sourced from Section 5.2: “Questions on specific Appendix I fish species” or “Annex: Updating data on Appendix II Species in the National Reports.” Some species were also discussed elsewhere in the text of the National Reports. If these species were considered extant, then the country was considered a Range State. If the species reported as nationally extinct (or absent), then this information was also noted. When identifying as Range States in National Reports, Parties with overseas territories (i.e. France, the Netherlands, and the United Kingdom) did not always clarify if the species in question is thought to occur in mainland waters, territory waters, or both, which created confusion.

We found that the agreement between the Range States on the original listing proposal and those on the CMS website were inconsistent for several species (see Appendix 1: CMS Appendix I & II species maps). The Range State map for the

⁵ <http://www.cms.int/en/documents/national-reports>

© Dan Callister/Alamy



silky shark (*Carcharhinus falciformis*) and northern hemisphere spiny dogfish (*Squalus acanthias*) had several Range State countries that were included on the CMS website only (had been added after the species listing proposal was accepted). For the northern hemisphere spiny dogfish a significant error had been made on the CMS website, and southern hemisphere countries were included on the CMS website. Whale shark (*Rhincodon typus*), basking shark (*Cetorhinus maximus*), and the sawfishes (*Pristis* spp.), all had good consistency across Range States included on the original listing proposal and on the CMS website.

When we examined Range State information from National Reports, several Parties reported that a species was present in their waters, even though that country was not included as a Range State in either the original proposal or on the CMS website. This was especially problematic for white shark (*Carcharodon carcharias*). Ten Parties (of 22) reported that white shark was present in its waters, even though CMS did not recognize those ten countries as Range States for white shark. There are three possible reasons behind this and other inconsistencies of this nature: (a) there could be an error in the CMS National Report, where a Party incorrectly identified as a Range State, (b) a Party may have novel distribution information, (c) the Convention text states that Range States also include flag vessels (CMS Convention Text, Article I.1.h), so even Appendix I or II-listed species that are caught by vessels fishing outside of a Range State's territorial waters may also be considered within the jurisdiction of that Range State.

National Regulations to Protect Appendix I Species

To gather information on national protections applicable to Appendix I species, we first examined the binary question 5.1.1 posed by the CMS Secretariat to the Parties: “Is the taking of all Appendix I fish species prohibited by the national legislation listed as being implementing legislation in Table I(a) (General Information).” Parties could select yes, no, or leave this section blank. If countries selected yes, they had the opportunity to provide relevant details. If responses included vague references to elasmobranch policies, we searched other sources for additional detail. These additional sources included Designated National Focal Points and/or Sharks MoU Focal Points, local experts, protected species and/or fisheries legislation, and online unstructured searches for published or grey literature relating to elasmobranch protections.

From our confirmed Range State dataset, we removed landlocked countries, and any Parties without Appendix I-listed elasmobranch species occurring in their waters (according to our Range State confirmation process, which is detailed above). That filtering yielded 83 Parties (including one Signatory to CMS, and excluding the European Union (EU) as a Party) that remained relevant to our analysis. Of these, 61 Parties had submitted National Reports in 2017, 11 had only old reports available (ranging from 2005 to 2014), and 11 had issued no National Reports. We analyzed National Reports from several EU Member States as well as an older EU report and EU regulations pertaining to listed elasmobranch species, but we did not include the EU in our 83-Party analysis given its multinational nature. Additionally, Overseas Territories were typically included in National Reports, with the exception of Bermuda, Guernsey, and Isle of Man, each of which submitted independent National Reports in 2011, but were included in the most recent (2017) United Kingdom National Report.

We also compared self-reporting by these 83 Parties in National Reports to our unstructured search results. A total of 35 Parties (42%) answered “Yes” to question 5.1.1 regarding prohibitions on the take of Appendix I fish species, 12 Parties (14%) answered “No”, and 25 Parties had no response (either the section was left blank or the report was completed many years ago before the question was asked). From our unstructured search, we found that 23 Parties (28%) had strict protections (prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct” as well as prohibitions on retention and landing) in place for all Appendix I elasmobranch species for which that Party was a

Range State, including those that were listed at the most recent Conference of the Parties (CoP12). Of those 23 Parties, 13 were Member States of the EU with species protections resulting from European Commission (EC) regulations, or a combination of national and EC regulations. Twenty-eight Parties (33%) had strict protections in place for some Appendix I species or had measures in place for some or all of their Appendix I species that were considered inadequate as they fell short of the CMS definition of “strict protection.” Twenty-three Parties including one CMS Signatory (28%) had no protections in place, conditions that were confirmed through additional sources. Lastly, we could not confirm the presence or absence of legislation/regulations for nine Parties (11%), despite extensive attempts to find information through additional sources.

The extension of protections from “parent” countries to dependent territories varied. France, the Netherlands, and the United Kingdom had the largest number of dependent territories relevant to CMS. CMS materials also referred to dependent territories for Australia (Christmas Island, Norfolk Island), Costa Rica (Cocos Islands), Spain (the Canary Islands), Portugal (the Azores and Madeira Islands), Ecuador (Galapagos Islands), etc. French law extends to its dependent territories, while in the United Kingdom dependent territories need to make a formal request and enact enabling domestic legislation. The Kingdom of the Netherlands contains the mainland plus the Caribbean Netherlands (Bonaire, St. Eustatius and Saba), which mostly forms laws and regulations independent from the Kingdom of the Netherlands⁶. The “constituent countries” of Aruba, Curaçao and Sint Maarten operate more independently and likely have a legal structure similar to the United Kingdom dependent territories. Information on the extension of protections from countries to dependent territories is detailed in Tables 3.1 and 3.2 where information could be obtained.

Our research presents the most comprehensive, publicly available review of elasmobranch national protections adopted by CMS Parties. While we made a significant effort to include all relevant and up-to-date national protections for Appendix I elasmobranchs, it is quite possible we missed and/or misinterpreted some. We were careful only to include information that we gleaned directly from legislation and regulations or that we received from a trusted source with a solid understanding of species protections in their country. We are hopeful that elements of this document will live on and be amended over time. We welcome updates, corrections, and additions.

⁶ Ministry of Economic Affairs. 2013. Nature Policy for the Caribbean Netherlands 2013-2017 (“Natuurbeleidsplan Caribisch Nederland”). Government of the Netherlands, 29 pp.

“
Our research presents the most comprehensive, publicly available review of elasmobranch national protections adopted by CMS Parties.

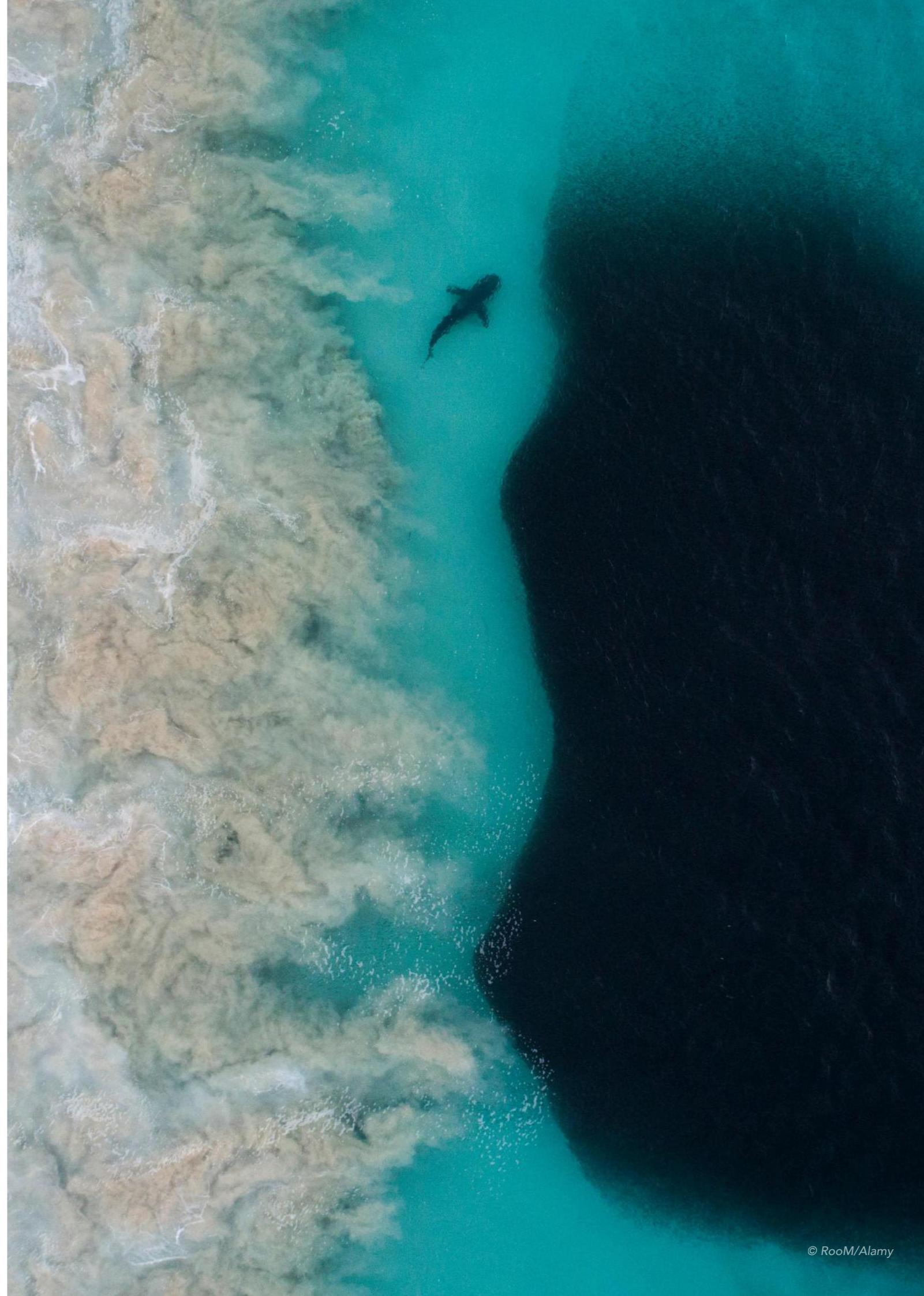


TABLE 3.1. Measures by CMS Party Range States that are protecting all relevant Appendix I-listed elasmobranchs for which they are considered Range States based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches. Under CMS, Appendix I-listed species are to be “strictly protected” with prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct”. More common for fisheries bodies are prohibitions on retention and landing.

CMS Party	Appendix I elasmobranchs for which this Party is a Range State	Relevant species or elasmobranch-specific national protections
Australia	Narrow sawfish (<i>Anoxypristis cuspidata</i>), White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Reef manta ray (<i>Manta birostris</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japonica</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Dwarf sawfish (<i>Pristis clavata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Green sawfish (<i>Pristis zijsron</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Species added to the CMS Appendices were listed as “migratory” under the Environment Protection and Biodiversity Conservation (EPBC) Act (within months), upon which it generally becomes an offence to “kill, injure, take, trade, keep or move” them. The following species were listed as “threatened” (and thereby protected) under the EPBC Act prior to CMS listing and are subject to national Recovery Plans: <i>C. carcharias</i> (1999), <i>R. typus</i> (2001), <i>P. zijsron</i> (2008), <i>P. clavata</i> (2009), and <i>P. pristis</i> (2000 as <i>P. microdon</i> and 2013). The EPBC Act is also applicable to Australia’s dependent territories (Christmas Island, Cocos (Keeling Islands), and Norfolk Island).
Brazil	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>) Atlantic devil ray (<i>Mobula hypostoma</i>), Spinetail devil ray (<i>Mobula japonica</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Capture, handling, transport, storage, processing and marketing is banned under Decree MMA 445 List of Endangered Fish and Aquatic Invertebrates, Ordinance No. 445 of 2014 applicable to Appendix I species. In addition, Inter-ministerial Normative Instruction No. 2 of 2013 prohibits catch, retention, landing, storage and marketing of mobulidae rays (including Giant manta ray (<i>Manta birostris</i>), Atlantic devil ray (<i>Mobula hypostoma</i>), Spinetail devil ray (<i>Mobula japonica</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>).
Cook Islands	Reef manta ray (<i>Manta alfredi</i>)	It is prohibited to catch, capture, target, otherwise intentionally fish, retain whether dead or alive, possess, sell, offer for sale, take, purchase, barter, transport, export, import, trade, or distribute whole or parts of shark applicable to all elasmobranchs under Marine Resources (Shark Conservation) Regulations of 2012.
Croatia	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² . In addition, deliberate capture, killing, disturbance, retention, transport, sale of live or dead specimens is prohibited under Nature Protection Act (Official Gazette No. 80/13).
Cyprus	Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Denmark	Basking shark (<i>Cetorhinus maximus</i>)	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Dominican Republic	Giant manta ray (<i>Manta birostris</i>), Atlantic devil ray (<i>Mobula hypostoma</i>)	Fishing, capture and commercial exploitation (including import or export) of all species of shark and ray (including shark and ray products, parts and derivatives), retention (when caught accidentally) is prohibited throughout the national territory under Resolución No. 0023 of 2017.
Ecuador	Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Spinetail devil ray (<i>Mobula japonica</i>), Pygmy devil ray (<i>Mobula munkiana</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Fishing, retention, transshipment, and sale of shark and ray species including those listed on CMS Appendix I was banned in 2010 under Subsecretaría de Recursos Pesqueros Acuerdo 093. Additionally, Executive Decrees 486 (“Decreto N° 486 Expedir las normas para la regulación de la pesca incidental del recurso tiburón”) and its reform in Executive Decree 902 (“Decreto N° 902 Reforma pesca del tiburón, comercialización y exportación”), is applied in continental and insular Ecuador. Galápagos National Park also has more stringent measures generated by the Ministry of the Environment, including “Reglamento ley de regimen especial de la provincia de Galápagos”.
France	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Giant devil ray (<i>Mobula mobular</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Mainland France: Retention, transshipment, and landing are prohibited under EU regulations ² . French Polynesia: under Order No. 396 CM of 2006 and No. 1784 CM of 2012 “targeted fishing, trade, sale, and retention” prohibited for sharks only, applicable to White shark (<i>Carcharodon carcharias</i>) and Basking shark (<i>Cetorhinus maximus</i>) ³ . Under Arrete n° 306 CM du 20 février 2008 modifiant les articles A. 121-1 prohibited “targeted fishing, trade, sale, and retention” for Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), and Giant devil ray (<i>Mobula mobular</i>). New Caledonia: Under No. 2013-007/GNC of 2013 prohibited “targeted fishing, trade, sale, and retention” for sharks and rays ³ . Réunion: Under prefectural decree n°06-2412/SG/DRCTCV prohibited exploitation applicable to Whale Shark only. No specific measures for Guadeloupe, Martinique and French Guiana , but these territories are covered by EU regulations.
Germany	Basking shark (<i>Cetorhinus maximus</i>)	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Greece	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .

TABLE 3.1. Measures by CMS Party Range States that are protecting all relevant Appendix I-listed elasmobranchs for which they are considered Range States based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches. Under CMS, Appendix I-listed species are to be “strictly protected” with prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct”. More common for fisheries bodies are prohibitions on retention and landing.

CMS Party	Appendix I elasmobranchs for which this Party is a Range State	Relevant species or elasmobranch-specific national protections
Ireland	Basking shark (<i>Cetorhinus maximus</i>)	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Israel	Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	National Parks, Nature Reserves, National Sites and Memorial Sites Law, 5758 of 1998 applies to all sharks and rays, and bans damage or trade without a license or special permit. Angelshark (<i>Squatina squatina</i>) added in 2005.
Italy	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Malta	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Basking shark (<i>Cetorhinus maximus</i>) and Giant devil ray (<i>Mobula mobular</i>) (as well as White shark (<i>Carcharodon carcharias</i>)) were protected in 1999 under Environment Protection Act Flora and Fauna Protection Regulations. Prohibited to “pursue, take or attempt to take, deliberately capture or kill or attempt to kill, deliberately destroy, keep, transport, by any method sell, buy, exchange, offer for sale or for exchange, import or export.” All relevant Appendix II species are now covered under an EU regulation prohibiting retention, transshipment, and landings from commercial fisheries. As well as Flora, Fauna and Natural Habitats Protection Regulations of 2006 (Legal Notice 311 as amended) mandating that people “shall not keep, transport, sell or exchange by any method, import or export” ² .
Monaco	Basking shark (<i>Cetorhinus maximus</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹	Under Article O. 230-1 (established by Ordinance No. 6.154 of 2016) “intentional disturbance, capture, importation, possession, killing, trade, transport and commercial exposure” are prohibited.
New Zealand	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Spinetail devil ray (<i>Mobula japonica</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under the Wildlife Act, it is prohibited to “hunt, kill, buy, sell, possess, or otherwise dispose of” White shark (<i>Carcharodon carcharias</i>) (beginning in 2007), Basking shark (<i>Cetorhinus maximus</i>) (2010), Whale shark (<i>Rhincodon typus</i>) (2010), <i>Giant manta ray</i> (<i>Manta birostris</i>) (2010), and Spinetail devil ray (<i>Mobula japonica</i>) (2011). In addition, Fisheries Act regulations (SR 2012/355) prohibit high seas take of White shark (<i>Carcharodon carcharias</i>) (2007), and Basking shark (<i>Cetorhinus maximus</i>) (2010).
Pakistan	Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japonica</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under Sindh vide Notification No. 5(3)SO(FISH)/L&F/16 of 2016 and the the Balochistan Sea Fisheries Act No. IX of 1971, “catch, landing, marketing, sale” are prohibited. These two provinces cover the entire coast of Pakistan ⁴ . <i>A. cuspidata</i> and <i>P. zijsron</i> are also protected.
Portugal	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Slovenia	Basking shark (<i>Cetorhinus maximus</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
Spain	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Giant devil ray (<i>Mobula mobular</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Under EU regulations, retention and landings from commercial fisheries are prohibited ² . In addition, under Spain’s List of Wild Species in Special Protection Regime (Royal Decree 139) of 2011, it is prohibited to “kill, capture, chase, disturb, possess, naturalize, transport, sell, trade or exchange, offer for purposes of sale or exchange, import or export live or dead specimens” applicable to White shark (<i>Carcharodon carcharias</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>), and Angelshark (<i>Squatina squatina</i>) in the Mediterranean and Basking shark (<i>Cetorhinus maximus</i>) in the Mediterranean and Atlantic.
Sweden	Basking shark (<i>Cetorhinus maximus</i>)	Retention, transshipment, and landings from commercial fisheries are prohibited under EU regulations ² .
United Arab Emirates	Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Green sawfish (<i>Pristis zijsron</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Catch, retention, and trade are prohibited under the Ministerial Decree No. 500 of 2014 ⁴ .

¹ Added during CoP12.

² Targeting, retention, transshipment, and landing are prohibited under EU Council Regulation No. 2018/120 applicable to Guitarfishes (Rhinobatidae family) for all EU and third country vessels in EU waters of ICES areas I to XII. Targeting, retention, transshipment, and landing of Angelsharks (*Squatina squatina*) are prohibited since 2009, most recently renewed in Council Regulation No. 2018/120 applicable for all EU and third country vessels in all EU waters. The EU established a zero-catch limit for Basking Sharks (*Cetorhinus maximus*) for fishing areas IV, VI and VII under Council Regulation (EC) 2287/2003. Council Regulation (EC) No 51/2006 established a prohibition on fishing, retaining, transshipment, and landing Basking shark (*Cetorhinus maximus*) and White shark (*Carcharodon carcharias*). Retention, transshipment, and landing are now prohibited under EU Council Regulation No. 2018/120 for these two species as well as the Pristidae family, Mobulidae family, and Whale shark (*Rhincodon typus*) for all EU and third country vessels in EU waters, as well as EU vessels in non-EU waters. Retention, transshipment, landing, transfer, storage, sale and display or offer for sale are prohibited, and incidentally captured individuals are to be released unharmed under EU Regulation (EU) 2015/2012 amending Regulation (EU) No 1343/2011 regarding fishing in the General Fisheries Commission for the Mediterranean Agreement area, applicable to White shark (*Carcharodon carcharias*), Basking shark (*Cetorhinus maximus*), Giant devil ray (*Mobula mobular*), Smalltooth sawfish (*Pristis pectinata*), Largetooth sawfish (*Pristis pristis*), Common guitarfish (*Rhinobatos rhinobatos*), and Angelshark (*Squatina squatina*).

³ Ward-Paige CA. 2017. A global overview of shark sanctuary regulations and their impact on shark fisheries. Marine Policy 82: 87-97.

⁴ Jabado RW, Kyne PM, Pollom RA, Ebert DA, Simpfendorfer CA, Ralph GM, Dulvy NK (Eds). 2017. The conservation status of sharks, rays, and chimaeras in the Arabian Sea and adjacent waters. Environment Agency – Abu Dhabi, UAE and IUCN Species Survival Commission Shark Specialist Group, Vancouver, Canada 236 pp.

TABLE 3.2. Measures by CMS Party Range States that have partially fulfilled commitments for protected Appendix I elasmobranch species. These Parties have either protected some but not all relevant species, or have inadequate measures that do not align with the CMS definition of strict protection: prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct.” Information is based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches.

CMS Party	Appendix I elasmobranchs with national protection or partial protection	Relevant species or elasmobranch-specific national protections	Appendix I elasmobranchs without protections
Antigua and Barbuda	Whale shark (<i>Rhincodon typus</i>) ¹	Barbuda: Targeted shark fishing (with the exception of Barbuda residents and traditional use – direct consumption or sale to other Barbudian residents) and export of whole or parts is prohibited under the Barbuda Fisheries Regulations of 2014. Not in place for Antigua ² .	Atlantic devil ray (<i>Mobula hypostoma</i>), Smalltooth sawfish (<i>Pristis pectinata</i>)
Argentina	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Atlantic devil ray (<i>Mobula hypostoma</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Targeted fisheries for chondrichthyans are prohibited (with species exceptions). Under Res. Consejo Federal Pesquero no. 4 of 2013. Dead bycatch (if over minimum size limit) must be retained and reported; live bycatch must be released (if over minimum size limit).	
Bangladesh	Narrow sawfish (<i>Anoxypristis cuspidata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Hunting or transfer without a license is prohibited under the Wildlife (Conservation and Security) Act (Schedule I) of 2012.	Spinetail devil ray (<i>Mobula japonica</i>)
Cabo Verde	Basking shark (<i>Cetorhinus maximus</i>)	Under Resolution 29/2016 2016-2017 fishery management, “fishing, holding, transshipping, landing, storage, sale or offer of part or all of the carcass” is prohibited.	Chilean devil ray (<i>Mobula tarapacana</i>)
Cuba	Smalltooth sawfish (<i>Pristis pectinata</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , White shark (<i>Carcharodon carcharias</i>),	Under the Ministry of Science, Technology and Environment of the Republic of Cuba’s Law 81 of The Environment, Resolution 160/2011, it is “prohibited to target, capture, collect, transport, or sell without an environmental license.” applicable to White shark (<i>Carcharodon carcharias</i>), Whale shark (<i>Rhincodon typus</i>). Sawfishes are subject to more stringent measures, with the environmental license authorized only for research and conservation purposes.	Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Atlantic devil ray (<i>Mobula hypostoma</i>)
Democratic Republic of the Congo	Whale shark (<i>Rhincodon typus</i>) ¹	Under 2006 Arrete Ministeriel No. 020/CAB/MIN/ECN-EF/2006 “capture and trade permitted with a commercial catch or scientific permit”.	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>) ¹
Egypt	Whale shark (<i>Rhincodon typus</i>) ¹	For territorial waters of the Red Sea (not the Mediterranean), fishing, displaying, moving, trading or sale of sharks (not including angel sharks or rays) was prohibited in 2005. Rule was expanded to live or dead, whole or parts of, sharks in 2009 ³ .	Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Giant devil ray (<i>Mobula mobular</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Guinea	Largetooth sawfish (<i>Pristis pristis</i>)	Prohibition of vessels from fishing and keeping on board ⁴ .	Lesser Guinean devil ray (<i>Mobula rochebrunei</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Guinea-Bissau	Largetooth sawfish (<i>Pristis pristis</i>)	Prohibited to retain, consume, keep, and sell ⁴ .	Lesser Guinean devil ray (<i>Mobula rochebrunei</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Honduras		Under Agreement No. 002-2010 banning targeted fishing, trade, and sale of shark and shark products in 2011 applicable only to sharks ⁵ .	Giant manta ray (<i>Manta birostris</i>), Spinetail devil ray (<i>Mobula japonica</i>), Pygmy devil ray (<i>Mobula munkiana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>)

TABLE 3.2. Measures by CMS Party Range States that have partially fulfilled commitments for protected Appendix I elasmobranch species. These Parties have either protected some but not all relevant species, or have inadequate measures that do not align with the CMS definition of strict protection: prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct.” Information is based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches.

CMS Party	Appendix I elasmobranchs with national protection or partial protection	Relevant species or elasmobranch-specific national protections	Appendix I elasmobranchs without protections
India	Narrow sawfish (<i>Anoxypristis cuspidata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under Schedule I of Wildlife (Protection) Act of 1972 “ban on catching, trading or possessing” applicable to Narrow sawfish (<i>Anoxypristis cuspidata</i>), Largetooth sawfish (<i>Pristis pristis</i>), since 2001 and Whale shark (<i>Rhincodon typus</i>) ^{3,6} .	Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japonica</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Dwarf sawfish (<i>Pristis clavata</i>)
Iran	Whale shark (<i>Rhincodon typus</i>) ¹	Prohibited target fishing of sharks (but not rays or sawfishes) in 2005 ^{3,6} . National Report states that there are no Appendix I fish species occurring in Iran.	Narrow sawfish (<i>Anoxypristis cuspidata</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>)
Kenya	White shark (<i>Carcharodon carcharias</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under the Sixth Schedule of the Wildlife Conservation Management (Amendment) Act of 2013, it is prohibited to “kill, injure, keep, supply, possess, without permit or exemption”.	Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Green sawfish (<i>Pristis zijsron</i>)
Morocco	Basking shark (<i>Cetorhinus maximus</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under Law 29-05 (relative to the protection of the species of wild flora and fauna and the control of their trade), which applies to all species listed in the CITES Appendices, it is prohibited to “kill or destroy by any means, import, export, re-export, introduce from the sea, sell”.	Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Netherlands	Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Mainland Netherlands: Retention, transshipment, and landing are prohibited under EU regulations ⁷ . Bonaire, Saba and Sint Eustatius: Under the Declaration for the establishment of a Marine Mammal and Shark Sanctuary in the Caribbean Netherlands of 2015 prohibited “target, trade, sale, transshipment, or retention” of sharks and rays. Saint Maarten: Commercial shark and ray fishing prohibited (target and bycatch) since 2016. No regulations in place for Appendix I species in Aruba or Curaçao ⁸ .	
Norway	Basking shark (<i>Cetorhinus maximus</i>)	Prohibition on directed fisheries, mandatory release of live individuals, dead or dying specimens could be landed (reporting requirement for both landed and not landed bycatch) under Act 6 No. 37 on the Management of Wild Marine Resources (Sea Resource Act) of 2008. Also includes international waters of ICES statistical areas I-XIV.	
Palau	Reef manta ray (<i>Manta alfredi</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Prohibited shark (appears to also apply to rays) commercial fishing (except for Palauan citizens, who may land one shark per calendar day for non-commercial purposes or traditional use), and retention of bycaught individuals (released whether dead or alive) as well as prohibited possession, receiving, sale, transfer, storage, or transshipping (whole or parts) under the Shark Haven Act of 2009, Senate Bill No. 8-105. Prohibitions on commercial export of highly migratory fish (rays not mentioned) from Palau and prohibit foreign fishing within Palau’s EEZ, Senate Bill No. 9-30 of 2013.	
Panama	Whale shark (<i>Rhincodon typus</i>) ¹	As a species under special protection “fishing at any level is prohibited, as well as captivity, commercialization, and export of any of its parts – meat, cartilage, fins” under Decreto ejecutivo 9 de 21 de abril de 2009 (G.O. 26270 de 28/04/09) “Protección al Tiburón Ballena (<i>Rhincodon typus</i>).”	White shark (<i>Carcharodon carcharias</i>), Giant manta ray (<i>Manta birostris</i>), Spinetail devil ray (<i>Mobula japonica</i>), Pygmy devil ray (<i>Mobula munkiana</i>), Largetooth sawfish (<i>Pristis pristis</i>)

TABLE 3.2. Measures by CMS Party Range States that have partially fulfilled commitments for protected Appendix I elasmobranch species. These Parties have either protected some but not all relevant species, or have inadequate measures that do not align with the CMS definition of strict protection: prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct.” Information is based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches.

CMS Party	Appendix I elasmobranchs with national protection or partial protection	Relevant species or elasmobranch-specific national protections	Appendix I elasmobranchs without protections
Philippines	Giant manta ray (<i>Manta birostris</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Strict Protection (taking or catching, selling, purchasing and possessing, transporting and exporting) under the Fisheries Code (Republic Act 8550), Fishery Administrative Order 193 of 1998 applicable to Giant manta ray (<i>Manta birostris</i>) and Whale shark (<i>Rhincodon typus</i>). Administrative Order 282 Series 2010 applicable to Whale shark (<i>Rhincodon typus</i>). Fisheries Code Republic Act 10654 of 2015 strictly protects (prohibits the fish or take, catch, gather, sell, purchase, possess, transport, export, forward or ship) Appendix II CITES-listed species when a wild population is unable to sustain collection or trade (it is unclear if any CMS Appendix I species falls into this category).	White shark (<i>Carcharodon carcharias</i>), Reef manta ray (<i>Manta alfredi</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Bentfin devil ray (<i>Mobula thurstoni</i>)
Peru	Giant manta ray (<i>Manta birostris</i>)	Prohibited extraction (by fishing gear or any other means) under Resolution No. 441-2015-PRODUCE of 2015 ⁶ .	Basking shark (<i>Cetorhinus maximus</i>), Spinetail devil ray (<i>Mobula japanica</i>), Pygmy devil ray (<i>Mobula munkiana</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Samoa	Whale Shark (<i>Rhincodon typus</i>)	Under the Marine Wildlife Protection Regulations of 2009 'Part IV: Offences against sharks' (S.R. 2009/18) it is prohibited to commercially fish specifically for sharks, prohibited to fish or take sharks for a purpose other than personal consumption, bait, or production of a saleable or usable product. Also prohibited to retain bycaught sharks without a license, land any live sharks (and fail to release any accidentally landed shark), and accidentally land a shark that dies before it's released (it must be consumed or used as bait, or production of a saleable or usable product).	
Saudi Arabia	Reef manta ray (<i>Manta alfredi</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Ban on directed shark and ray fishing in 2008, although can be landed if they are bycatch ³ .	
Senegal	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>)	Under Loi No. 2015-18 Code de la Pêche maritime Title III (Article 67) of 2015 prohibited “fishing, holding, and marketing”.	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Lesser Guinean devil ray (<i>Mobula rochebrunei</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Seychelles	Whale shark (<i>Rhincodon typus</i>) ¹	Under the Wild Animals and Birds Protection Act's Wild Animals (Whale shark) Protection Regulations of 2003 “no person shall kill or take a whale shark” at all times.	White shark (<i>Carcharodon carcharias</i>), Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Largetooth sawfish (<i>Pristis pristis</i>)
South Africa	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Largetooth sawfish (<i>Pristis pristis</i>), Green sawfish (<i>Pristis zijsron</i>)	Under the Marine Living Resources Act 18 of 1998 prohibited “disturbance, capture and landing, as well as fishing and capture/landing for commercial and recreational fisheries”.	Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Sri Lanka	Whale shark (<i>Rhincodon typus</i>) ¹	Under the Fisheries and Aquatic Resources Act, No. 2 of 1996 “no catching, landing, transporting, selling, buying, or possessing” ⁶ . Legislation for CITES-listed species is currently under review by parliament.	Narrow sawfish (<i>Anoxypristis cuspidata</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>)

TABLE 3.2. Measures by CMS Party Range States that have partially fulfilled commitments for protected Appendix I elasmobranch species. These Parties have either protected some but not all relevant species, or have inadequate measures that do not align with the CMS definition of strict protection: prohibitions on “taking, hunting, fishing, capturing, harassing, deliberate killing, or attempting to engage in any such conduct.” Information is based on answers to CMS query (Question 5.1.1 asks if all Appendix I fish species are nationally protected) and supplemental searches.

CMS Party	Appendix I elasmobranchs with national protection or partial protection	Relevant species or elasmobranch-specific national protections	Appendix I elasmobranchs without protections
Tanzania	Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Whale shark (<i>Rhincodon typus</i>) ¹	Under the Wildlife Conservation Act of 2009, it is prohibited to “wound, injure or molest” any species listed under an international convention or treaty to which Tanzania is Party. This rule is unclear but seems to only apply when a species is within a designated species management area.	
United Kingdom	Basking shark (<i>Cetorhinus maximus</i>), Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	Metropolitan United Kingdom: Under the Wildlife and Countryside Act of 1981 (Schedule 5) it is prohibited to intentionally kill, injure, take, possess, or trade, applicable to Basking shark (<i>Cetorhinus maximus</i>) and Angelshark (<i>Squatina squatina</i>). Additionally, retention, transshipment, and landing are prohibited under EU regulations ⁷ . Scotland: Under the Scottish Elasmobranch Protection Order of 2012 (SSI 2012/63) it is prohibited to fish, transship, and land sharks, skates, and rays. Northern Ireland: Wildlife Order 1985 and the Nature Conservation and Amenity Lands Order 1985 applicable to Basking shark (<i>Cetorhinus maximus</i>) and Angelshark (<i>Squatina squatina</i>). Cayman Islands: Protected under the National Conservation Law of 2013. St Helena: Sharks and rays found in St Helena's waters are listed as protected species under the Environmental Protection Ordinance, 2016. British Virgin Islands: Under the Fisheries Act of 1997 (Statutory Instrument 2014, No. 28) prohibited targeted fishing, trade, sale, and “where a shark is inadvertently caught or captured dead or alive, it shall immediately be released”, although subsistence fishing for non-threatened species is permitted ⁵ . Gibraltar: Sharks and Rays are protected in British Gibraltar Territorial Waters under the Nature Protection Act 1991. No regulations found for Appendix I species in Bermuda, Anguilla, Montserrat, or Turks and Caicos Islands.	

¹ Added during CoP12 (2017).

² R. Camacho, Pers. Comm., 2018.

³ Jabado RW, Kyne PM, Pollom RA, Ebert DA, Simpfendorfer CA, Ralph GM, Dulvy NK (Eds). 2017. The conservation status of sharks, rays, and chimaeras in the Arabian Sea and adjacent waters. Environment Agency – Abu Dhabi, UAE and IUCN Species Survival Commission Shark Specialist Group, Vancouver, Canada 236 pp.3

⁴ PRSA-Requins. 2012. Appui à la mise en œuvre du Plan Sous Régional d'Action pour la conservation et la gestion durable des Populations de Requins, Renforcement de la Gestion des Pêches dans les pays ACP. AGRER and the European Commission, 134 pp.

⁵ Ward-Paige CA. 2017. A global overview of shark sanctuary regulations and their impact on shark fisheries. *Marine Policy* 82: 87-97.

⁶ FAO. 2018. A country and regional prioritisation for supporting implementation of CITES provisions for sharks, by M Vasconcellos, M Barone, and K Friedmann. Fisheries and Aquaculture Circular No. 1156, Rome, Italy.

⁷ Commercial fishery targeting, retention, transshipment, and landings are prohibited under European Union Council Regulation No. 2018/120 applicable to Guitarfishes (Rhinobatidae family) for all EU and third country vessels in EU waters of ICES areas I to XII. Commercial fishery targeting, retention, transshipment, and landings are prohibited under European Union Council Regulation No. 2018/120 applicable to Angelshark (*Squatina squatina*) for all EU and third country vessels in EU waters. Commercial fishery targeting, retention, transshipment, and landings are prohibited under EU Council Regulation No. 2018/120 applicable to Basking Shark (*Cetorhinus maximus*), White Shark (*Carcharodon carcharias*), Sawfishes (Pristidae family), Manta and Mobula rays (Mobulidae family), and Whale Shark (*Rhincodon typus*) for all EU and third country vessels in EU waters, as well as EU vessels in non-EU waters. It is prohibited to retain, transship, land, transfer, store, sell or display or offer for sale White shark (*Carcharodon carcharias*), Basking shark (*Cetorhinus maximus*), Giant devil ray (*Mobula mobular*), Smalltooth sawfish (*Pristis pectinata*), Largetooth sawfish (*Pristis pristis*), Common guitarfish (*Rhinobatos rhinobatos*), and Angelshark (*Squatina squatina*) in EU Mediterranean Agreement area; incidentally captured individuals are to be released unharmed.

⁸ I. Kingma, Pers. Comm., 2018

TABLE 3.3. CMS Appendix I elasmobranchs (by CMS Party) for which national protections could not be located.

CMS Party	CMS Appendix I listed elasmobranchs for which no evidence of specific national protection was found
Albania	Basking shark (<i>Cetorhinus maximus</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Angola	Lesser Guinean devil ray (<i>Mobula rochebrunei</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Benin	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹
Cameroon	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>)
Equatorial Guinea	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>)
Libya	Basking shark (<i>Cetorhinus maximus</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Montenegro	Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹
Syria	Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹
Togo	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹

¹ Listed during CoP12 (2017).

TABLE 3.4. CMS Appendix I elasmobranchs lacking national protections (by CMS Party Range State), confirmed through in-country experts and/or clarifying documents.

CMS Party	CMS Appendix I elasmobranchs without national Range State protections	Associated measures
Algeria	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	* Not in place. Not mentioned in décret exécutif n° 12-235 du 3 Rajab 1433 correspondant au 2012 fixant la liste des espèces animales non domestiques protégées.
Chile	White shark (<i>Carcharodon carcharias</i>), Basking shark (<i>Cetorhinus maximus</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ²
Congo (Brazzaville)	White shark (<i>Carcharodon carcharias</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. According to the Selon le Code de l'Environnement congolais no marine fish (shark) is protected by the Environmental Protection Act ³ . Also not mentioned in law on the organization of fishing (loi no. 2-2000) from 2000 or the decree on protected species in Congo (Arrêté no. 6075) from 2011.
Costa Rica	Giant manta ray (<i>Manta birostris</i>), Spinetail devil ray (<i>Mobula japanica</i>), Pygmy devil ray (<i>Mobula munkiana</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁴ (Note: Smalltooth sawfish (<i>Pristis pectinata</i>) and Largetooth sawfish (<i>Pristis pristis</i>) were protected in 2017; Costa Rica is considered a Range State for these sawfishes by the IUCN Shark Specialist Group, but not by CMS).
Côte d'Ivoire	Spinetail devil ray (<i>Mobula japanica</i>), Chilean devil ray (<i>Mobula tarapacana</i>), Bentfin devil ray (<i>Mobula thurstoni</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not included as a protected species (for which capture is prohibited) in loi n° 96-766 du 3 octobre 1996 portant Code de l'Environnement.
Djibouti	Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>)	* Not in place. ⁵
Eritrea	Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Green sawfish (<i>Pristis zijsron</i>)	* Not in place. ⁵
Fiji	Reef manta ray (<i>Manta alfredi</i>), Spinetail devil ray (<i>Mobula japanica</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. A national shark and ray conservation plan is awaiting approval by Parliament. ⁶
Gabon	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁷
The Gambia	Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	* Not in place. ⁸
Ghana	White shark (<i>Carcharodon carcharias</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not mentioned in Act 43 Wild Animals Preservation Act of 1961. No relevant prohibitions in the Fisheries Act 625 of 2002 or the Fisheries Regulation of 2010 (L.I. 1968). National Report states that legislation is lacking but is currently under review by Parliament.
Iraq	Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁵
Jamaica (Signatory to CMS)	Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Atlantic devil ray (<i>Mobula hypostoma</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not included as protected species under the Wild Life Protection Act of 1945 (as of 2008). Does not have conservation measures. ²
Liberia	White shark (<i>Carcharodon carcharias</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	* Not in place. Not mentioned in the Wildlife and National Parks Act under Protected animals of Liberia (prohibited to hunt, capture or trade) of 1988. National Report states that new Wildlife Conservation regulations have been drafted.
Madagascar	Reef manta ray (<i>Manta alfredi</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not included on Loi N°2015-053 portant Code de la pêche et de l'aquaculture en date du 16 décembre 2015.
Mauritania	Lesser Guinean devil ray (<i>Mobula rochebrunei</i>), Whale shark (<i>Rhincodon typus</i>) ¹ , Angelshark (<i>Squatina squatina</i>) ¹	* Not in place. ⁴
Mauritius	Green sawfish (<i>Pristis zijsron</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not included as Protected Wildlife under the Wildlife and National Parks Act of 1994 or in the Fisheries and Marine Resources Act (Act No. 27) of 2007.

TABLE 3.4. CMS Appendix I elasmobranchs lacking national protections (by CMS Party Range State), confirmed through in-country experts and/or clarifying documents.

CMS Party	CMS Appendix I elasmobranchs without national Range State protections	Associated measures
Mozambique	Reef manta ray (<i>Manta alfredi</i>), Giant manta ray (<i>Manta birostris</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. Not included in the Forests and Wildlife Regulation (Decree 12/2002 of 6 June 2002) and the Fisheries law (Decree 3/90 of 26 September 1990). ⁹
Nigeria	Dwarf sawfish (<i>Pristis clavata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁴
Somalia	Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Shortfin devil ray (<i>Mobula kuhlii</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁵
Tunisia	Basking shark (<i>Cetorhinus maximus</i>), Giant devil ray (<i>Mobula mobular</i>), Common guitarfish (<i>Rhinobatos rhinobatos</i>) ¹	* Not in place. ¹⁰
Uruguay	Basking shark (<i>Cetorhinus maximus</i>), Giant manta ray (<i>Manta birostris</i>), Atlantic devil ray (<i>Mobula hypostoma</i>), Smalltooth sawfish (<i>Pristis pectinata</i>), Largetooth sawfish (<i>Pristis pristis</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁴
Yemen	Reef manta ray (<i>Manta alfredi</i>), Pygmy devil ray (<i>Mobula eregoodootenkee</i>), Spinetail devil ray (<i>Mobula japanica</i>), Whale shark (<i>Rhincodon typus</i>) ¹	* Not in place. ⁵

¹ Added during CoP12.

² Posada JM. 2013. Identificación de estrategias replicables para la conservación de tiburones y apoyar el equilibrio del ecosistema marino. Informe Técnico for Fundación MarViva. 104 pp.

³ Congo-Brazzaville CMS MOS1 Report 2012.

⁴ FAO. 2018. A country and regional prioritisation for supporting implementation of CITES provisions for sharks, by M Vasconcellos, M Barone, and K Friedman. Fisheries and Aquaculture Circular No. 1156. Rome, Italy.

⁵ Jabado RW, Kyne PM, Pollom RA, Ebert DA, Simpfendorfer CA, Ralph GM, Dulvy NK (Eds). 2017. The conservation status of sharks, rays, and chimaeras in the Arabian Sea and adjacent waters. Environment Agency – Abu Dhabi, UAE and IUCN Species Survival Commission Shark Specialist Group, Vancouver, Canada 236 pp.

⁶ Ian Campbell, Pers. Comm., 2018.

⁷ Wildlife Conservation Society Gabon, Pers. Comm., 2018.

⁸ PRSA-Requins. 2012. Appui à la mise en œuvre du Plan Sous Régional d'Action pour la conservation et la gestion durable des Populations de Requins, Renforcement de la Gestion des Pêches dans les pays ACP. AGRER and the European Commission, 134 pp.

⁹ Warnell LJK, Darrin HM, Pierce SJ. 2013. Threatened marine species in Mozambique: a summary of conservation and legal status. Eyes on the Horizon, Marine Megafauna Foundation Inhambane, Mozambique 31 pp.

¹⁰ Mohamed Nejmeddine Bradai, Institut National des Sciences et Technologies de la Mer, Pers. Comm., 2018.

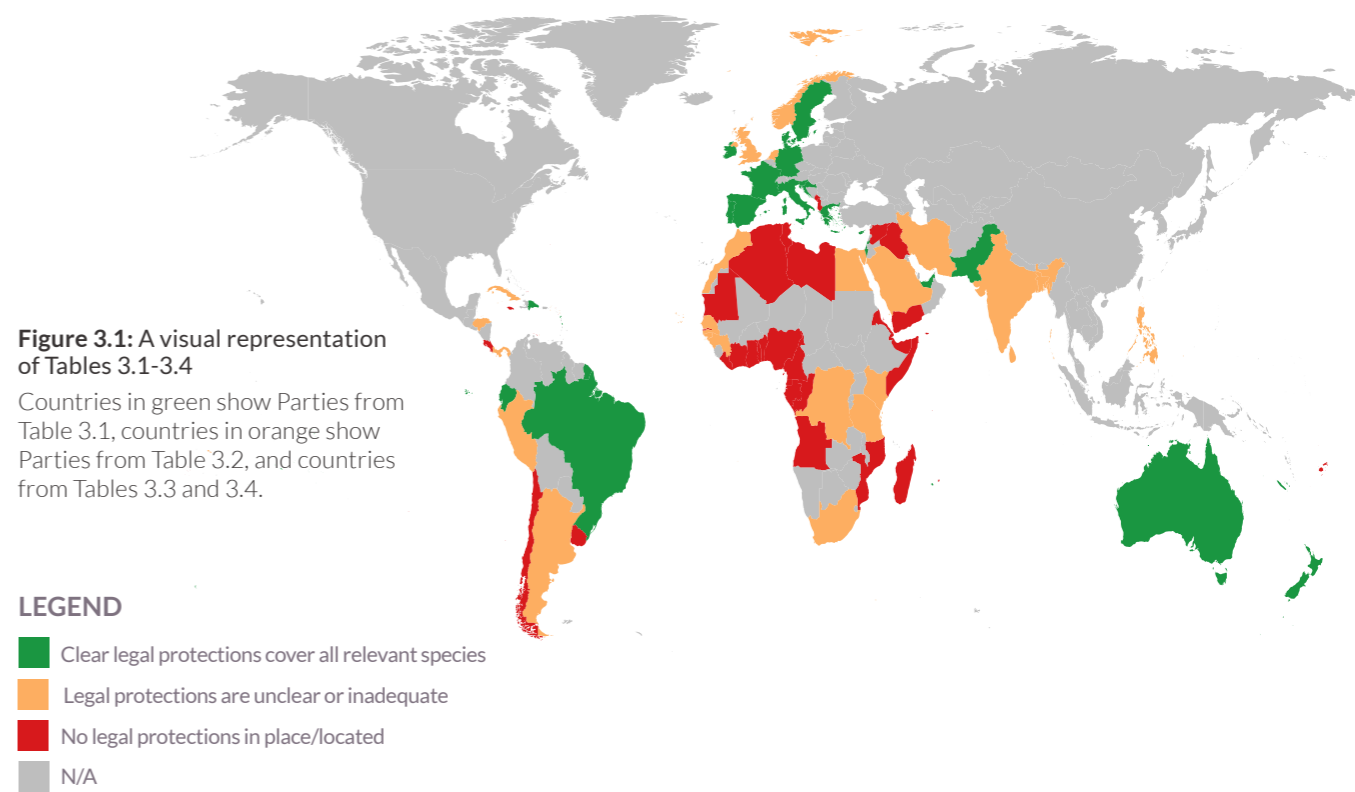


TABLE 3.5. Treaties relevant to the CMS species. Identified with check marks (✓) are CMS Parties that are also contracting Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Regional Fisheries Bodies (RFBs) - including the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Western and Central Pacific Fisheries Commission (WCPFC), the Indian Ocean Tuna Commission (IOTC), the General Fisheries Commission for the Mediterranean (GFCM), and the North East Atlantic Fisheries Commission (NEAFC). European Union member countries that are by default also contracting Parties to the RFBs included here are identified by "EU". Countries that are cooperating non-Parties to the RFBs included here are identified by "CNP". Dependent or otherwise associated territories are identified as "+OT".

CMS Party	CITES	ICCAT	WCPFC	IOTC	IATTC	GFCM	NEAFC
Albania	✓	✓				✓	
Algeria	✓	✓				✓	
Angola	✓	✓					
Argentina	✓						
Australia	✓		✓	✓			
Austria	✓	EU	EU	EU	EU	EU	EU
Bangladesh	✓			✓			
Belgium	✓	EU	EU	EU	EU	EU	EU
Bolivia	✓	CNP			CNP		
Bosnia and Herzegovina	✓					CNP	
Brazil	✓	✓					
Bulgaria	✓	EU	EU	EU	EU	✓	EU
Cabo Verde	✓	✓					
Chile	✓				CNP		
Cook Islands			✓				
Costa Rica	✓	CNP			✓		
Côte d'Ivoire	✓	✓					
Croatia	✓	EU	EU	EU	EU	✓	EU
Cyprus	✓	EU	EU	EU	EU	✓	EU
Czech Republic	✓	EU	EU	EU	EU	EU	EU
Denmark	✓	EU	EU	EU	EU	EU	✓+OT ⁶
Ecuador	✓		CNP		✓		
Egypt	✓	✓				✓	
Equatorial Guinea	✓	✓					
Eritrea	✓			✓			
Estonia	✓	EU	EU	EU	EU	EU	EU
European Union	✓	✓	✓	✓	✓	✓	✓
Fiji	✓		✓				
Finland	✓	EU	EU	EU	EU	EU	EU
France	✓	EU + OT ¹	✓ + OT ⁴	✓	✓	✓	EU
Gabon	✓	✓					
Georgia	✓					CP	
Germany	✓	EU	EU	EU	EU	EU	EU
Ghana	✓	✓					
Greece	✓	EU	EU	EU	EU	✓	EU
Guinea	✓	✓		✓			
Guinea-Bissau	✓	✓					
Honduras	✓	✓			CNP		
Hungary	✓	EU	EU	EU	EU	EU	EU
India	✓			✓			
Iran	✓			✓			
Ireland	✓	EU	EU	EU	EU	EU	EU
Israel	✓					✓	
Italy	✓	EU	EU	EU	EU	✓	EU
Kenya	✓			✓			

TABLE 3.5. Treaties relevant to the CMS species. Identified with check marks (✓) are CMS Parties that are also contracting Parties to the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) and Regional Fisheries Bodies (RFBs) - including the International Commission for the Conservation of Atlantic Tunas (ICCAT), the Western and Central Pacific Fisheries Commission (WCPFC), the Indian Ocean Tuna Commission (IOTC), the General Fisheries Commission for the Mediterranean (GFCM), and the North East Atlantic Fisheries Commission (NEAFC). European Union member countries that are by default also contracting Parties to the RFBs included here are identified by "EU". Countries that are cooperating non-Parties to the RFBs included here are identified by "CNP". Dependent or otherwise associated territories are identified as "+OT".

CMS Party	CITES	ICCAT	WCPFC	IOTC	IATTC	GFCM	NEAFC
Latvia	✓	EU	EU	EU	EU	EU	EU
Liberia	✓	✓	CNP	CNP	CNP		CNP
Libya	✓	✓				✓	
Lithuania	✓	EU	EU	EU	EU	EU	EU
Madagascar	✓			✓			
Malta	✓	EU	EU	EU	EU	✓	EU
Mauritania	✓	✓					
Monaco	✓					✓	
Montenegro	✓					✓	
Morocco	✓	✓				✓	
Mozambique	✓			✓			
Netherlands	✓	EU+OT ²	EU	EU	EU	EU	EU
New Zealand	✓		✓+OT ⁵				CP
Nigeria	✓	✓					
Norway	✓	✓					✓
Pakistan	✓			✓			
Palau	✓		✓				
Panama	✓	✓	CNP		✓		
Peru	✓				✓		
Philippines	✓	✓	✓	✓			
Poland	✓	EU	EU	EU	EU	EU	EU
Portugal	✓	EU	EU	EU	EU	EU	EU
Romania	✓	EU	EU	EU	EU	✓	EU
Samoa	✓		✓				
Sao Tome and Principe	✓	✓					
Senegal	✓	✓		CNP			
Seychelles	✓			✓			
Slovakia	✓	EU	EU	EU	EU	EU	EU
Slovenia	✓	EU	EU	EU	EU	✓	EU
Somalia	✓			✓			
South Africa	✓	✓		✓			
Spain	✓	EU	EU	EU	EU	✓	EU
Sri Lanka	✓			✓			
Sweden	✓	EU	EU	EU	EU	EU	EU
Syria	✓	✓				✓	
Tanzania	✓			✓			
Tunisia	✓	✓				✓	
Ukraine	✓					CNP	
UK	✓	EU + OT ³		✓		EU	EU
Uruguay	✓	✓					
Yemen	✓			✓			

¹ France including Saint Pierre and Miquelon.

² Curaçao is a Contacting Party.

³ United Kingdom including its overseas territories.

⁴ French Polynesia, New Caledonia, and Wallis and Futuna are Participating Territories.

⁵ Tokelau is a Participating Territory.

⁶ Denmark in respect of the Faroe Islands and Greenland.

4.

Measures to conserve Appendix II species

Methods and Findings

Through surveys, we asked questions of Designated National Focal Points or Sharks MoU Focal Points to examine the relationship between listing a species on CMS Appendix II and if and how that information is translated to national fisheries departments and international bodies responsible for fisheries management (RFMOs). We sent two questions – the first was a follow up to National Report question 3: “has a national liaison system or committee been established in your country?”. Of our 83 Parties, 36 noted that “Yes” a liaison system was in place. This question was not specific to marine species, therefore we asked Parties “Does the liaison system apply to your environment department and your fisheries department, so that information about CMS-listed sharks and rays can be communicated?”

The second question was focused on how information on species listings, and the associated

conservation commitments, are translated to RFMOs. This was not a follow-up to any question on the National Report but is important as many Appendix II-listed species are also managed or monitored in some capacity under RFMOs. We asked Parties “Have you been engaged in facilitating regional conservation measures for CMS Appendix II-listed sharks and/or rays in any regional fishery management organizations (RFMOs)?”

We sent emails to CMS Designated Focal Points and/or the Sharks MoU Contact Point for Parties that stated in their National Reports that they had a liaison system in place. Of the Parties that we emailed, we received answers from five Parties (Israel, the Philippines, Germany, South Africa, and Tunisia). Most responses stated that there was an informal liaison system in place or that a liaison system was lacking entirely. The exception was South Africa, which detailed an extensive formal liaison system between the

© Andrey Nekrasov/Alamy



“We asked Parties “Have you been engaged in facilitating regional conservation measures for CMS Appendix II-listed shark and/or rays in any RFMOs?”

Department of Agriculture Forestry Branch: Fisheries Management and the Department of Environmental Affairs Branch: Oceans and Coasts, where a bilateral MoU between these two branches means that there are certain areas where decision-making must be undertaken cooperatively. The presence of a liaison system between the environment and fisheries departments is central to conservation action for many Appendix I and II-listed sharks and rays. We suggest that the formal liaison system in South Africa acts as a model for other countries that do not yet have a liaison system in place.

The second question focused on actions that Parties have undertaken at RFMOs to facilitate regional conservation measures for CMS Appendix II-listed sharks and rays. South Africa’s Designated National Focal Point and a regional expert knowledgeable about Senegal reported encouraging activities. South Africa is a member of ICCAT (International Commission for the Conservation of Atlantic Tunas). While South Africa’s Department of Environmental Affairs does not work directly with the ICCAT platform (as Department of Agriculture Forestry is the lead agency), they do provide feedback, recommendations, and policy. Past positions taken at ICCAT have been joint positions involving both departments. Senegal has led regional coordination through the La Commission Sous-Régionale des Pêches (CSR), and the Regional Partnership for Coastal and Marine Conservation (PCRM). CSR and PCRM member countries include Cabo Verde, Gambia, Guinea, Guinea-Bissau, Mauritania, Senegal, and Sierra Leone, all of which are also a Party to CMS. National protections for some or all of the sawfish species found in these countries have been developed largely because of these regional bodies.

To examine the change in FAO landings following CMS listings we used the FAO Global Production dataset to investigate trends in landings over time up to and including 2016⁷. The specificity of available data (whether those data were recorded at species or genera level) varied across species, with the basking shark having species-specific landings data available back to the 1950s, and devil and manta rays having genera- and species-specific landings data only available from the mid-1990s onwards. We divided countries into CMS Parties and Non-Parties and indicated the year of CMS listing with a black line, in order to compare the change in landings trajectory before and after listing. These landings data should be interpreted with caution, as increased reporting by Parties and Non-Parties alike could significantly influence trends in landings.

⁷ FAO. 2018. Fishery Statistical Collections: Global Production. Available at: <http://www.fao.org/fishery/statistics/global-production/en>

Two of the most notable differences in landings reported to FAO following CMS listings are those for manta and devil rays (*Manta* spp., *Mobula* spp., and *Mobulidae*), where landings reported by Non-Parties jumped dramatically from 2014 to 2016 and have remained relatively stable for CMS Parties. The same trend appears true for hammerhead shark (*Sphyrna* spp) landings. However, manta and devil rays and hammerhead sharks were all listed on CMS Appendices in 2014, leaving a relatively short time series to evaluate changes in landings. Despite being listed on CMS Appendix II since 2008, CMS Parties have generally reported increased landings of mako sharks (*Isurus* spp.), while Non-Parties have reported a decline in landings to FAO over the past several years. Reported landings of porbeagle shark (*Lamna nasus*) and thresher sharks (*Alopias* spp.) appear to be declining for both Parties and Non-Parties alike.

© Peter Kyne



Current Initiatives to Improve Compliance

Review Mechanism and National Legislation Program

In 2017, the CMS Parties adopted a proposal aimed at enhancing compliance with respect to Parties' implementation obligations. A new "Review Mechanism" establishes a template and process for governments and stakeholders, including conservation organizations, to report implementation deficiencies. Such complaints trigger the initiation of a formal review and a concerted attempt to resolve issues for long-term compliance through a "National Legislation Program." Although as of yet untested, this development offers new opportunities and hope for combatting a major concern with respect to CMS effectiveness.

Concerted Actions

CMS "Concerted Actions" are priority conservation measures, projects, or institutional arrangements aimed at improving the conservation status of

select CMS-listed species. They have the potential to be excellent tools for prioritizing actions and assigning activities to appropriate players. At CoP12 in 2017, the CMS Parties adopted the first three sets of Concerted Actions for elasmobranch species: whale shark, mobulid rays, and angelshark. Concerted Actions are generally framed around the SMART (Specific, Measurable, Achievable, Relevant and Time-Bound) approach. The Concerted Actions document for whale sharks clearly defines leaders for some activities; the two others could benefit from refined focus and greater specificity with respect to goals, as well as additional prioritization. In particular, specifically defining Party Range States, Cooperating Partners, and other relevant players to lead each activity would likely improve the chances for timely action. Given generally insufficient resources for conservation, the dollar estimates for some activities proposed for whale sharks and angelsharks are helpful and should be expanded, if possible, through expert cost-effectiveness analyses for key activities. Having experts lead on prioritizing activities, estimating costs, and appointing leaders appears to be the best approach for maximizing meaningful outcomes. Overall, the Concerted Actions process holds promise for advancing CMS shark and ray conservation goals.

© NaturePL/Alamy



Additional Concerns

Accessibility of Key Information

Currently, National Reports are posted on the CMS website in PDF format, making analysis challenging for readers, researchers, and Parties. The development of a user-friendly interface (presented as an interactive figure or infographic of country compliance with CMS), as well as lists of species for which Parties are Range States, and other useful information could expedite Party reporting and make it easier for the Secretariat and others to assess compliance. Such improvements might also help to enhance compliance, as Parties could quickly identify areas of weakness and make comparisons to other countries in their region. In addition, a complete, well-maintained, publicly-available database of National Reports (available for download as Microsoft Excel or Comma Separated Values files) would further facilitate important evaluation exercises.

National Report Development

Questionnaires for National Reports would ideally elicit relevant, accurate information, while recognizing Parties' capacity limitations. It seems there is room for improvement with respect to clarity of the questions posed to Parties. In particular, under the binary question 5.1.1 ("Is the taking of all Appendix I fish species prohibited by the national legislation listed as being implementing legislation in Table 1(a) (General Information)?"), Parties had the opportunity to provide relevant details: "If Yes, please provide details." It seems perhaps more effective to request details on relevant national legislation in this section; otherwise, responders must refer back to Table 1(a) (General Information) of the National Report for a list of all relevant environmental legislation. It is challenging to determine which pieces of legislation are relevant to Appendix I fish species. We suggest re-wording question 5.1.1 to "Is the taking of all Appendix I fish species prohibited by the national legislation listed as being implementing legislation?" and the follow-up question "If Yes, please provide details, including relevant legislation and/or regulations with implementation status."

Range State Determination

In the process of assessing the status of CMS Parties' national regulations to protect Appendix I species, we needed to first establish which Parties were considered Range States for which species. This task was more challenging than anticipated, due to significant discrepancies between the CMS proposals, the CMS website, and National Reports. Ranges will change as listed species are depleted, scientific knowledge grows, and the oceans warm. Nevertheless, an up-to-

date accounting of current Range States by species will remain essential for awareness and fulfillment of CMS conservation commitments. Ideally, such a list would be easily accessible through the CMS website and regularly updated based on new information. "Species+"⁸ is a resource that the CMS Secretariat could use for these purposes.

Once Range State discrepancies or changes are detected, the Secretariat should promptly notify Parties, and vice versa. Resolving Range State status may reveal important information on species distribution and/or identify errors in reporting. Such a transparent and collaborative approach to establishing and communicating Range State status should go a long way toward advancing national-level protections for Appendix I species.

Similarly, listing proposals, particularly for Appendix I, that are unclear with respect to Range State status can hinder implementation after adoption. For example, the successful 2017 angelshark proposal identified the Range State status of several Parties ambiguously, as "extinct?" or "uncertain," making it challenging to determine whether strict protection obligations apply. We suggest that the CMS Scientific Council take the lead in avoiding such situations by collaborating with elasmobranch researchers and Parties to make a determination based on the best available information.

An additional challenge to formulating a clear picture of Range State status stems from the inclusion of flag vessels' catch⁹ (Article I.1.h). CMS-listed species that are caught by vessels fishing outside of a Range State's waters may also be considered within the jurisdiction of that Range State. Depending on species distribution and the range of the fishing vessel, this could be problematic. As an extreme example, a vessel flagged to the Philippines that fishes in the North Atlantic and reports catching a porbeagle shark could result in the Philippines being identified as a porbeagle Range State. To resolve this challenge, we suggest that the Secretariat identify Parties that have been labeled Range States based primarily on flag vessels' catches (as opposed to those Parties with species occurring naturally in their waters). A similar challenge exists in relation to Parties that have Overseas Territories.

Scientific Review Process

Recently, some experts have been concerned about insufficient technical review of listing proposals prior to consideration at the CoP, especially considering the lack of scientific expertise specific to elasmobranchs within the Scientific Council. Changes to address these concerns appear to be underway.

⁸ Species+. Available at: <https://speciesplus.net/>

⁹ Convention on the Conservation of Migratory Species of Wild Animals, Convention Text. Available at: https://www.cms.int/sites/default/files/instrument/CMS-text.en_PDF

An up-to-date accounting of current Range States by species will remain essential for awareness and fulfillment of CMS conservation commitments.

Relationships to Other International Treaties

CITES

Most of the shark and ray species listed under CMS are also listed under the Convention on International Trade in Endangered Species (CITES). Prior to the last CMS Conference of Parties (CoP), the only discrepancies were spiny dogfish (proposed for CITES Appendix II twice but rejected), mako sharks (proposed for CITES Appendix II listing in 2019), and the oceanic whitetip shark (listed under CITES Appendix II but not CMS). There has not been a CITES CoP since the last CMS CoP (2017) where many shark and ray species were listed. Makos (listed under CMS Appendix II in 2008) and wedgefish (listed in 2017) are reportedly being proposed for CITES Appendix II listing in 2019.

Listing on CITES Appendix I essentially equates to a global ban on commercial international trade. Of the CMS-listed species, only the sawfishes are listed on CITES Appendix I. The rest of the shark and ray species that are listed both on CMS and CITES are included on CITES Appendix II. With respect to marine fishes in particular, CITES Appendix II listings essentially require CITES Parties to demonstrate (through “non-detriment findings”) that products for export are sourced from fisheries that are legal and sustainable, and to employ a permit system to track associated trade.

While CITES and CMS are both global treaties focused on the protection of wildlife, it is widely acknowledged that CITES has “more teeth” when it comes to this mission. This is due primarily to CITES’ comprehensive mechanism for monitoring and ensuring Parties’ compliance with agreed measures, something currently lacking within CMS.

The negative effects of this gap are evidenced throughout this report. Discussions regarding the development of various programs for enforcing CMS obligations are ongoing. In the meantime, the evolution of “Concerted Actions” may assist with efforts to improve implementation.

Whereas the lack of a CMS compliance mechanism is a major concern, CMS does offer potential benefits to complement conservation progress through CITES, which addresses international trade exclusively. For example, CMS Appendix I listings carry clear, binding obligations for strict national protections. The regional (and global) CMS agreements mandated by CMS Appendix II listings could in theory address the full suite of challenges facing migratory sharks and rays, including domestic overfishing and habitat loss.

For these reasons, and based on our analyses, we caution against viewing CMS as primarily an awareness-raising platform and/or springboard for CITES listing. Potentially negative effects of this paradigm include one relatively narrow list of sharks and rays of global concern despite varying threats, and missed opportunities to combat the most pressing problems with the most effective tools. Whereas ideally all commercially exploited elasmobranchs would have fishing limits, trade controls, and preserved habitats, a vast number of threatened shark and ray species are waiting in the wings for global conservation action, making it increasingly prudent to prioritize and pursue the most effective remedies based on species-specific challenges. For example, threatened migratory elasmobranchs should not be denied the benefits possible through CMS simply because their exceptionally high commercial value or exceptionally low public appeal render them poor candidates for a successful CITES listing campaign.

© Daniel Fernando/Manta Trust



RFMOs

There are numerous Regional Fishery Management Organizations (RFMOs) established and developing around the world with varying mandates, expertise, and willingness to manage the exploitation of shared shark, ray, and chimaera populations. In this report, we focus on those RFMOs with current or developing measures specific to CMS-listed sharks and rays. To gauge the level of influence that CMS has with RFMOs, we augmented direct experiences by searching key proposals, management measures, and supporting documents for mention of CMS listing or associated obligations for CMS Parties. We found that, while conservation organizations regularly use CMS listings in arguments in support of relevant RFMO actions, governments rarely do the same. We uncovered just one example of this practice by a government (Australia in its whale shark protection proposal to the Indian Ocean Tuna Commission). Although that proposal led to RFMO action, the mention of CMS was deleted during negotiations. There were more mentions of CITES obligations for listed shark species by governments, yet those were also rare.

These findings support impressions from real life experiences, and are reflected in disappointing responses from RFMOs to CMS solicitation of listing proposal reviews. Despite conservationists’ efforts, there remains a problematic disconnect between biodiversity and fisheries agencies in virtually every country, despite being party to both fisheries and wildlife treaties addressing the same species.

Lack of dedicated, ongoing collaboration between personnel at the national level reinforces divisions at international bodies. Too often, international experts from one “camp” look at the other with suspicion, make assumptions about associated motives, and discount the potential for success. Results include hindered implementation of CMS commitments and missed opportunities for true synergy by expanding expertise and understanding to more effectively address conservation challenges. It is particularly important to address this situation for sharks and rays, as these species, more than any other taken commonly as marine fisheries bycatch, are widely and perhaps even perceived as both wildlife and commodities.

Mindful of these gaps and opportunities, the Secretariat, Parties, and the Sharks MoU Advisory Committee have been exploring options for expanding and improving engagement with RFMOs, in line with directives within CMS Shark instruments. There is particular interest in establishing formal processes for RFMO engagement, including a dedicated liaison to track relevant activities, alert and spark interest in affected Parties, and facilitate participation, without prescribing outcomes. Options are expected to be discussed and developed further during the upcoming Meeting of the Sharks MoU Signatories in December 2018.

More information on RFMO activities for CMS-listed elasmobranchs is provided in the species sections of this report.

© Beth Deacy/NOAA



Listing on CITES Appendix I essentially equates to a global ban on commercial international trade.

5.

Elasmobranch species listed on CMS Appendix I & II (prior to 2017)

Sawfishes Family Pristidae

GLOBAL STATUS

- Listed on CMS Appendix I and II in 2014 pursuant to a proposal from Kenya
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix I pursuant to proposals from the United States and Kenya (2007) and Australia (2013)
- IUCN Red List Status: Endangered or Critically Endangered

NATIONAL AND REGIONAL PROGRESS

The sawfishes (family Pristidae) face greater extinction risk than any other family of marine fish. All five species are classified as *Endangered* or *Critically Endangered* on the IUCN Red List and were listed under CMS Appendix I and II in 2014¹⁰. The CMS listings came seven years after sawfishes were listed under CITES.

As part of a 2018 update¹¹ to their 2014 Global Sawfish Conservation Strategy, the IUCN Shark Specialist Group (SSG) highlighted recent progress and challenges for CMS Parties with respect to protecting sawfish. There are discrepancies, however, between the SSG and the CMS Secretariat with respect to current sawfish Range States. Costa Rica and Tanzania are not recognized by CMS as Range States for sawfish; Costa Rica has been flagged by the IUCN SSG as a priority country for conservation and research. South Africa is listed as a sawfish Range State by CMS and legally protected sawfish in 1997; the SSG, however, considers sawfish now locally extinct there.

Overall, of 39 Parties considered by CMS to be sawfish Range States, we could confirm national protections for at least one sawfish species in just 12. Protections in many countries are inadequate in terms of species coverage and/or enforcement. Just two CMS Range State Parties – Pakistan (2016) and Costa Rica (2017) – have taken regulatory action to protect sawfishes since the 2014 CMS listing (many Parties protected the

species prior to 2014). Costa Rica's regulation mentions CMS as one of several reasons for protecting the species.

Australia and Brazil have relatively large sawfish populations and protective regulations that pre-date their obligations under CMS. Australia is considered one of the world's last strongholds for four out of the five sawfish species; ongoing public awareness and bycatch reduction programs support legal protections. Brazil, on the other hand, has been highlighted by the IUCN SSG for insufficient measures to combat problems with bycatch, mislabeling, smuggling, and demand that continue to seriously threaten sawfish in the Amazon Delta.

India and Bangladesh enacted national bans on sawfish take in 2001 and 2012, respectively, years prior to the CMS listing. Lack of capacity for associated education and enforcement programs are a particular concern for this region.

Sri Lanka recently (2017) saw the first sawfish landed in decades, but protections in this CMS Party are still not in place.

The SSG identified the Western Indian Ocean among four regional priority areas where sawfish conservation action is urgently needed. In this region, CMS Parties considered Range States (by CMS) that still lack basic regulations protecting sawfishes, including Iran, Eritrea, Somalia, Madagascar, and Mozambique, as well as the proponent of the CMS listing proposal for sawfishes – Kenya.

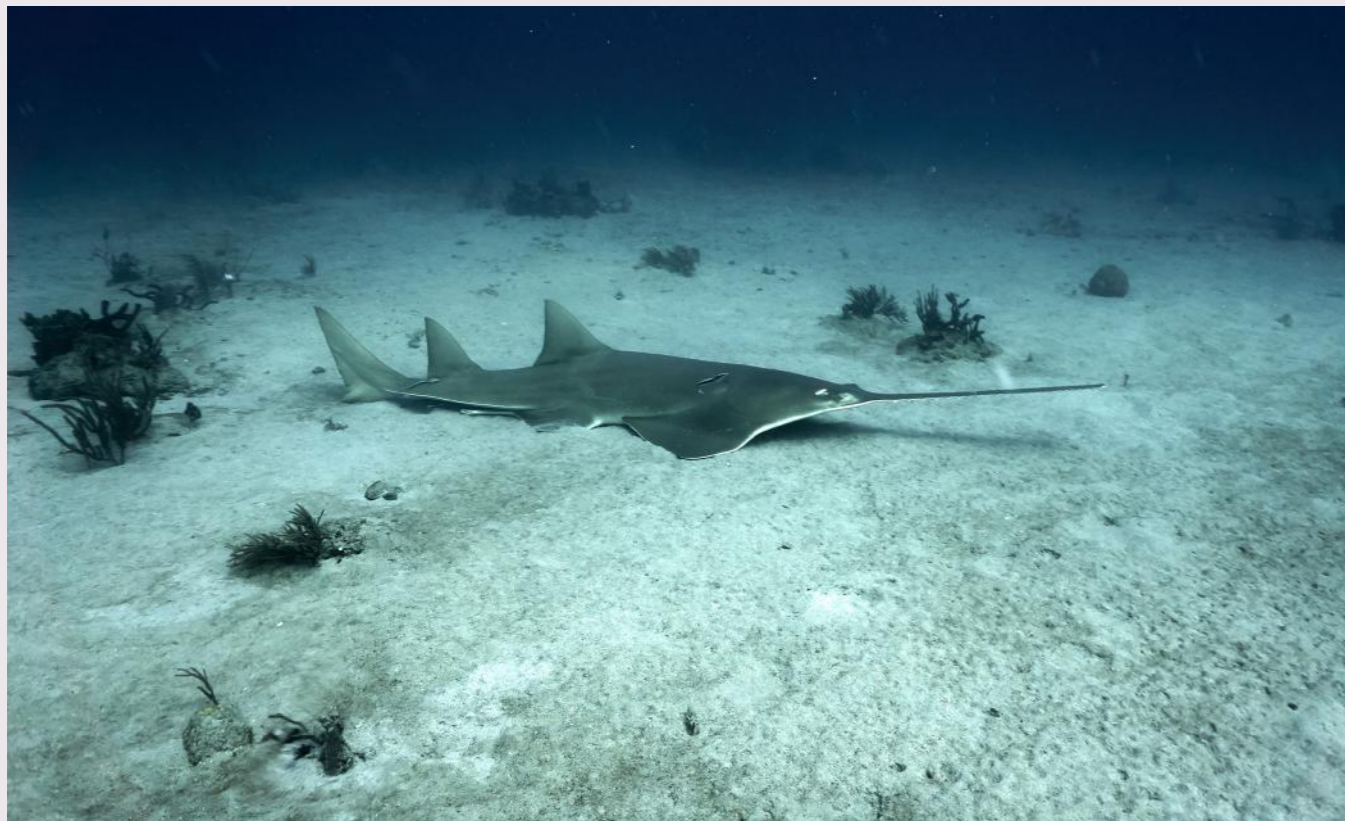
West Africa used to be an important area for sawfishes, but they are now exceedingly rare in this region. The level of sawfish protections across West African CMS Parties is lacking, with the exception of Senegal.

In 2017, pursuant to a proposal from the Netherlands, smalltooth sawfish were listed under the Protocol for Specially Protected Areas and Wildlife in the Wider Caribbean (SPAW Protocol) (which mandates strict protections by member countries) and recommended for protection by the Western Central Atlantic Fishery Commission (WECAFC). The SPAW Protocol listing proposal did not include CMS status in the rationale, although a pending proposal (also from the Netherlands) to list largetooth sawfish does.

Largetooth sawfish were thought to be extinct in the eastern Pacific, but new records from Peru and Ecuador show they persist in low numbers. Ecuador banned retention of sawfish in 2007 through an executive decree that cites CMS (and CITES) listings; Peru has yet to adopt protections.

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release for two species of sawfishes and 22 other elasmobranch species listed on the Barcelona Convention Annex II of the *Protocol concerning specially protected areas and biological diversity in the Mediterranean*. The EU is the only GFCM Party to fully implement this measure through domestic regulations (dated 2015), but the IUCN SSG assumes that sawfishes no longer occur in the Mediterranean.

© Anthony Planas



¹⁰ Dulvy NK, Fowler SL, Musick JA, Cavanagh R, Kyne PM, Harrison LR, Carlson JK, Davidson LNK, Fordham SV, Francis MP, Pollock CM, Simpfendorfer CA, Burgess GH, Carpenter KE, Compagno LJV, Ebert DA, Gibson C, Heupel MR, Livingstone SR, Sanciangco JC, Stevens JD, Valenti S, White WT. 2014. Extinction risk and conservation of the world's sharks and rays. *eLife* 2014;3:e00590.

¹¹ Fordham SV, Jabado RW, Kyne PM, Charvet P, Dulvy NK. 2018. Saving Sawfish: Progress and Priorities. IUCN Shark Specialist Group, Vancouver, Canada. 6 pp.

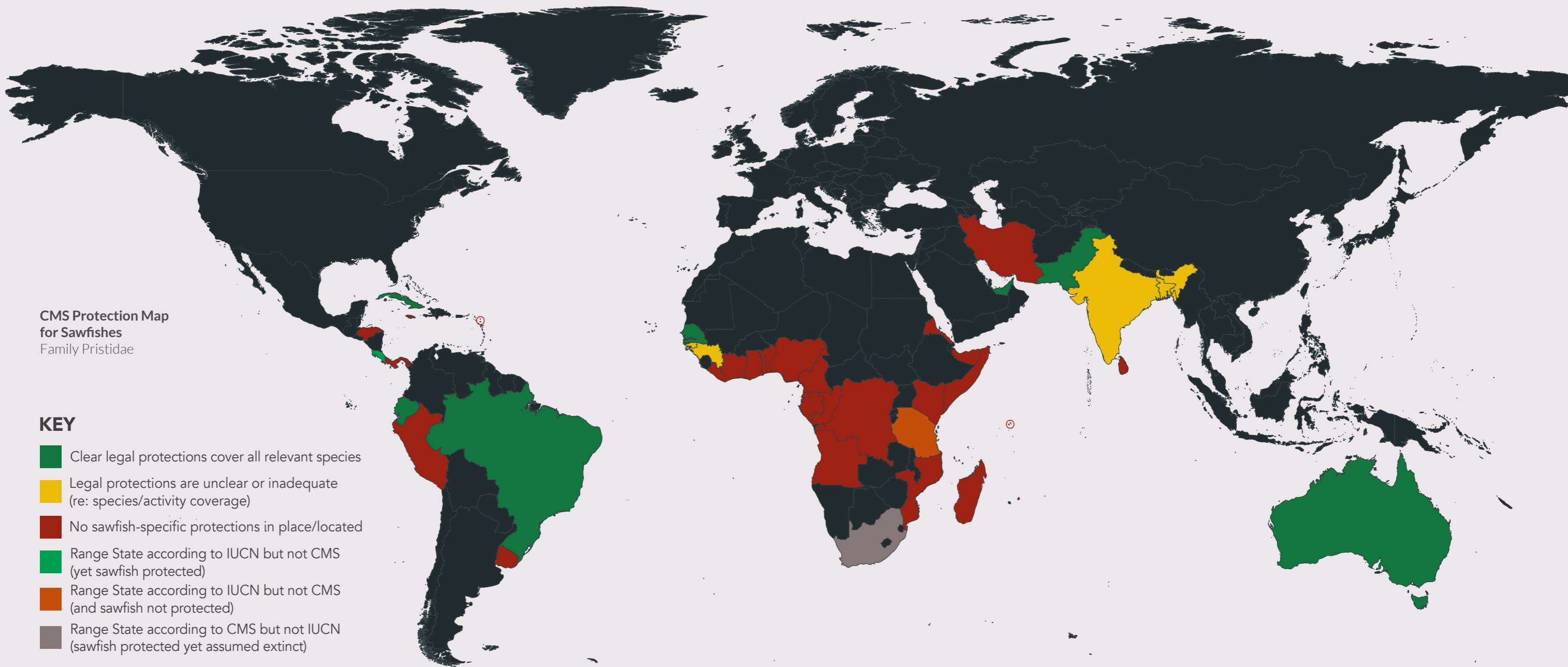
RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- National sawfish protections in CMS Range States that lack them, particularly: Colombia, Kenya, and Saudi Arabia
- Addition of Costa Rica and Tanzania as sawfish Range States by CMS Secretariat
- Surveys to determine population status in Cuba, Costa Rica, Honduras, Panama, and Eritrea
- Active engagement in SPAW Protocol and WECAFC sawfish conservation initiatives by relevant Parties
- Inclusion of *Anoxypristis cuspidata* under Australia's threatened species list and multispecies sawfish rebuilding plan
- Continued leadership from Australia, the Netherlands, and the United States in international sawfish conservation initiatives, including capacity building in developing countries
- Collaboration among CMS Parties and MoU Signatories to develop regional programs to promote sawfish protection, habitat conservation, and population recovery across the species' range
- Improved reporting of interactions to relevant authorities.



Sawfishes

Family Pristidae



Basking shark

Cetorhinus maximus

GLOBAL STATUS

- Listed on CMS Appendix I and II in 2005 pursuant to a proposal from the United Kingdom and Australia
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix II in 2002 pursuant to a proposal from the United Kingdom on behalf of the European Community Member States
- IUCN Red List Status: Vulnerable

NATIONAL AND REGIONAL PROGRESS

The basking shark (*Cetorhinus maximus*) is one of the world's most protected elasmobranchs, and among the first shark species listed under CITES (2002) and several regional wildlife treaties. The species was added to CMS Appendix I and II in 2005. Prior to this listing, basking sharks had received various national legal protections in many Parties including the United Kingdom and Australia (the listing proponents), as well as New Zealand, South Africa, Brazil, Croatia, and Sweden, and was subject to a zero catch limit, agreed in 2003, for some European Union (EU) waters.

In November 2005, the same month that basking sharks were listed under CMS, the North East Atlantic Fisheries Commission (NEAFC) for the

first time adopted a ban on directed basking shark fisheries in the NEAFC Convention Area. This measure has since been regularly renewed; the current ban, adopted in 2015, expires at the end of 2019 and will be reconsidered based on scientific advice. None of the iterations of the NEAFC basking shark measure mention CMS.

In 2006, the EU replaced the zero catch limit for basking sharks with a complete prohibition on fishing, retention, transshipment, and landings. The accompanying rationale cited "international obligations" (including those under CITES and the Convention for Biodiversity, but not CMS specifically).

Also in 2006, Norway ended directed fisheries for basking sharks while still allowing landing of incidental catches. In 2013, Norway began encouraging release (with minimal harm) of incidentally caught basking sharks and allowing the landing of only "dead or dying" individuals¹².

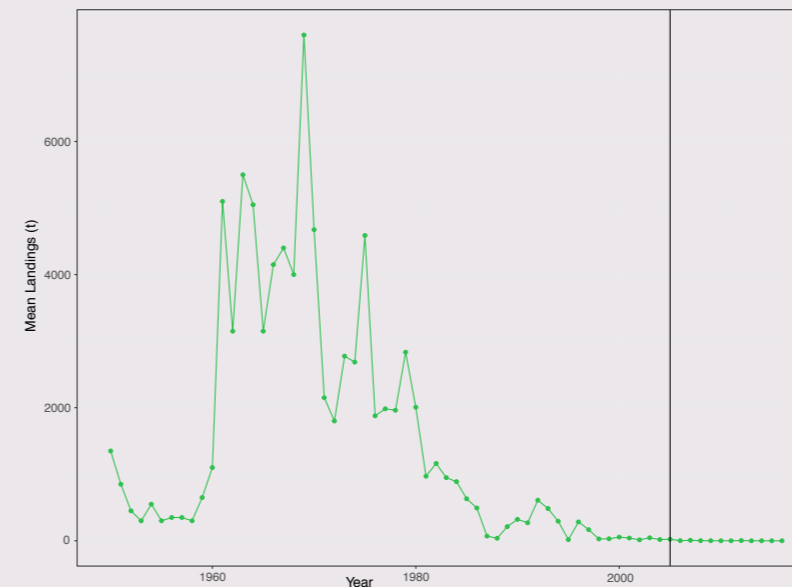
In 2007, by an executive decree citing CMS and CITES listings, Ecuador banned retention and mandated release of all basking sharks, dead or alive.

In 2010, New Zealand replaced its ban on targeted basking shark fishing with a full prohibition on retention from national waters and/or the high seas. This action is noteworthy as the government's preceding management options paper made clear that the CMS listing was the driving factor for the pursuit of stronger protection.

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release for the basking shark and 23 other elasmobranch species listed on the Barcelona Convention Annex II of the *Protocol concerning specially protected areas and biological diversity in the Mediterranean*. This measure does not mention CMS, and implementation through domestic regulations is far from complete, even for basking sharks. The EU is the only GFCM Party to fully implement this measure through domestic regulations (dated 2015).

Our analysis found that strict national basking shark protections, as mandated by the CMS Appendix I listing, are inadequate or completely lacking in the following CMS Party Range States: Tunisia, Algeria, Libya, Albania, Senegal, Uruguay, Chile, Peru, and Cuba.

¹² Gadenne H, Rohr A, and Stephan E. 2015. Background document on Basking Shark, *Cetorhinus maximus* - Update. OSPAR Convention. 61 pp. Available at: <https://www.ospar.org/documents?v=7377>



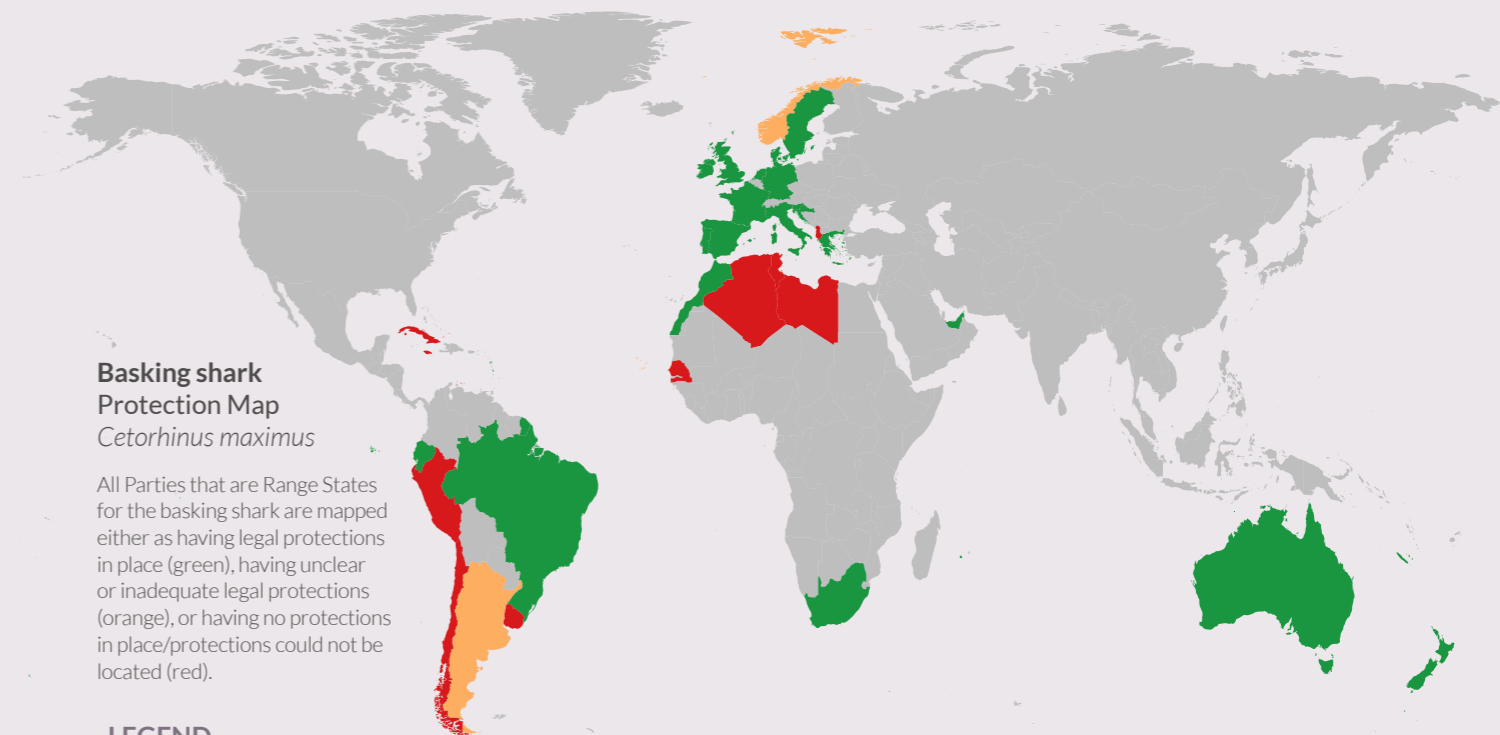
Basking shark (FAO landings for *Cetorhinus maximus*)

Only CMS Parties (green line) reported basking shark landings (in tonnes). The black line marks the year the basking shark was listed under CMS.

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- Strict national basking shark protections in CMS Parties that still lack them, particularly along North Africa and western South America
- Continued efforts to study and reduce basking shark bycatch by leading Parties in the field, particularly New Zealand
- Additional measures to prevent harassment and minimize mortality from boat strikes in CMS Party Range States where basking sharks are regularly encountered but not fully protected from such threats, such as Ireland
- Collaboration among CMS Parties and MoU Signatories to develop regional conservation programs to promote protection and population recovery across the species' range
- Improved reporting of interactions.

© Charles Hood/Alamy



Basking shark Protection Map
Cetorhinus maximus

All Parties that are Range States for the basking shark are mapped either as having legal protections in place (green), having unclear or inadequate legal protections (orange), or having no protections in place/protections could not be located (red).

LEGEND

- Clear legal protections for basking shark
- Legal protections are unclear or inadequate (re: activity or species coverage)
- No basking shark-specific protections in place/located
- N/A

White shark

Carcharodon carcharias

GLOBAL STATUS

- Listed on CMS Appendix I & II in 2002 pursuant to a proposal from Australia
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix II in 2004 pursuant to a proposal from Australia and Madagascar
- IUCN Red List Status: Vulnerable

NATIONAL AND REGIONAL PROGRESS

The white shark (*Carcharodon carcharias*) is one of the world's most protected elasmobranchs, and among the first shark species listed under various wildlife treaties. The species was added to CMS Appendix I and II in 2002. Prior to this listing, white sharks had received some form of national protection in a number of countries, including Australia (the listing proponent country), South Africa, New Zealand, and Malta.

The white shark was added to CITES Appendix II in 2004 pursuant to a proposal that included benefits for CMS implementation among the arguments for listing.

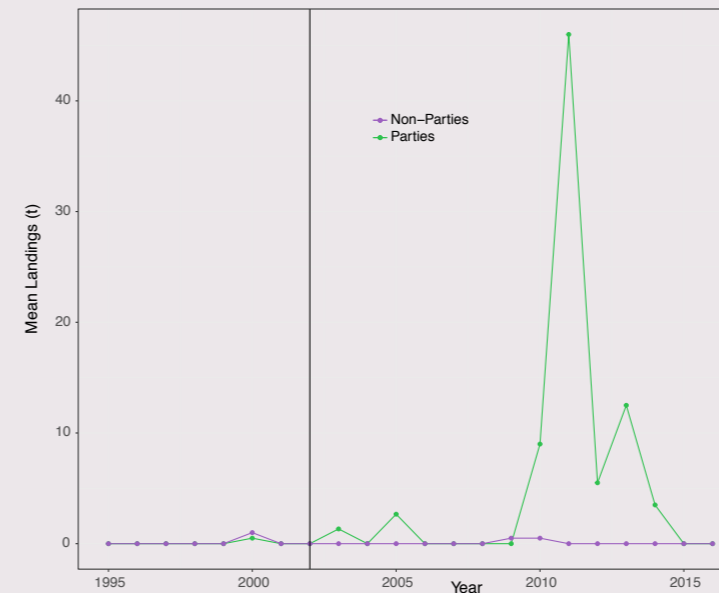
In 2006, the EU adopted a prohibition on fishing, retaining, transshipping, and landing white sharks. The accompanying rationale cited "international obligations" (including those under CITES and the Convention for Biodiversity), but not CMS specifically.

In 2007, by an executive decree citing CMS and CITES listings, Ecuador banned retention and mandated release of all white sharks, dead or alive. The same year, New Zealand replaced its ban on targeting white sharks with a full prohibition on retention from national waters and/or the high seas. White shark protections or partial protections are also now in place in Argentina, Cuba, Kenya, and Morocco.

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release of white sharks and 23 other elasmobranch species listed on the Barcelona Convention Annex II of the *Protocol concerning specially protected areas and biological diversity in the Mediterranean*. This measure does not mention CMS and implementation through domestic regulations has been lacking outside the EU.

In recent years, incidents of people being bitten by white sharks have led to controversy around means to mitigate associated risks to beachgoers and other ocean users, particularly in Australia and South Africa. Targeted white shark control programs conflict with CMS commitments to strictly protect the species, and risk unnecessary harm to other CMS-listed species, including mako and dusky sharks. Scientists warn that shark culling is unlikely to result in the death of the individual sharks responsible for biting people or to reduce the chances of future negative interactions. Instead, scientists recommend research into shark population dynamics, distribution, and activity patterns, as well as public education.

Discrepancies between CMS and other authorities with respect to Range State status is particularly problematic for white sharks. Our analysis found that strict national white shark protections, as mandated by the CMS Appendix I listing, are inadequate or completely lacking in the following CMS Party Range States: Philippines, Seychelles, Congo-Brazzaville, Senegal, Liberia, Ghana, Chile, and Panama.



White shark (FAO landings for *Carcharodon carcharias*)*

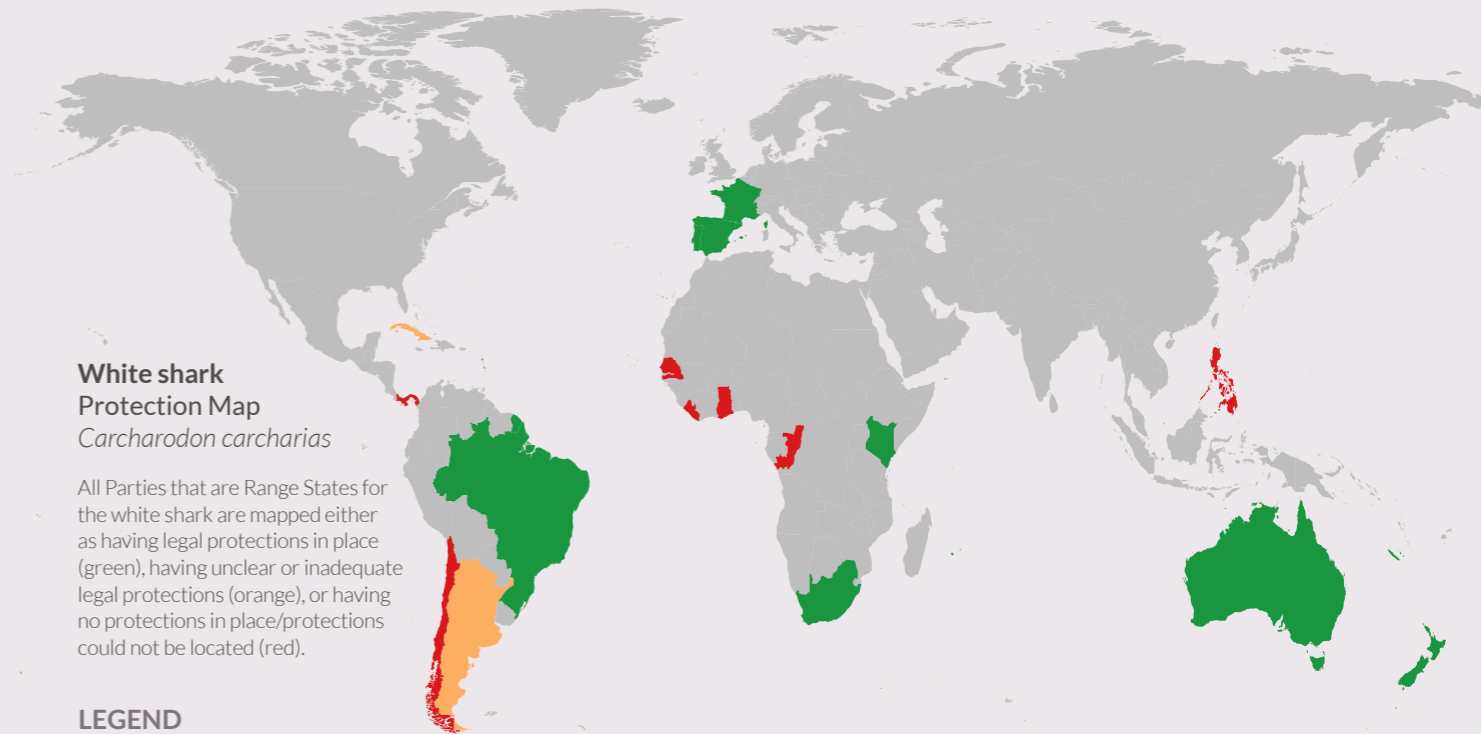
Both CMS Parties (green line) and CMS Non-Parties (purple line) reported landings (in tonnes) for white shark. The black line indicates the year that white shark was listed on the CMS Appendices.

*Landings spikes likely reflect a high level of species misidentification

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- National protections in CMS Parties that still lack them, particularly Chile and the Philippines
- Review of Parties identified as white shark Range States through consultation between the CMS Secretariat, IUCN Shark Specialist Group, and interested Parties
- Programs to improve the safety of bathers and divers through non-lethal means
- Continued research on white shark migration, including studies aimed at determining the range and connectivity of populations
- Identification of critical habitats and discrete aggregation sites (feeding grounds, nursery areas, etc.)
- Efforts to quantify and minimize bycatch and incidental fishing mortality, particularly in Range States with white shark "hot spots," such as South Africa, Australia, and New Zealand
- Collaboration among CMS Parties and MoU Signatories to develop regional programs to enhance white shark conservation across the species' range.

© Norbert Probst/FLPA



White shark Protection Map
Carcharodon carcharias

All Parties that are Range States for the white shark are mapped either as having legal protections in place (green), having unclear or inadequate legal protections (orange), or having no protections in place/protectations could not be located (red).

LEGEND

- Clear legal protections for white shark
- Legal protections are unclear or inadequate (re: activity or species coverage)
- No white shark-specific protections in place/located
- N/A

Manta and devil rays

Family Mobulidae

GLOBAL STATUS

- Listed on CMS Appendix I and II in 2011 and 2014
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix II in 2013 (pursuant to a proposal from Brazil, Colombia, and Ecuador) and 2016 (pursuant to a proposal from many Parties, including Bangladesh, Benin, Brazil, Burkina Faso, Costa Rica, Ecuador, Egypt, European Union, Fiji, Ghana, Guinea, Guinea-Bissau, Mauritania, Palau, Panama, Samoa, Senegal, Seychelles, and Sri Lanka)
- IUCN Red List Status: Ranges from Endangered to Near Threatened (and Data Deficient) based on species

NATIONAL AND REGIONAL PROGRESS

In 2011, the giant (oceanic) manta ray (*Manta birostris*) became the first ray listed on the CMS

Appendices (I and II). At the time, mantas, and in some cases devil (mobula) rays, had already been protected in a number of countries, including the Philippines, Israel, Ecuador, Australia, and New Zealand. The remaining species in family Mobulidae (*Manta alfredi* and *Mobula* spp.) were added to CMS Appendix I and II in 2014. By then, Brazil, Spain, and Croatia had protected at least some of these species in their waters. Manta and *Mobula* species were listed on Appendix II of CITES in 2013 and 2016, respectively. This many global listings over five years creates some difficulty in determining driving factors behind many associated protections.

In 2012 and 2015, Australia and the EU both took action to protect mobulid rays as a direct result of the species' listings under CMS, in line with predetermined domestic policy processes. Both Parties clearly referenced CMS as the driving factor behind these protections.

The General Fisheries Commission for the Mediterranean (GFCM) was the first RFMO to adopt protections specific to a devil ray (*Mobula mobular*); the 2012 ban covers 24

elasmobranch species listed in 2001 under Annex II (Endangered or Threatened Species) of the Barcelona Convention *Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean*. The EU is the only GFCM Party to fully implement this measure through domestic regulations (dated 2015).

In 2015, based on an EU proposal, the Inter-American Tropical Tuna Commission (IATTC) adopted a binding measure to prohibit mobula and manta rays caught by large-scale fisheries in the IATTC Convention Area from being retained, transhipped, landed, stored, sold, or offered for sale, and to ensure prompt, careful release; exceptions for small-scale Eastern Pacific fisheries are meant to allow only domestic consumption. The listing of mobulid rays under CMS was not mentioned in either the preamble to the proposed measure, or the meeting minutes.

In 2017, the Western Central Atlantic Fishery Commission (WECAFC) Scientific Advisory Group mentioned CMS and CITES in a case for banning directed fishing of *Manta birostris*.

The Western and Central Pacific Fisheries Commission (WCPFC) added manta and mobula rays to its "Key Shark Species" list (for assessment only) in 2016, and adopted guidelines for safely releasing these species in 2017. A WCPFC manta and mobula retention ban and/or mandatory release requirement has been proposed (unsuccessfully to date) by the EU, and may be reconsidered in the near future as Parties work to develop a comprehensive WCPFC shark and ray measure.

In 2017, the Seychelles (in partnership with the Maldives) proposed similar mobulid ray protections under the Indian Ocean Tuna Commission (IOTC), noting obligations to the species under CITES, but not CMS. The proposal failed, but was reissued in 2018 with Australia, South Africa, and Mozambique as added cosponsors, again without mention of CMS. Roughly two-thirds of the IOTC Parties are also Parties to CMS, Sharks MoU Signatories, or both. Two of the top five fishing nations (with respect to historical mobulid catches) are Party to both IOTC and CMS (Sri Lanka and India). Nevertheless, the second mobulid ray proposal was not adopted. Instead, IOTC scientists are to review the species' status and interactions with IOTC fisheries, and report back to the Commission in 2020.

In 2017, the IUCN Shark Specialist Group published a global conservation strategy for manta and devil rays¹³ which lists Philippines, Indonesia, Sri Lanka, Peru, India, and Gaza Strip as the top priority countries for research and conservation action.

North African CMS Parties – including Morocco, Tunisia, Algeria, and Egypt – continue to report most if not all elasmobranch landings under aggregate categories¹⁴. This practice may mask landings of CMS-listed species, including the endangered giant devil ray (*Mobula mobular*).

According to our analysis, a great number of CMS Parties have inadequate national protections for manta and devil rays, with respect to CMS Appendix I obligations: Antigua and Barbuda, Argentina, Bangladesh, Cabo Verde, Cuba, Egypt, Guinea, Guinea-Bissau, Honduras, India, Iran, Kenya, Palau, Panama, Philippines, Peru, Saudi Arabia, Senegal, South Africa, and Tanzania, as well as Overseas Territories of the UK and Netherlands. Many of these countries protect mantas but not devil rays.

Mobulid ray protections appear to be completely lacking in Algeria, Chile, Côte d'Ivoire, Eritrea, Mauritania, Costa Rica, Fiji, Madagascar, Mozambique, Uruguay, Djibouti, Jamaica, Seychelles, Somalia, Sri Lanka, Tunisia, and Yemen.

Landings for 2016 reported to FAO are attributed to only Sri Lanka and Indonesia. Mauritania and Spain, CMS Parties with histories of mobulid fishing, reported landings of zero for 2016.

In 2017, the CMS Parties adopted "Concerted Actions" for implementing commitments related to mobulid ray listings. The document reflects an expert global strategy developed by the IUCN Shark Specialist Group, but would benefit from refinement aimed at greater prioritization, assignment of tasks, etc (see Concerted Actions section on page 24).

¹³ Lawson JM, Fordham SV, O'Malley MP, Davidson LNK, Walls RHL, Heupel MR, Stevens G, Fernando D, Budziak A, Simpfendorfer CA, Ender I, Francis MP, Notarbartolo di Sciara G, Dulvy NK. 2017. Sympathy for the devil: a conservation strategy for devil and manta rays. *Peer J*: 5:e3027.

¹⁴ Elasmobranch Conservation Progress & Priorities for the General Fisheries Commission for the Mediterranean (GFCM), fact sheet prepared by the Shark League for the Atlantic and Mediterranean, 2018. Available at: <http://www.sharkleague.org/wp-content/uploads/2018/07/SLAM-COFI-GFCM-LOW-1.pdf>

© Joseph Beck/FLPA



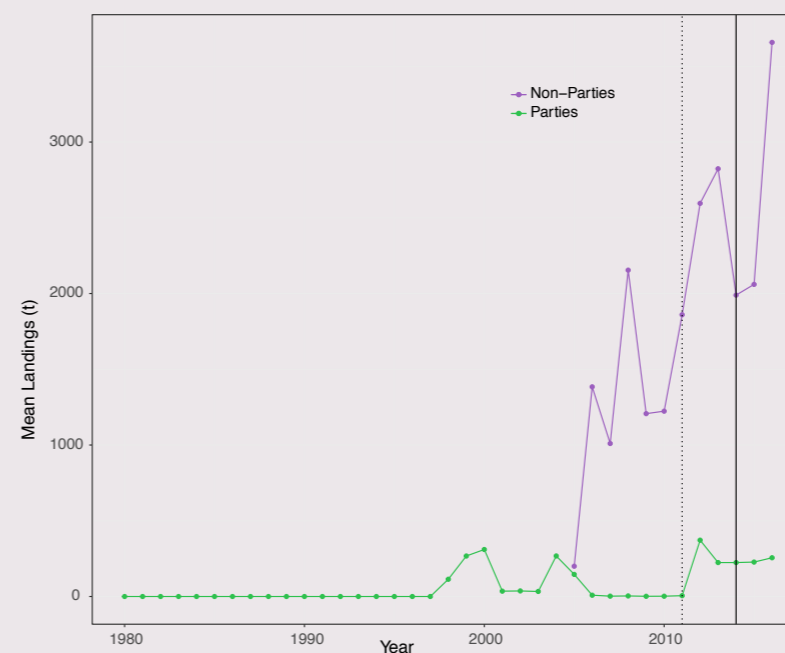
Manta and devil rays

Family Mobulidae

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

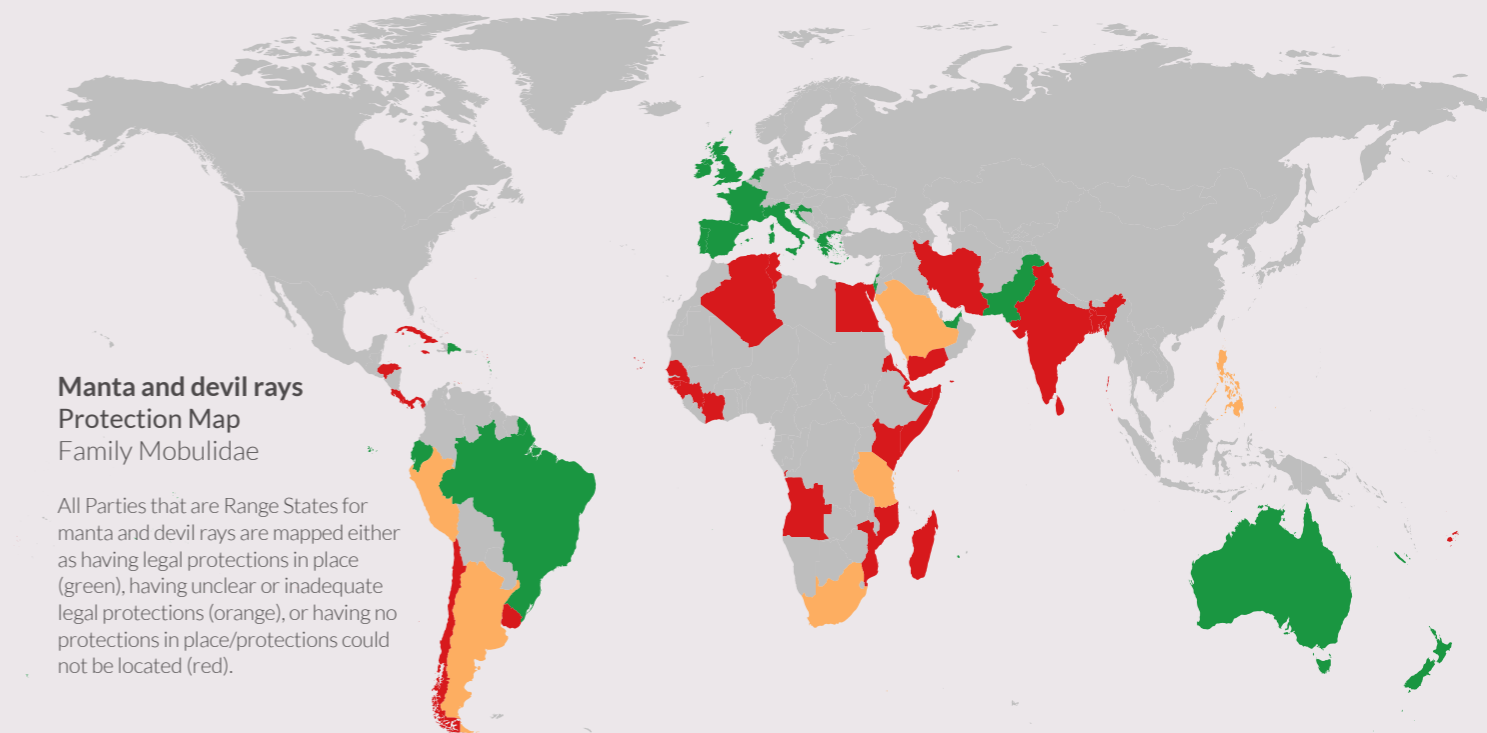
- National mobulid protections by CMS Party Range States that still lack them, particularly those where recent fishing and/or serious population declines have been documented, such as Sri Lanka, Costa Rica, Seychelles, and Mozambique
- Expanded protections in CMS Party Range States with mobulid protection measures that are inadequate and/or do not apply to all species in their waters, particularly those with documented population declines and/or high landings: India, Peru, Philippines, Senegal, and Guinea
- National measures that are as stringent for devil rays as they are for mantas
- Minimization of exemptions allowed under the IATTC mobulid prohibition, and review of implementation thus far, including regarding specific data collection program
- Regional prohibitions on mobulid harm, targeting, retention, landing, storage, and transshipment by the IOTC and WCPFC, as proposed by several CMS Parties
- Species-specific elasmobranch landings reporting in North African CMS Parties, particularly *Mobula mobular* Range States with relatively high unclassified Mediterranean elasmobranch landings: Tunisia, Egypt, and Algeria
- Collaboration among CMS Parties and MoU Signatories to develop regional conservation programs to promote protection and population recovery across the species' range
- Refine and implement the "Concerted Actions" adopted for mobulids (see page 24).
- Improved reporting of catches.

© Kjersti Joergensen/Alamy



Manta and devil rays (combined FAO landings for *Mobula mobular*, *Manta birostris*, and Mobulidae)

Both CMS Parties (green line) and CMS Non-Parties (purple line) reported landings (in tonnes) for manta and devil rays. The dotted black line represents the year that *Manta birostris* was added to the CMS Appendices, while the solid black line indicates the year that the remaining members of the family Mobulidae were added to the CMS Appendices.



Manta and devil rays Protection Map Family Mobulidae

All Parties that are Range States for manta and devil rays are mapped either as having legal protections in place (green), having unclear or inadequate legal protections (orange), or having no protections in place/protections could not be located (red).

LEGEND

- Clear legal protections for manta and devil rays
- Legal protections are unclear or inadequate (re: activity or species coverage)
- No manta and devil rays-specific protections in place/located
- N/A

6.

Elasmobranch species listed on CMS Appendix II (prior to 2017)

Whale shark *Rhincodon typus*

GLOBAL STATUS

- Listed on CMS Appendix II in 1999 pursuant to a proposal from the Philippines
- Listed on CMS Appendix I in 2017 pursuant to a proposal from the Philippines, Israel, and Sri Lanka
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix II in 2002 pursuant to proposal from India and the Philippines
- IUCN Red List Status: Endangered

NATIONAL AND REGIONAL PROGRESS

The whale shark (*Rhincodon typus*) is the only elasmobranch species to be listed on both CMS Appendices in different years. It was added to CMS Appendix II in 1999 and to CMS Appendix I nearly two decades later, in 2017. At the time of inclusion in Appendix II, whale sharks were protected in five countries, including the Philippines (the listing proponent), Australia, and South Africa.

In 2006, the European Union (EU) prohibited retention, transshipment, and landing of white sharks for all EU and third country vessels in EU waters, as well as for EU vessels in non-EU waters. The accompanying rationale cited “international obligations” (including those under CITES and the Convention for Biodiversity), but not CMS specifically.

In 2012, the Western and Central Pacific Fisheries Commission (WCPFC) added the whale shark to its list of “Key Shark Species” (for data provision and assessment). Since 2012, the WCPFC, the Indian Ocean Tuna Commission (IOTC), and the Inter-American Tropical Tuna Commission (IATTC) have banned the intentional setting of purse-seines around whale sharks, and have been working toward implementation of associated best practices for releasing those captured accidentally. The CMS listing of whale sharks is not mentioned as part of the rationale in any of the associated final measures, although CMS was mentioned in the original proposal to the IOTC from Australia (and the Maldives).

The 2017 CMS Appendix I listing for whale sharks was pursuant to a proposal from Philippines,

Israel, and Sri Lanka. Based on the IUCN Red List Assessment¹⁵, the proposal reported protections for whale sharks in 46 territories and countries, including the following CMS Parties: Australia, Congo-Brazzaville, Cook Islands, Costa Rica, Djibouti, Dominican Republic, Ecuador, Egypt, French Polynesia, Honduras, India, Israel, New Zealand, Palau, Panama, Philippines, Saudi Arabia, Seychelles, South Africa, United Arab Emirates, and UK (Chagos Archipelago and St. Helena Island). Whale sharks are also subject to protections in Cuba. The proposal also noted management of whale shark tourism in several CMS Parties: Australia, Ecuador (Galapagos Islands), UK (St. Helena Island), and the Philippines, as well as voluntary codes of conduct for many other tourism locations. The proposal reported

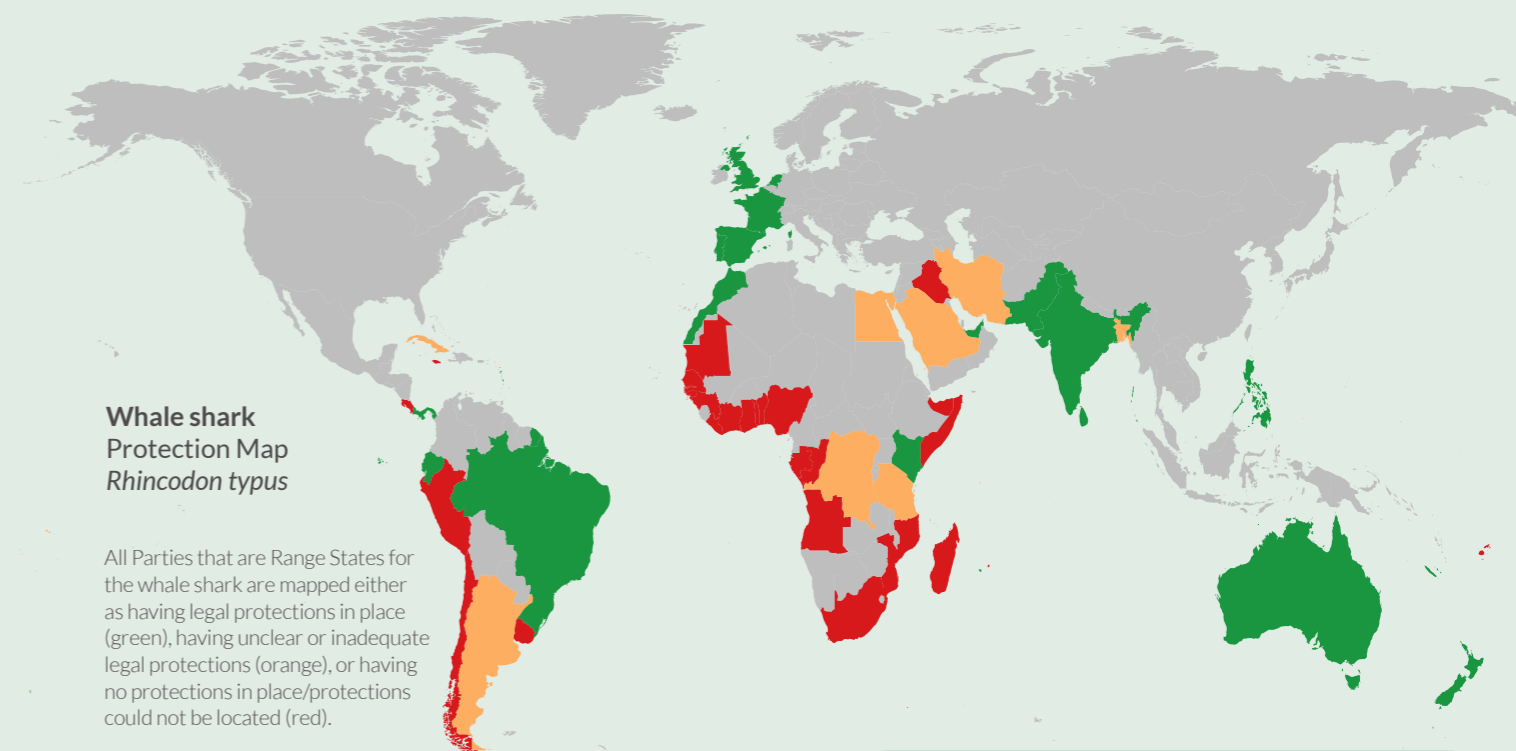
habitat conservation measures affecting whale sharks in Australia, Costa Rica (Cocos Island), Ecuador (Galapagos Islands), Panama (Coiba Island), the Philippines, and the UK (St. Helena), and recommends protection of aggregations off several countries including Mozambique.

CMS Parties flagged in the Red List Assessment and CMS listing proposal for lacking restrictions to protect whale shark hotspots include Gabon, Madagascar, Mozambique, Pakistan, Peru, Portugal, and Tanzania. Whale sharks are reportedly still being taken, either as a target or bycatch, in several countries, including Mozambique and Pakistan.

In June of 2018, the European Commission added whale sharks to the list of prohibited species directly pursuant to the October 2017 listing on CMS Appendix I.

¹⁵ Pierce, S.J. & Norman, B. 2016. *Rhincodon typus*. The IUCN Red List of Threatened Species 2016: e.T19488A2365291. <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T19488A2365291.en>. Downloaded on 08 October 2018.

© Nature Picture Library/Alamy



LEGEND

- Green: Clear legal protections for whale shark
- Orange: Legal protections are unclear or inadequate (re: activity or species coverage)
- Red: No whale shark-specific protections in place/located
- Grey: N/A

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- In 2017, the CMS Parties adopted “Concerted Actions” for implementing commitments for whale sharks that provide a good guide for next steps to improving protections for the species.

Mako sharks

Isurus spp.

GLOBAL STATUS

Shortfin mako (*Isurus oxyrinchus*), longfin mako (*Isurus paucus*)

- Listed on CMS Appendix II in 2008 pursuant to a proposal from Croatia
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Reportedly being proposed for listing on CITES Appendix II in 2019 by Mexico
- IUCN Red List Status: Vulnerable Globally

REGIONAL LEVEL PROGRESS

The same year that makos were listed under CMS (2008), scientists associated with the International Commission for the Conservation of Atlantic Tunas (ICCAT) released a groundbreaking Ecological Risk Assessment (ERA)¹⁶ which ranked both mako species exceptionally high (second and third among 11 shark species) in terms of vulnerability to ICCAT fisheries. Shortfin makos are exceptionally valuable to commercial and recreational fisheries, relative to other sharks; longfin makos are much rarer, but are likely to be caught alongside and confused with shortfin makos in catch reporting.

At present, of all the world's mako shark populations, we know the most about shortfin

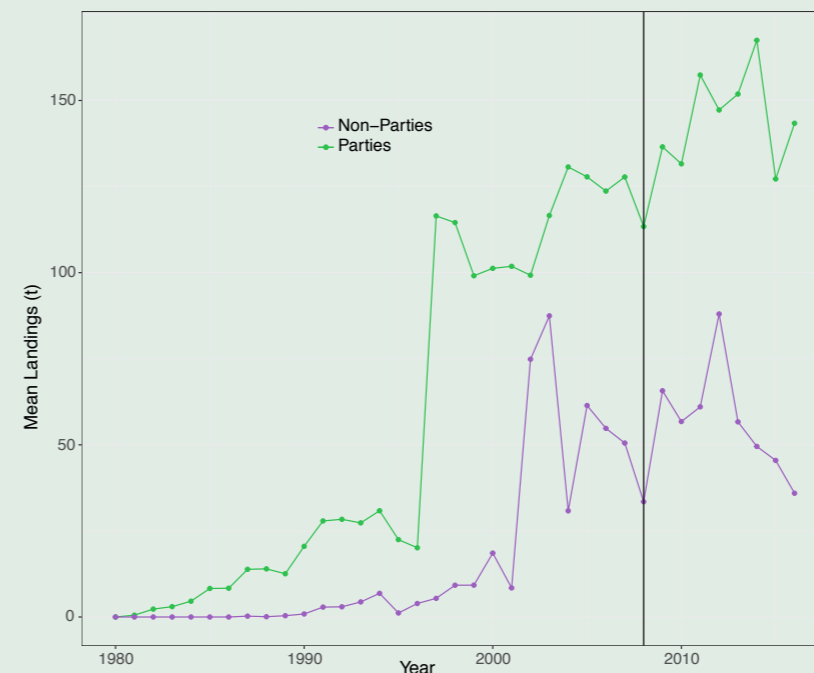
makos of the North Atlantic, owing to relatively long-term ICCAT data collection and population assessment efforts. Prior to the CMS listing, in 2005 and 2007, ICCAT made general commitments to reduce fishing on this population, based on scientific advice. Follow-through by individual ICCAT Parties, however, was insufficient. In 2010, ICCAT agreed to begin banning in 2013 of shortfin mako retention for Parties not properly reporting associated catch data. In 2012, scientists suggested fishing rates might be sustainable, but that fishing should not increase, while at the same time an updated ERA confirmed the high vulnerability and low productivity of makos. ICCAT opted not to set mako fishing limits, and instead focused on improving catch reporting, including through a binding measure in 2014.

By 2017, the status of the North Atlantic shortfin mako population had seriously deteriorated. Scientists conducted an assessment¹⁷ and found that overfishing was occurring on an overfished population, and that catches needed to be cut to zero in order to have a 54% chance of rebuilding by 2040. They recommended a ban on retention for this population along with additional measures to mitigate bycatch mortality. The status of South Atlantic shortfin makos is less clear; scientists recommended a precautionary catch limit of 2,000t.

To date, ICCAT has taken only a first step toward heeding scientific advice for mako sharks. A 2017 ICCAT measure mandated immediate actions to narrow the conditions under which North Atlantic shortfin makos can be landed, with a focus on maximizing live release. ICCAT scientists are currently evaluating implementation progress and planning to develop a rebuilding plan in 2019. ICCAT has taken no concrete steps to safeguard South Atlantic shortfin makos. The primary argument for inaction has been the uncertainty in the population assessment.

Roughly half of the Parties to ICCAT are also Parties to CMS. CMS Parties landing South Atlantic makos include Spain, Brazil, South Africa, and Portugal. The 2008 listing of makos under CMS is mentioned in the latest ICCAT population assessment document, but not in any ICCAT policy proposals or final measures.

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release for the shortfin mako



Mako sharks (combined FAO landings for *Isurus oxyrinchus*, *Isurus paucus*, and *Isurus spp.*)

Both CMS Parties (green line) and CMS Non-Parties (purple line) reported landings (in tonnes) for mako sharks. The black line indicates the year that makos were listed on CMS Appendix II.

shark and 23 other elasmobranch species listed on the Barcelona Convention Annex II of the *Protocol concerning specially protected areas and biological diversity in the Mediterranean*. This measure does not mention CMS and implementation through domestic regulations has been seriously lacking.

Whereas the EU implemented the GFCM mandate for shortfin makos (through domestic regulations dated 2015), it has yet to limit the catch of makos from anywhere else and is consistently a top mako fishing nation.

Shortfin makos are the only elasmobranchs that Libya reports by species (landings of all other species fall into a problematic aggregate category); Libya reported 16t of mako landings in 2016, according to FAO FISHSTAT.

The Western and Central Pacific Fisheries Commission (WCPFC) designated both makos as "Key Shark Species"¹⁸ (for data provision and assessment) in 2008. In 2018, the International Scientific Committee for Tuna and Tuna-like

¹⁸ Clarke S, Staisch K, Manarangi-Trott. 2017. Clarification of WCPFC shark designations and observer data collection requirements in response to WCPFC13 Decisions regarding Manta and Mobulid (Devil) Rays. WCPFC Scientific Committee Thirteenth Regular Session, Rarotonga, Cook Islands, 9-17 August 2017. 7 pp.

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- ICCAT and domestic level prohibitions on retention and landing of North Atlantic shortfin mako sharks, as advised by scientists
- A precautionary ICCAT prohibition on retaining South Atlantic makos or a limit of no more than 2,000t
- International and domestic-level catch limits based on scientific advice and the precautionary approach for Pacific and Indian Ocean shortfin makos
- Precautionary prohibitions on exceptionally vulnerable and rare longfin mako sharks
- Improved reporting of catch and discard data.

Species in the North Pacific Ocean conducted an assessment for North Pacific makos and concluded that the population is likely (>50%) not in an overfished condition and overfishing is likely (>50%) not occurring. These results are relevant to both the WCPFC and the Inter-American Tropical Tuna Commission (IATTC). A population assessment for South Pacific shortfin makos is being planned by scientists affiliated with the regional fisheries bodies for 2020 or 2021.

Scientists associated with the Indian Ocean Tuna Commission (IOTC) have issued status reports and management advice for relevant shark species. They cite considerable uncertainty with respect to the region's shortfin makos, owing in large part to poor compliance with catch reporting requirements. The population status is unknown as there has yet to be a quantitative regional assessment. The paucity of information hinders management, although this situation has reportedly been improving in recent years. Scientists have warned against maintaining or increasing fishing effort, and suggest makos may be locally depleted in southern and eastern areas. They have advised the IOTC to adopt precautionary conservation measures and work to improve data collection from fisheries.

© NaturePL/Alamy



¹⁶ Cortés E, Arocha F, Beerkircher L, Carvalho F, Domingo A, Heupel M, Holtzhausen H, Santos MN, Ribera M, Simpfendorfer C. 2008. Ecological Risk Assessment of pelagic sharks caught in Atlantic pelagic longline fisheries. ICCAT Working Group on Sharks SCRS/2008/138. 14 pp. Available at: https://www.iccat.int/Documents/Meetings/Docs/SCRS/SCRS-08-138_Cortés_et_al.pdf

¹⁷ SMA Assessment Meeting. 2017. Report of the 2017 ICCAT Shortfin Mako Assessment Meeting, Madrid, Spain, 12-16 June 2017. 64 pp. Available at: https://www.iccat.int/Documents/SCRS/DetRep/SMA_ASS_ENG.pdf



SPOTLIGHT ON MAKO SHARKS

Elasmobranch species listed on CMS Appendix II (prior to 2017)

Mako sharks

Isurus spp.

WHY MAKOS?

Shortfin makos are the most commercially valuable and under-protected highly migratory sharks in the world. Among pelagic elasmobranch species, makos also rank exceptionally high with respect to inherent vulnerability to overfishing. Globally distributed populations are fished across their range by many nations. Makos were listed under CMS Appendix II in 2008 and yet - a decade later - there are still no international mako fishing quotas.

CMS-RFMO NEXUS

The main threat to mako sharks is incidental and targeted mortality in high seas swordfish

TABLE 6.1: Mako landings and relevant RFMO membership for CMS Parties

(Total 2016 landings of *Isurus spp. I. oxyrinchus & I. paucus* as reported to FAO.) CMS Parties that are also contracting Parties to the relevant RFMOs are identified with check marks (✓). ICCAT = International Commission for the Conservation of Atlantic Tunas. WCPFC = Western and Central Pacific Fisheries Commission. IOTC = Indian Ocean Tuna Commission. GFCM = General Fisheries Commission for the Mediterranean. NEAFC = North East Atlantic Fisheries Commission. European Union Member States that are by default also RFMO Contracting Parties are identified by "EU". Countries that are RFMO Cooperating non-Parties are identified by "CNP". Dependent or otherwise associated territories are identified as "+OT".

CMS Party	CMS Sharks MoU	ICCAT	WCPFC	IOTC	IATTC	GFCM	Global 2016 mako landings (t)
Brazil	✓	✓					115
Chile	✓				CNP		387
Costa Rica	✓	CNP			✓		1
Côte d'Ivoire	✓	✓					13
Ecuador	✓		CNP		✓		125
France	EU	EU+OT	✓	✓	✓	✓+EU	6
Iran				✓			33
Libya	✓	✓				✓	16
Morocco		✓				✓	1050
New Zealand	✓		✓				72
Portugal	✓	EU	EU	EU	EU	EU	1067
Senegal	✓	✓		CNP			8
Seychelles				✓			69
South Africa	✓	✓		✓			1470
Spain	EU	EU	EU	EU	EU	✓✓+EU	4812
Sri Lanka	✓			✓			53
UK	✓	EU+OT		EU+OT		EU	23

and tuna fisheries. Assessing and controlling mortality associated with these fisheries is the responsibility of the Regional Fishery Management Organizations (RFMOs) that focus on tuna; these bodies have the ability to set fishing limits to safeguard highly migratory sharks. CMS Parties have a binding obligation to work toward the conservation of mako sharks (and other Appendix II-listed elasmobranchs) through CMS agreements. Currently, the only relevant CMS agreement for such purposes is the CMS Sharks MoU, which commits Signatories (albeit on a voluntary basis) to work through RFMOs (*inter alia*) to conserve oceanic CMS-listed sharks.

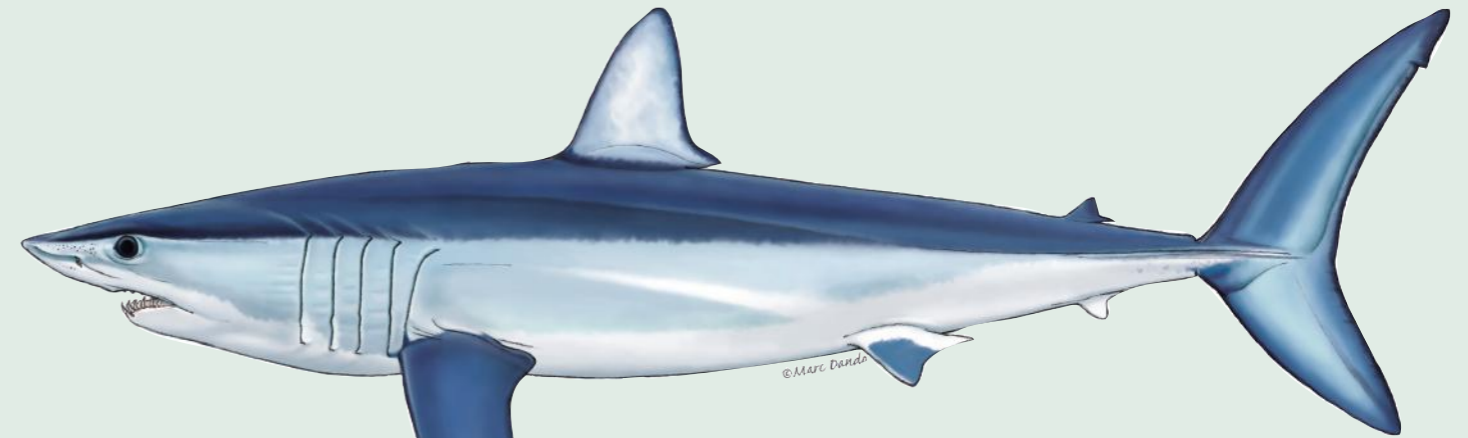
WHERE TO START?

Table 6.1 reveals that the RFMO with the most CMS Parties and MoU Signatories in its membership is the International Commission for the Conservation of Atlantic Tunas (ICCAT). Of these Parties, those with the highest mako landing arguably bear the greatest responsibility to lead ICCAT toward the adoption of science-based international mako fishing limits. ICCAT happens to be the most advanced tuna RFMO when it comes to shortfin mako population assessment and scientific advice for managers. ICCAT scientists' recommendations for reducing mako fishing mortality based on a 2017 assessment have yet to be adequately addressed; updated advice will be issued in the autumn of 2019.

PRIORITY CONSERVATION ACTIONS

As the top ranked CMS Parties with commitments to conserve makos under the CMS Sharks MoU, the EU and its Member States, Morocco, and South Africa should lead efforts to secure science-based shortfin mako catch limits at ICCAT. Brazil, Côte d'Ivoire, Libya, and Senegal - as countries that are CMS Parties and Sharks MoU Signatories - should actively assist in advancing such initiatives, while encouraging other CMS Party members of ICCAT (Albania, Algeria, Angola, Gabon, Ghana, Guinea-Bissau, Honduras, Liberia, Nigeria, Norway, Panama, Philippines, Sao Tome & Principe, Syria, Tunisia, and Uruguay) to do the same.

Similar efforts, to at least ensure mako reporting and establish precautionary landing limits, should be initiated for the three other tuna RFMOs by members that are CMS Parties and Sharks MoU Signatories, as shown in Table 6.1 and Table 3.5.



Shortfin mako shark (*Isurus oxyrinchus*)

- Age of maturity (♀): 18 years
- Length at 50% (♀) maturity: ~275cm
- Gestation: 15-18 months
- Reproduction: 4-25 pups every 2-3 years
- Life span: ~32 years
- IUCN Red List Status: Vulnerable

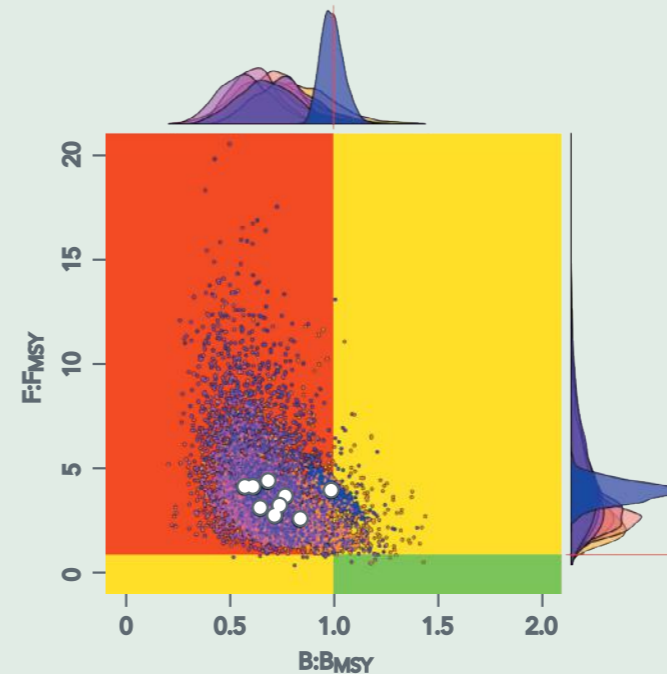
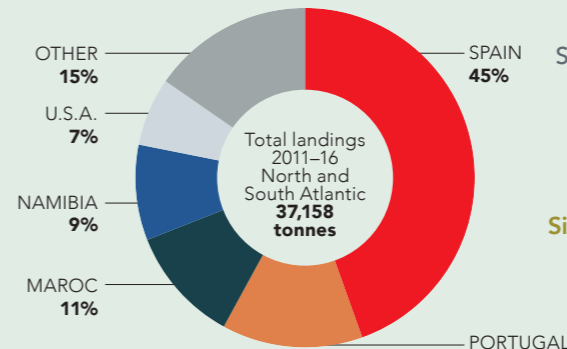


Figure 6.1: Kobe phase plot for North Atlantic shortfin mako showing current status (2015) based on all assessment models used. Concentration of the plots in red quadrant indicates the combined probability from all the models of being in an overfished state while still experiencing overfishing was 90%. Ref: SCRS 2017 SHK-Figure 9.

Stock	V ₁	V ₂	V ₃
Bigeye thresher	3	1	1
Longfin mako	5	3	2
Shortfin mako	1	8	2
Porbeagle	2	7	4
Night shark	11	4	5
Silky shark South Atlantic*	12	5	6
Sandbar shark	15	2	6
Oceanic whitetip	4	13	8
Silky shark North Atlantic*	8	11	8
Thresher shark	9	14	11
Blue shark North Atlantic	6	19	10
Dusky shark	17	6	12
Great hammerhead*	14	10	13
Blue shark South Atlantic	7	20	14
Tiger shark	10	16	15
Pelagic stingray South Atlantic	18	9	16
Scalloped hammerhead North Atlantic*	16	12	16
Smooth hammerhead*	13	17	18
Scalloped hammerhead South Atlantic*	19	15	19
Pelagic stingray North Atlantic	20	18	20

Figure 6.2: Vulnerability ranks for 20 stocks of pelagic sharks calculated with three methods: Euclidean distance (v1), multiplicative (v2), and arithmetic mean (v3). A lower rank indicates higher risk. Stocks listed in decreasing risk order according to the sum of the three indices. Red highlight indicates risks scores 1-5; yellow, 6-10; blue, 11-15; and green, 16-20. Productivity values ranked from lowest to highest. Species in **bold** are prohibited. * Some exceptions apply

Porbeagle shark

Lamna nasus

GLOBAL STATUS

- Listed on CMS Appendix II in 2008 pursuant to a proposal from the European Community and its Member States
- Covered by the CMS Memorandum of Understanding on the Conservation of Migratory Sharks
- Listed on CITES Appendix II in 2013 pursuant to a proposal from Denmark on behalf of the European Union Member States, Brazil, Comoros, and Croatia
- IUCN Red List Status: Vulnerable

REGIONAL LEVEL PROGRESS

The Western and Central Pacific Fisheries Commission (WCPFC) designated the porbeagle as a “Key Shark Species” (for data provision and assessment) in 2010.

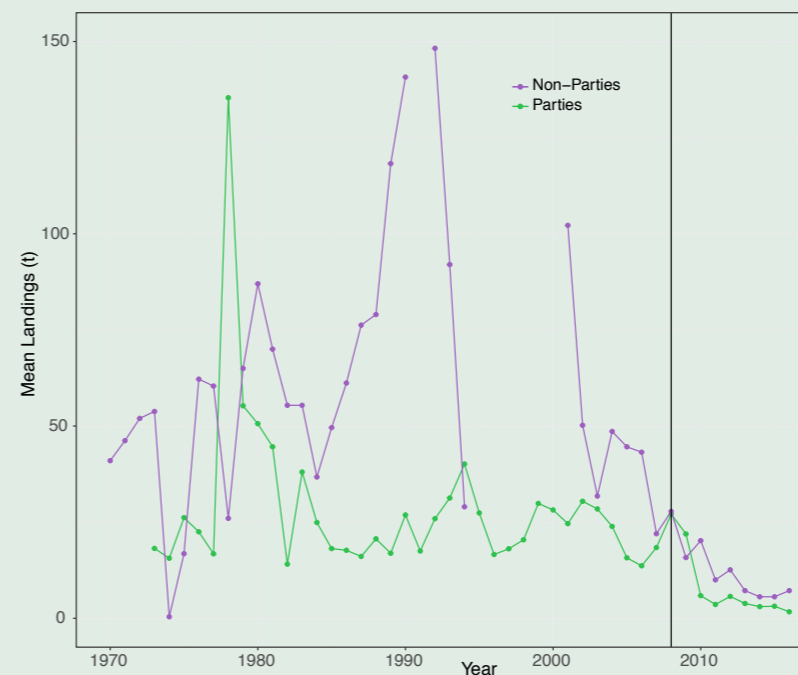
Also in 2010, the North East Atlantic Fisheries Commission (NEAFC) adopted a ban on directed

fishing for porbeagles (to begin in 2011). The ban has been renewed several times since with none of the final measures making note of CMS listing for the species. The current (2016) measure runs through 2019 and applies to the NEAFC Regulatory Area (high seas).

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release for the porbeagle shark and 23 other elasmobranch species listed on the Barcelona Convention Annex II of the *Protocol concerning specially protected areas and biological diversity in the Mediterranean*. This measure does not mention CMS and implementation through domestic regulations has been seriously lacking. The EU is the only GFCM Party to fully implement this measure through domestic regulations (dated 2015).

In 2015, ICCAT adopted a live release mandate to address severe depletion of North Atlantic populations. The measure represented a compromise after years of debate and disagreement

© Doug Perrine/Alamy



Porbeagle shark (FAO landings for *Lamna nasus*)

Both CMS Parties (green line) and CMS Non-Parties (purple line) reported landings (in tonnes) for porbeagle shark. The black line indicates the year that porbeagle shark was listed on the CMS Appendix II.

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- Precautionary, science-based conservation measures, including stringent fishing limits, agreed through Regional Fishery Management Organizations and bi-lateral cooperation, and complemented through national regulations
- Robust non-detriment finding documents and associated export permits, as mandated by the CITES Appendix II listing, for any international trade
- Improved data on catches and discards.

© Andy Murch



between the EU (which proposed a prohibition) and Canada (which favored allowing some landings from regulated fisheries). ICCAT scientists are scheduled to review the status of porbeagle sharks and offer management advice in 2020. Even though roughly half of the ICCAT Parties are also Parties to CMS, the CMS listing for porbeagles did not receive much mention by ICCAT Parties over several years of deliberations. The final measure does, however, mention commitments under CITES.

In 2017, scientists completed a population assessment of porbeagle sharks in the southern hemisphere under the auspices of the Western and Central Pacific Fisheries Commission (WCPFC) and the Commission for the Conservation of Southern Bluefin Tuna (CCSBT). Key sources of data included Chile, Argentina, Uruguay, and New Zealand. They found a very low risk of overfishing, but recommend cooperative data improvement by relevant regional fishery bodies, including ICCAT.

CMS Parties reporting porbeagle (*Lamna nasus*) landings for 2016 to FAO include New Zealand (42t), Norway (6t), and Italy (1t).

Spiny dogfish

Squalus acanthias

GLOBAL STATUS

- Listed on CMS Appendix II in 2008 (northern hemisphere only) pursuant to a proposal from the European Community and its Member States
- Covered by the CMS Memorandum of Understanding for Migratory Sharks
- Proposed unsuccessfully for CITES Appendix II in 2004 and 2007 by Germany on behalf of European Community Member States
- IUCN Red List Status: Vulnerable Globally

REGIONAL LEVEL PROGRESS

In 2008, the year that spiny dogfish (*Squalus acanthias*) were listed under CMS, the International Council for Exploration of the Sea (ICES) was warning that the Northeast Atlantic population was in danger of collapse and that mortality should be minimized. In response, the North East Atlantic Fisheries Commission (NEAFC) adopted a measure for 2009 that mandated Parties prohibit fishing for the species in the Regulatory Area (international waters) and submit all catch information to NEAFC. The measure also encouraged Parties to make

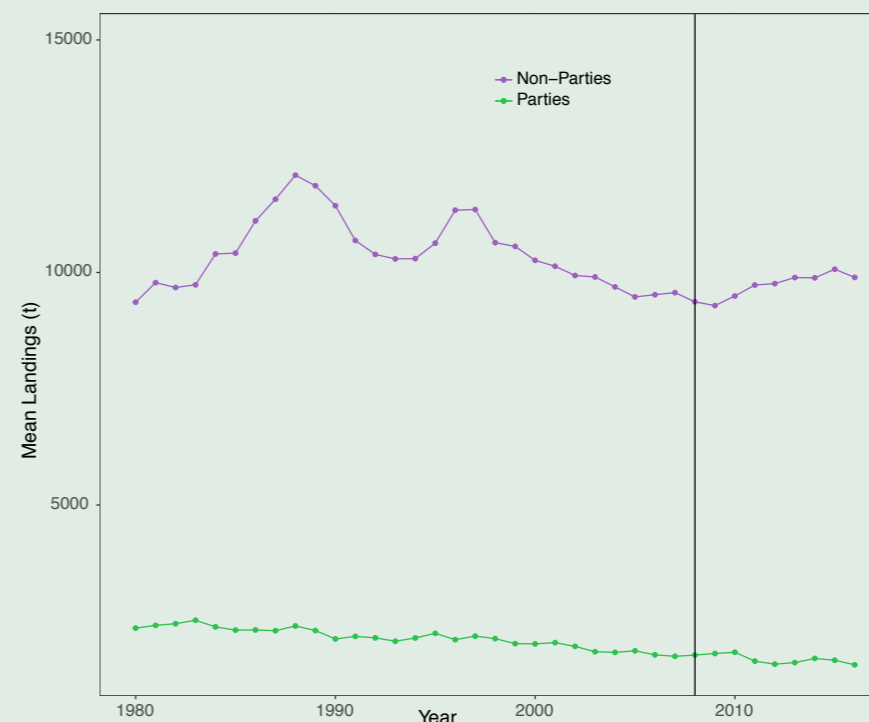
spiny dogfish data available to ICES and to take complementary actions for national waters. These restrictions have since been regularly revisited and reissued with slight amendments based on updated ICES advice. In addition to ongoing data reporting requirements and encouragement of consistent national measures, the current measure obligates Parties to prohibit all directed fishing for spiny dogfish in the Regulatory Area, and ensure incidental catches are released (unharmful if possible). None of the multiple NEAFC spiny dogfish management measures mention CMS commitments.

The EU's first restrictive total allowable catch (TAC) – a 90% reduction from previous excessive TACs – was adopted in 2009, along with a maximum size limit (100 cm) aimed at preventing targeted fishing of large females. The 2011 TAC was set at zero. In recent years, as EU obligations to land rather than discard marine fish began to take effect, spiny dogfish were designated as a prohibited species for all EU and third country vessels in EU waters of ICES Areas 2, 3, 4, 5, 6, 7, 8, 9 and 10. Targeting, retaining, transshipping, and landing the species in these cases is prohibited. A precautionary TAC is in place for ICES Areas 1, 5, 6, 7, 8, 12 and 14 for vessels engaged in Spurdog Bycatch Avoidance Programs¹⁹.

© Brandon Cole/Alamy



¹⁹ https://www.sharktrust.org/shared/downloads/fisheries_advisories/spurdog_fisheries_advisory_2018.pdf



Northern hemisphere spiny dogfish (FAO landings for *Squalus acanthias*)

Both CMS Parties (green line) and CMS Non-Parties (purple line) reported landings (in tonnes) for northern hemisphere spiny dogfish. The black line indicates the year that the northern hemisphere spiny dogfish was listed on CMS Appendix II.

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- Regional fishing limits based on scientific advice and the precautionary approach through the General Fisheries Commission for the Mediterranean
- Fishing limits for Black Sea spiny dogfish based on scientific advice and the precautionary approach
- A comprehensive EU rebuilding plan for Northeast Atlantic spiny dogfish.

The EU has yet to develop a rebuilding plan for spiny dogfish.

Since 1964, Norway has had a minimum landing size of 70 cm for spiny dogfish. There have not been targeted fisheries in Norwegian waters since 2011, but spiny dogfish continue to be taken as bycatch. Norway's current spiny dogfish landings are a result of a ban on discarding fish.

According to ICES, the Northeast Atlantic spiny dogfish population is showing some signs of increase from the historical lows of the mid-2000s; the amount of discards is unquantified. Full recovery of this slow-growing population is expected to take more than 30 years.

ICES advice does not cover spiny dogfish of the Mediterranean. Despite declines in this population and that of the Black Sea, there are no domestic or regional spiny dogfish fishing limits in place.

The Northwest Atlantic spiny dogfish population has recovered remarkably quickly from serious

depletion in the 1990s, thanks to science-based quota-based management instituted in the US the early 2000s. According to a 2015 stock assessment by the US National Marine Fisheries Service, the Northwest Atlantic spiny dogfish population is no longer overfished and is not currently subject to overfishing. The 2019 US quota is expected to be substantially reduced from the current level (nearly 20,000t) based on scientific advice to avoid overfishing. Northwest Atlantic spiny dogfish landings by Canada and other countries outside the US have declined significantly in recent years, due largely to reduced demand and closure of Canadian processing facilities.

North Pacific spiny dogfish are fished and managed primarily by countries that are not Parties to CMS.

CMS Parties reporting northern hemisphere spiny dogfish (*Squalus acanthias*) landings for 2016 to FAO include Norway (270 t), Spain (41 t), UK (30 t), Croatia (26 t), Denmark (24 t), Ukraine (5 t), Romania (3 t), Germany (2 t), France (2 t), Netherlands (1 t), Algeria (1 t), Portugal (1 t), and Malta (1 t).

Elasmobranch species listed on CMS Appendix II (prior to 2017)

Hammerhead sharks

Great hammerhead *Sphyrna mokarran*
Scalloped hammerhead *Sphyrna lewini*

GLOBAL STATUS

- Listed on CMS Appendix II in 2014 pursuant to a proposal from Costa Rica and Ecuador
- Covered by the CMS Memorandum of Understanding for Migratory Sharks
- Listed on CITES Appendix II in 2013 pursuant to a proposal from Costa Rica and Ecuador
- IUCN Red List Status: Endangered Globally

REGIONAL LEVEL PROGRESS

Attention to hammerhead shark safeguards at RFMOs began in earnest four years prior to the species' listing under CMS.

The Western and Central Pacific Fisheries Commission designated scalloped and great hammerheads as "Key Shark Species" (for data provision and assessment) in 2010.

Also in 2010, the International Commission for the Conservation of Atlantic Tunas (ICCAT) prohibited retention, transshipment, landing, and sale of hammerhead sharks (parts or whole) for ICCAT fisheries in the Convention Area. Exceptions were made for local consumption in developing countries, provided they cap catches and ensure fins are not traded internationally, in addition to meeting catch data reporting requirements.

In 2012, the General Fisheries Commission for the Mediterranean (GFCM) banned retention and mandated careful release for scalloped and great hammerhead sharks and 22 other elasmobranch species listed on the Barcelona Convention Annex II of the Protocol concerning specially protected areas and biological diversity in the Mediterranean. This measure does not mention CMS and implementation through domestic regulations has been lacking. The EU is the only GFCM Party to fully implement this measure through domestic regulations (dated 2015).

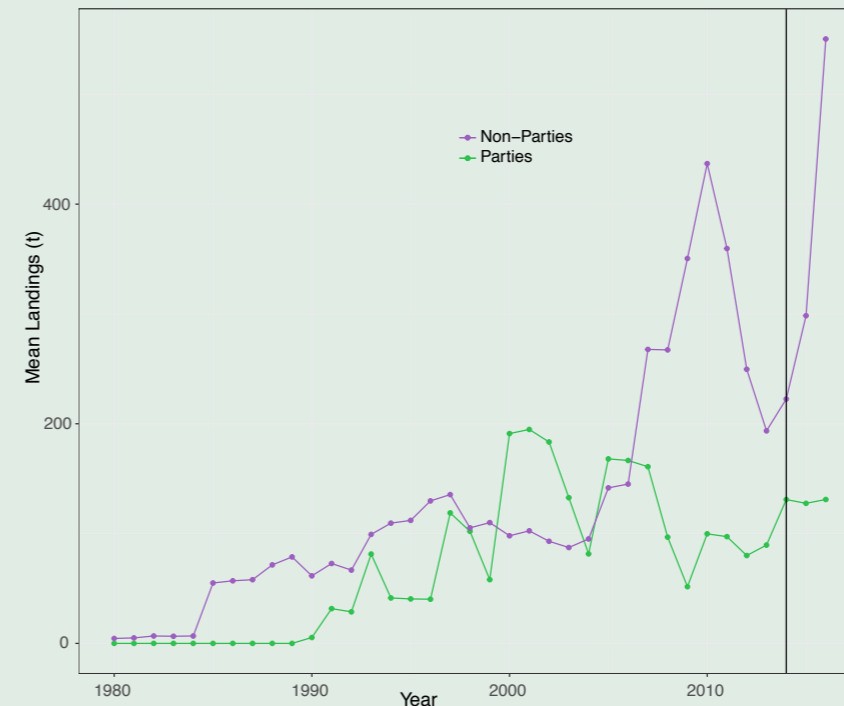
In 2013, the EU unsuccessfully proposed to the rest of the Inter-American Tropical Tuna Commission (IATTC) a ban on retention, transshipment, landing, storage, and sale for hammerheads taken in the IATTC Convention Area.

In 2015, the year after hammerheads were listed under CMS, the US proposed similar hammerhead prohibitions for vessels not targeting hammerheads, and to allow hammerhead targeting only under catch limit-based management plans, along with measures to improve data and mitigate bycatch. Although hammerheads were listed under CMS in the previous year, the proposal did not mention associated obligations for Parties. This proposal was also defeated, due largely to opposition from Costa Rica.

© Brian J. Skerry/Alamy



© Martin Strmiska/Alamy



Hammerhead sharks (combined FAO landings for *Sphyrna mokarran*, *Sphyrna lewini*, *Sphyrna* spp.)

CMS Parties (green line) and CMS Non-Parties (purple line) report hammerhead landings (in tonnes). The black line marks the year *Sphyrna mokarran* and *S. lewini* were listed on CMS Appendix II.

In 2016, IATTC agreed that scientific staff would develop a work plan and timeline for completing regional population assessments for hammerhead (and silky) sharks, and underscored requirements for Parties to collect and submit shark catch data. The IATTC has yet to adopt fishing limits specific to hammerheads.

Scientists associated with the Indian Ocean Tuna Commission (IOTC) have issued status reports and management advice for relevant shark species. They cite considerable uncertainty with respect to the region's scalloped hammerheads, owing in large part to poor compliance with catch reporting requirements. The population status is unknown as there has yet to be a quantitative regional assessment. The paucity of information hinders management, and the situation is not expected to improve in the short to medium term. Scientists have warned against maintaining or increasing fishing effort, and suggest hammerheads may be locally depleted in southern and eastern

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- Precautionary, science-based conservation measures, including stringent fishing limits, agreements through regional and bi-lateral cooperation, and complemented through national regulations
- Precautionary interim prohibitions on retention through the Western and Central Pacific Fisheries Commission and the Indian Ocean Tuna Commission, while regional scientific advice is developed
- Close examination of effectiveness and compliance associated with measures adopted by the Inter-American Tropical Tuna Commission and the International Commission for Conservation of Atlantic Tunas, followed by prescribed amendments
- Robust non-detriment finding documents and export permits, as mandated by the CITES Appendix II listing, for any international trade
- Improved data on catches and discards.

areas. They have advised the IOTC to adopt precautionary conservation measures and work to improve data collection from fisheries. The IOTC scientific status report for this species mentions its listing under CITES, but not CMS.

CMS Parties reporting hammerhead landings (*Sphyrna lewini*, *Sphyrna mokarran*, and *Sphyrnidae*) for 2016 to FAO include Benin (845 t), Mozambique (839 t), Senegal (551 t), Republic of the Congo (539 t), Liberia (120 t), Sri Lanka (90 t), Mauritania (68 t), Togo (53 t), Côte d'Ivoire (30 t), Ecuador (5 t), and Guinea-Bissau (5 t).

Thresher sharks

Pelagic thresher (*Alopias pelagicus*), bigeye thresher (*A. superciliosus*), and common thresher (*A. vulpinus*)

GLOBAL STATUS

- Listed: CMS Appendix II in 2014 pursuant to a proposal from the European Union and its Member States
- Covered by the CMS Memorandum of Understanding for Conservation of Migratory Sharks
- Listed: CITES Appendix II in 2016 based on a proposal from many Parties including Bangladesh, Benin, Brazil, Burkina Faso, Dominican Republic, Egypt, European Union, Fiji, Gabon, Ghana, Guinea, Guinea-Bissau, Mauritania, Palau, Panama, Samoa, Senegal, Sri Lanka, and Ukraine
- IUCN Red List Status: Vulnerable

REGIONAL LEVEL PROGRESS

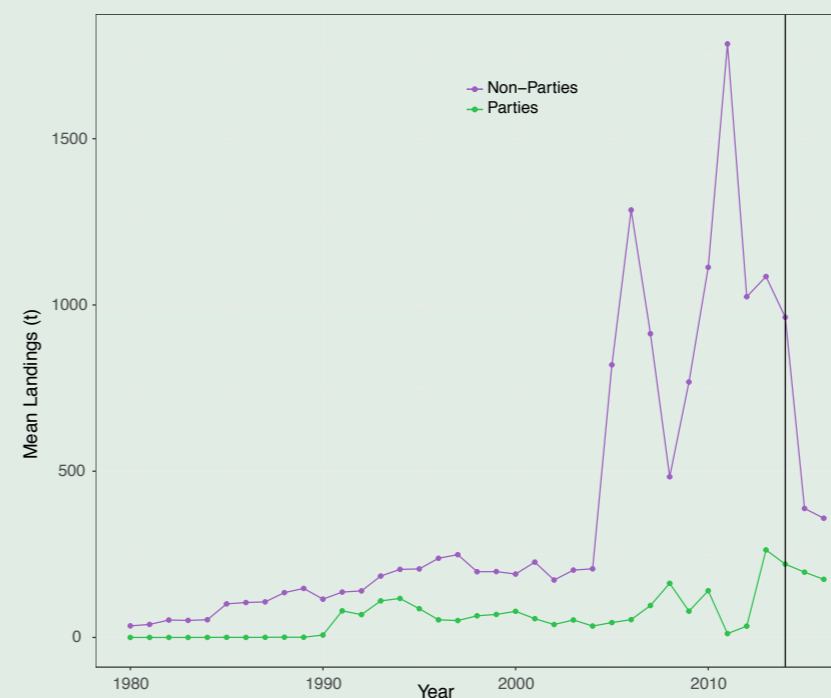
The Western and Central Pacific Fisheries Commission (WCPFC) designated thresher sharks as “Key Shark Species” (for data provision and assessment) in 2008.

In 2009, the Indian Ocean Tuna Commission (IOTC) adopted a binding measure prohibiting retention, transshipment, landing, storing, and sale of all thresher sharks, while promoting live release. IOTC scientists have issued status reports and management advice for relevant shark species²⁰. They cite considerable uncertainty with respect to the region’s pelagic and bigeye thresher sharks, owing in large part to poor compliance with catch reporting requirements, particularly with respect to discarded catches. Population status is unknown as there have been no quantitative regional assessments. The paucity of information hinders management, and the situation is not expected to improve in the short to medium term. There is information to suggest threshers may have been locally depleted in southern and eastern areas. In a 2012 regional Ecological Risk Assessment, pelagic and bigeye threshers ranked high (third and second, respectively) in terms of vulnerability to overfishing in longline fisheries yet low with respect to purse seine fisheries. Scientists have noted that maintaining or increasing fishing

© Norbert Probst/FLPA



²⁰ IOTC Working Party on Ecosystems and Bycatch. Available at: <http://www.iotc.org/science/wp/working-party-ecosystems-and-bycatch-wpeb>



Thresher sharks (combined FAO landings for *Alopias pelagicus*, *Alopias superciliosus*, *Alopias vulpinus*, and *Alopias* spp.)

CMS Parties (green line) and CMS Non-Parties (purple line) report thresher landings (in tonnes). The black line marks threshers’ listing on CMS Appendix II.

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

- Precautionary, science-based conservation measures, including stringent fishing limits, agreements through regional and bi-lateral cooperation, and complemented through national regulations
- Precautionary interim prohibitions on retention through the Western and Central Pacific Fisheries Commission and the Indian Ocean Tuna Commission, while regional scientific advice is developed
- Close examination of effectiveness and compliance associated with measures adopted by the Inter-American Tropical Tuna Commission and the International Commission for Conservation of Atlantic Tunas, followed by prescribed amendments
- Robust non-detriment finding documents and export permits, as mandated by the CITES Appendix II listing, for any international trade
- Improved data on catches and discards.

effort can result in declines, and have encouraged the IOTC to improve fisheries data collection. They have warned that the 2009 retention ban may be ineffective because of high hooking mortality, yet recommend the measure be maintained.

In a 2008 Ecological Risk Assessment (ERA) commissioned by the International Commission for Conservation of Atlantic Tunas (ICCAT), the bigeye thresher shark ranked first of 16 Atlantic elasmobranch species in terms of vulnerability to overfishing from longline gear. Later that year, in response, ICCAT adopted a binding measure requiring prompt release and minimal harm to bigeye threshers retrieved alive in ICCAT fisheries. ICCAT strengthened this measure in 2009 by prohibiting the species (parts or whole) from being retained, transshipped, landed, stored, sold, or offered for sale, with the exception of 110 sharks taken in Mexican small-scale coastal

fisheries. In the same measure, ICCAT discourages directed fisheries for other thresher shark species (common thresher as pelagic threshers do not occur in the Atlantic).

Thresher sharks ranked high in terms of vulnerability to overfishing in longline and purse seine fisheries, according to a 2017 report on a regional ERA conducted for the Inter-American Tropical Tuna Commission (IATTC). A 2016 WCPFC-led Pacific-wide risk assessment for bigeye thresher found pelagic longline impacts since 2000 were generally low, but above sustainable thresholds in some years.

CMS Parties reporting landings of thresher sharks (*Alopias pelagicus*, *Alopias superciliosus*, *Alopias vulpinus* and *Alopias* spp.) to FAO in 2016 include Ecuador (4839 t), France (37 t), New Zealand (14 t), UK (3 t), and South Africa (2 t).

Silky shark

Carcharhinus falciformis

GLOBAL STATUS

- Listed: CMS Appendix II in 2014 pursuant to a proposal from Egypt
- Covered by the CMS Memorandum of Understanding for Migratory Sharks
- Listed on CITES Appendix II in 2016 pursuant to a proposal from many Parties, including Bangladesh, Benin, Brazil, Burkina Faso, Dominican Republic, Egypt, European Union, Fiji, Gabon, Ghana, Guinea, Guinea-Bissau, Mauritania, Palau, Panama, Samoa, Senegal, Sri Lanka, and Ukraine
- IUCN Red List Status: Vulnerable

REGIONAL LEVEL PROGRESS

Prior to CMS listing, in 2011, the International Commission for the Conservation of Atlantic Tunas (ICCAT) prohibited retention, transshipment, and landing of silky sharks (parts or whole). Exceptions were made for local consumption in developing countries, provided they cap catches and ensure fins are not traded internationally, in addition to meeting catch data reporting requirements. Parties with domestic requirements to land all dead fish are also exempt, provided fishermen do not draw commercial profit.

The Western and Central Pacific Fisheries Commission (WCPFC) adopted a ban on retention, transshipment, storage, and landing of silky sharks (parts or whole) for fisheries covered by the Convention in 2013. The WCPFC designated the silky shark as a “Key Shark Species” (for data provision and assessment) in 2009.

In the same year that silky sharks were listed under CMS (2014), scientists associated with the Inter-American Tropical Tuna Commission (IATTC) were warning that the Eastern Pacific population was seriously overfished and fishing limits were immediately needed for rebuilding. IATTC measures for silky shark conservation have been advised and debated ever since, with conservation groups, but not governments, mentioning CMS commitments for the species in their arguments.

In 2014, based on scientists’ findings of overfishing, the EU proposed a ban on retention, transshipment, landing, storing, and sale that was not adopted. The next year (2015), the EU proposed a less stringent package of actions, including a retention ban for fisheries not targeting the species, time/area closures for directed fisheries, and limited take of juveniles, along with measures aimed at future quotas, bycatch mitigation, and increased observer coverage. This proposal was also unsuccessful, due largely to opposition from Costa Rica.



Silky shark (FAO landings for *Carcharhinus falciformis*)

CMS Parties (green line) and CMS Non-Parties (purple line) report silky shark landings (in tonnes). The black line marks the year the silky shark was listed on CMS Appendix II.

In 2016, the EU proposed silky shark measures based on the latest IATTC scientific advice to ban retention and ensure prompt, safe release of incidentally caught silky sharks, limit retention of juveniles to 20% of total silky shark catches per trip, and close targeted silky shark fisheries for three consecutive months of each calendar year. Instead, in addition to monitoring and reporting requirements, the IATTC adopted – for 2017, 2018, and 2019 – a ban on retention, transshipment, landing, and storage of silky sharks for purse seine fisheries, an interim 20% bycatch limit for longliners not targeting silky sharks, and a three-month ban on steel leaders for multispecies longliners unless the number of juveniles can be limited to 20% of catch. Exceptions apply to vessels under 12m that use manually-operated gear and do not deliver to motherships. The measure is up for reconsideration based on new information in 2019.

In 2018, WCPFC and IATTC scientists released the first Pacific-wide silky shark assessment. It highlighted uncertainty from data set conflicts yet noted indications of considerable population decline over the last 20 years.

The Indian Ocean Tuna Commission (IOTC) has recognized the deteriorating status of silky sharks

RECOMMENDATIONS FOR PRIORITY CONSERVATION ACTIONS

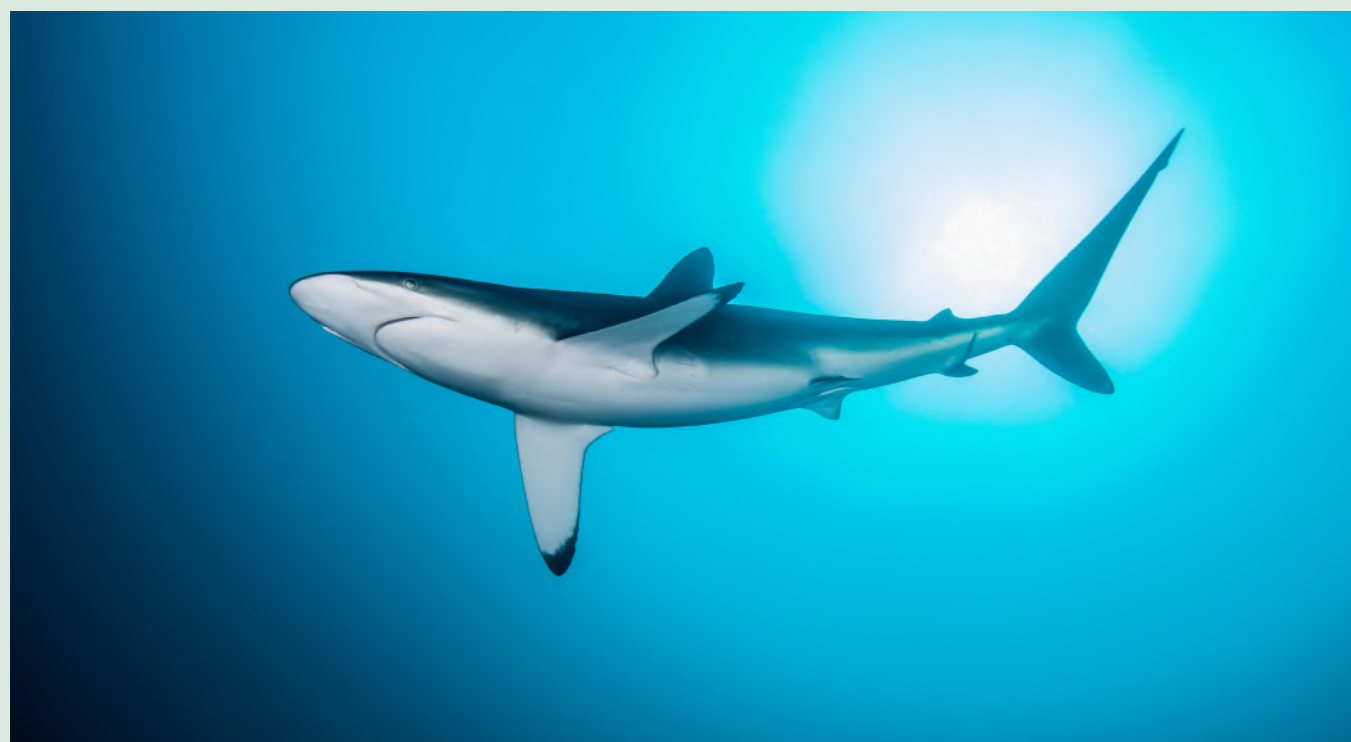
- A retention prohibition or stringent fishing limits through the Indian Ocean Tuna Commission, led or supported by all relevant CMS Parties
- Implementation at the national level for conservation measures agreed through other Regional Fishery Management Organizations (RFMOs)
- Careful monitoring of compliance and effectiveness of RFMO measures, followed by improvements based on new information
- Continued research and management action aimed at minimizing incidental mortality in fisheries
- Robust non-detriment finding documents and associated export permits, as mandated by the CITES Appendix II listing, for any international trade
- Improved data on catches and discards.

in the Indian Ocean, but has yet to adopt measures to safeguard the species²¹. IOTC scientists have issued status reports and management advice for relevant shark species. They cite considerable uncertainty with respect to the region’s silky sharks, owing in large part to poor compliance with catch reporting requirements. The population status is unknown as there has been no quantitative regional assessment. The paucity of information hinders management. In a 2012 regional Ecological Risk Assessment, silky sharks ranked high in terms of vulnerability to overfishing in longline and purse seine fisheries (fourth and second, respectively). Scientists cite anecdotal information suggesting that silky shark abundance has declined over recent decades, and the species may be locally depleted in southern and eastern areas. They have warned against maintaining or increasing fishing effort, and have advised the IOTC to adopt precautionary conservation measures and work to improve data collection from fisheries.

CMS Parties reporting silky shark (*Carcharhinus falciformis*) landings to FAO in 2016 include Costa Rica (1239 t), Ecuador (687 t), Sri Lanka (647 t), Iran (523 t).

²¹ IOTC Working Party on Ecosystems and Bycatch. Available at: <http://www.iotc.org/science/wp/working-party-ecosystems-and-bycatch-wpeb>

© Cultura Creative/Alamy



7.

Conclusions

For vulnerable sharks and rays, CMS offers great potential as a driver of national protections and a platform for regional conservation. Special aspects of the CMS treaty – particularly the ability for non-Parties to engage in agreements and the possibility for those agreements to address a suite of threats – are strengths that bolster hope for meaningful results. To date, however, implementation of the elasmobranch listings on the CMS Appendices, and related progress through the Sharks MoU, have been disappointing.

Overall, according to our analysis, only 28% of CMS Parties have met their obligations to strictly protect Appendix I-listed elasmobranchs in their waters (through species-specific restrictions). An additional 33% of Parties had protections in place for some but not all relevant Appendix I-listed species. Many of these protections, particularly with respect to sawfishes, were in place before the species were listed under CMS. For 39% of Parties, we confirmed the complete absence of Appendix I elasmobranch species protections or could find no evidence of such measures.

Most of the CMS Appendix II-listed elasmobranchs are addressed in some way by RFMOs and/or included in the CITES Appendices. While CMS listing is used regularly to argue for CITES listing, we found almost no mention of CMS in RFMO documents. With the possible exception of EU efforts to secure regional retention bans for mobulid rays, we have detected no evidence that CMS listings have been a driver of RFMO elasmobranch initiatives.

The lack of a strong, overarching CMS compliance mechanism and inadequate capacity within developing countries appear to be major reasons

for poor performance on concrete shark and ray protections. While the latter continues to need greater attention, the new Review Mechanism and National Legislation Program, adopted in 2017, offers hope for significantly improving compliance. Other contributing factors appear to include insufficient resources within the Secretariat, a lack of clarity with respect to the binding nature of CMS listings (in contrast to the voluntary nature of the Sharks MoU), confusion over a Party's Range State status with respect to listed species, and tepid reaction to non-compliance from the conservation community (to date).

The reluctance by most people involved in CMS (from various sectors) to engage in fisheries management is clear yet untenable, given that overfishing is the number one threat to sharks and rays. There are many possible options for CMS initiatives that bridge these gaps and facilitate real progress. Specifically highlighting and directly addressing countries' inadequacies with respect to fishing limits is critical for improving population status. Essential to any successful CMS shark initiative will be improved coordination between national fisheries and environment officials. Some Parties have developed internal liaison systems that can serve as models for others.

Most of the CMS-listed elasmobranchs remain seriously threatened and in urgent need of greater protection. All players – from Party governments to the Secretariat to non-government organizations – have important roles to play in enhancing the effectiveness of CMS elasmobranch conservation initiatives and thereby contributing to a brighter future for these vulnerable, valuable species. To that end, we offer specific recommendations for improvement.

© Tonya Wiley



8.

Recommendations

For CMS Parties & MoU Signatories:

- Immediately promulgate regulations to prohibit retention and mandate prompt, careful release of shark and ray species listed on Appendix I (sawfishes and mobulid rays)
- Develop educational programs to maximize the effectiveness of these protections
- Prioritize enforcement of Appendix I species protections
- Ensure compliance with relevant RFMO shark and ray measures, including mandatory catch data reporting
- Where applicable, pursue membership in all RFMOs relevant to sharks and rays fished by your nation's vessels
- Spearhead cooperative, multinational initiatives to secure and/or improve RFMO measures for CMS-listed sharks and rays, based on available scientific advice and the precautionary approach
- (Non-Parties) Consider becoming a CMS Party
- (Non-Signatories) Become a Signatory to the Sharks MoU
- Work with other countries, the CMS Secretariat, and Cooperating Partners to refine existing "Concerted Actions" documents and develop new ones for other listed elasmobranchs.

For Other Shark Fishing/Trading Nations:

- Become a Party to CMS
- Become a Signatory to the CMS Sharks MoU
- Implement relevant associated directives, as a matter of priority.

For the CMS Secretariat:

- Prioritize the effective implementation of CMS shark listings
- Raise or allot funds to employ at least one designated liaison to RFMOs
- Clarify and publicize Parties' shark-related commitments, particularly the legally binding obligations associated with the Appendices, and expectations for species on Appendix II
- Develop a publicly-accessible database of Parties' National Reports to ease review of CMS obligations and compliance
- Consider the website interface improvements described above
- To ensure Parties are aware of their obligations, harmonize and maintain an up-to-date elasmobranch Range State list on the CMS website, and actively report changes to relevant Parties
- With respect to National Reports, revise surveys with a view toward clear, targeted questions that will elicit the most important and useful information on priority topics

- Encourage Parties, Sharks MoU Signatories, and Cooperating Partners to refine existing "Concerted Actions" documents and develop new ones for other listed elasmobranchs
- Request the Scientific Council to resolve ambiguous Range State status prior to consideration of proposals at CoPs
- Signify the Parties that identified as Range States based on flag vessel catches
- Amend the process for technical review of proposals to allow CMS-affiliated shark experts to provide input prior to Science Council evaluation and CoP
- Compile, highlight, and encourage sources and opportunities for developing countries to build shark conservation capacity (financial, scientific, and legal assistance)
- Explore creative, positive mechanisms to motivate Parties to enhance shark conservation progress, possibly modeled after specific, public commitments showcased through other UN ocean initiatives.

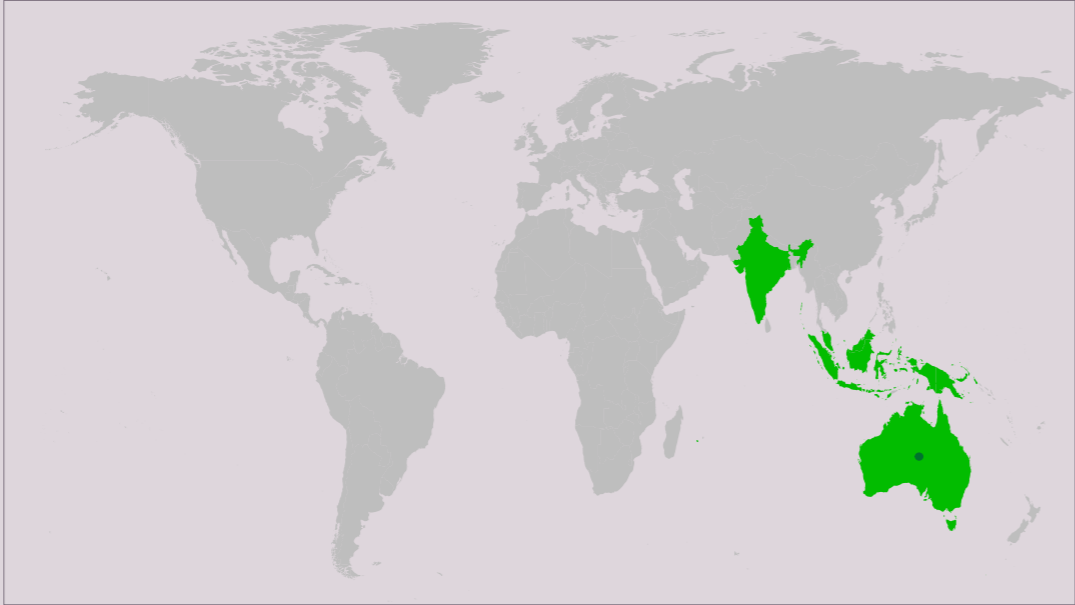
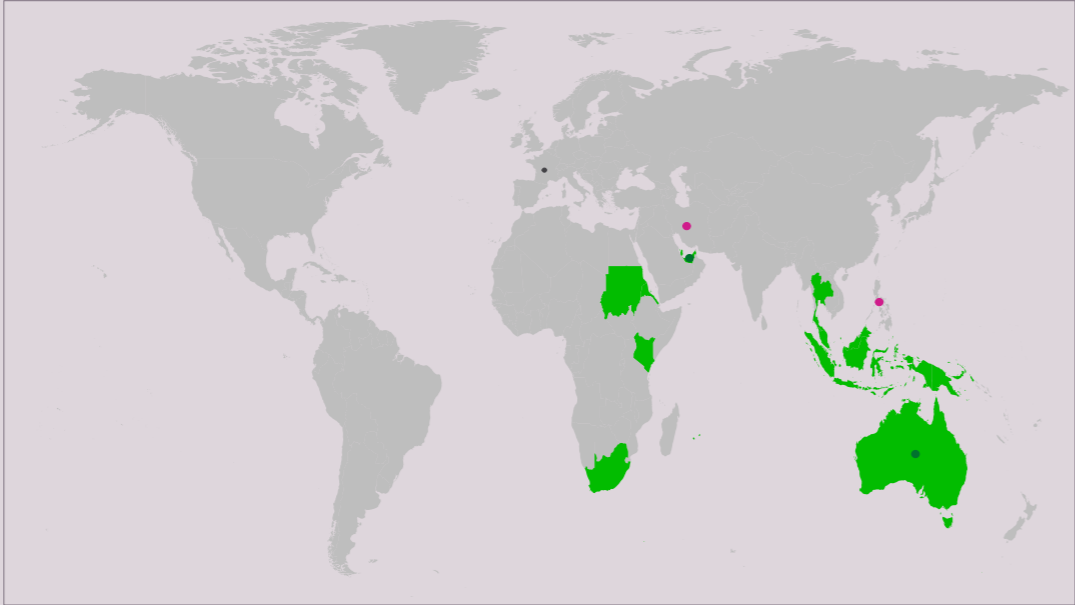
For Conservation Organizations:

- To the extent possible, engage in targeted efforts toward effective implementation of CMS obligations for listed sharks and rays, and fulfillment of Sharks MoU Signatories' commitments
- Amplify efforts to bridge the gap between biodiversity and fisheries arenas
- Maximize conservation benefit by matching treaty focus and potential to particular threats faced by a shark species of concern
- Given CMS limitations and record for fulfilling shark obligations to date, prioritize more effective listing implementation of existing commitments over new listings
- Help to realize the shark conservation potential of CMS beyond serving as a precursor to CITES listings, particularly opportunities to promote domestic fishing limits and conserve habitats
- Work with the CMS Secretariat and Parties, as well as Sharks MoU Signatories and Cooperating Partners to refine existing "Concerted Actions" documents and develop new ones for other listed elasmobranchs
- Consider detailing and expressing concerns over inadequate compliance through the new CMS review mechanism
- Continue to expand perceptions of sharks and grow constituencies for the many imperiled species perceived as lacking charisma
- Become a Cooperating Partner for the CMS Sharks MoU.



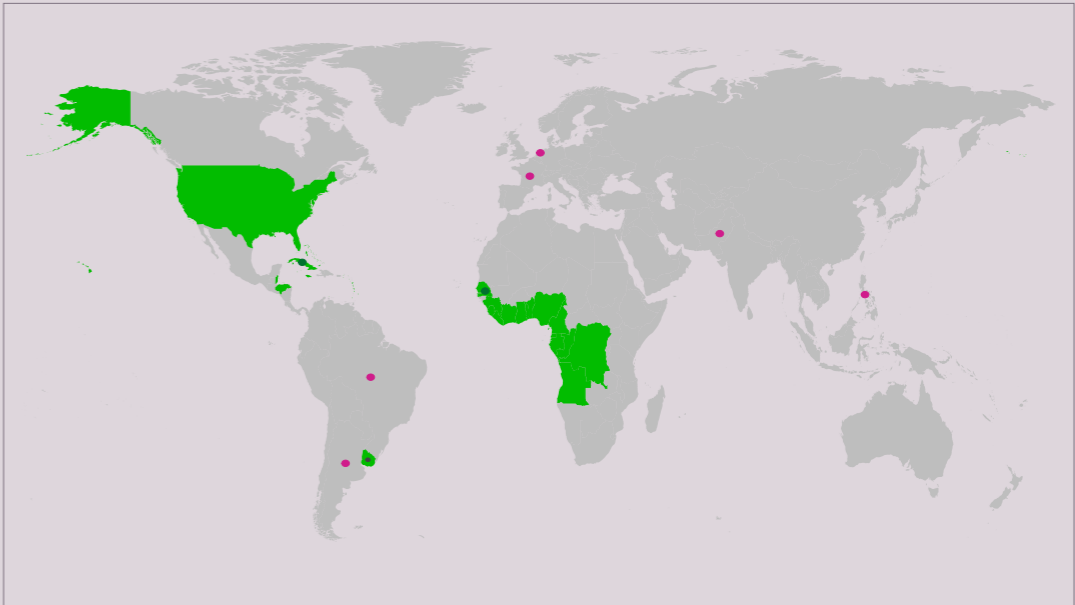
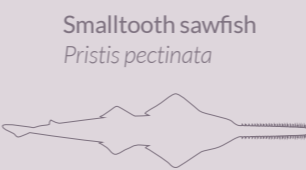
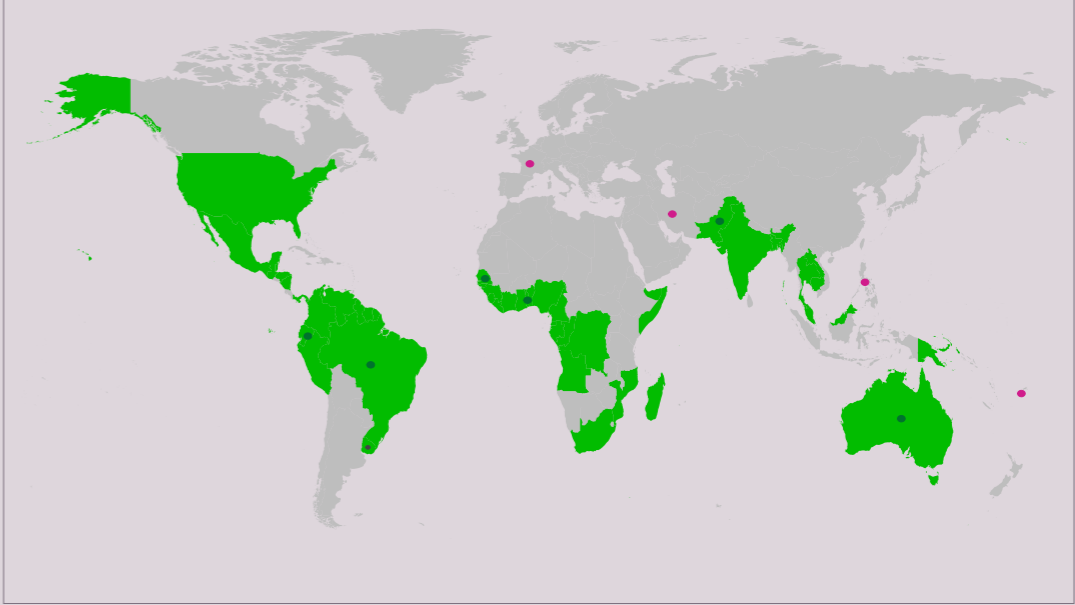
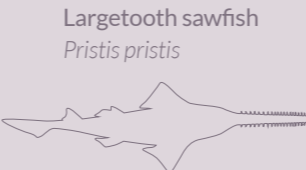
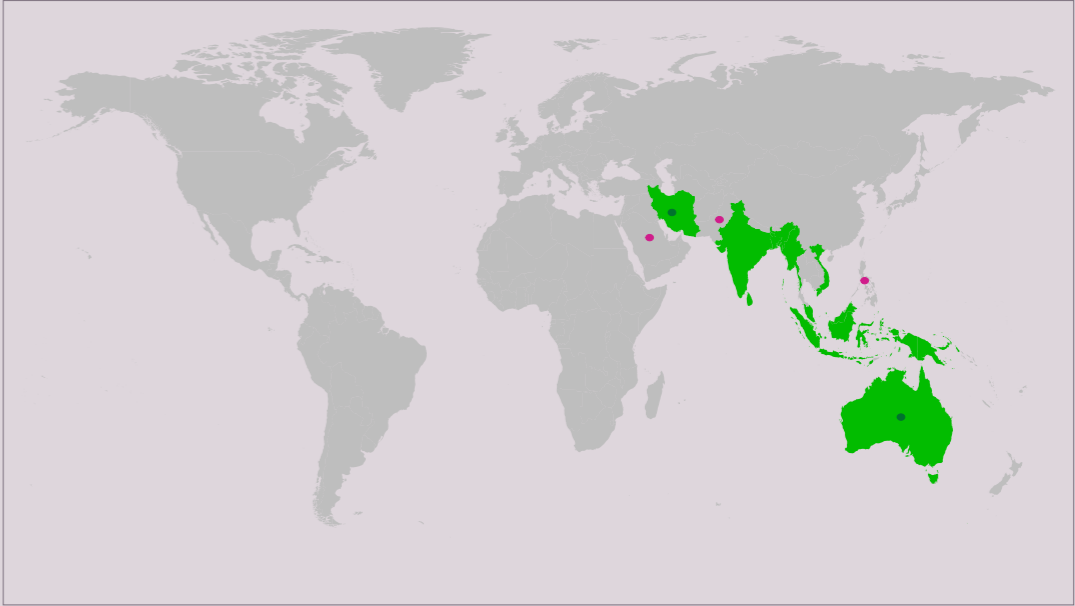
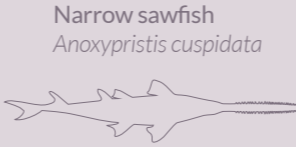
Appendix 1: CMS Appendix I & II species maps

Sawfishes Family Pristidae



MAP LEGEND

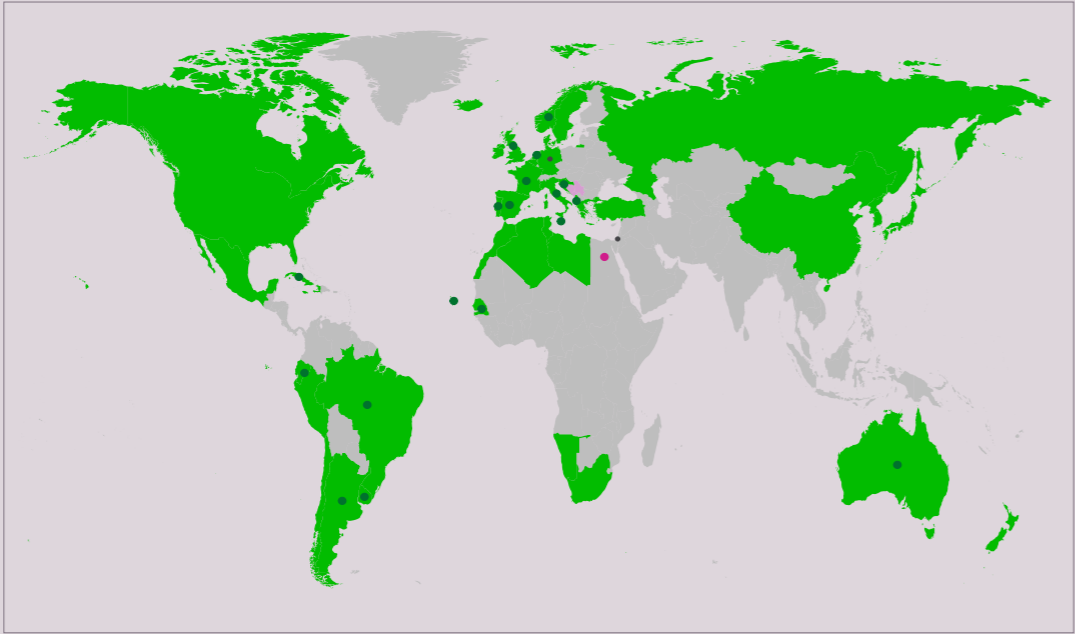
N/A	National Report Range State, CMS Range State
Confirmed Range State (proposal, website)	National Report Range State, CMS status unclear
	National Report not a Range State



Basking shark

Cetorhinus maximus

Basking shark
Cetorhinus maximus



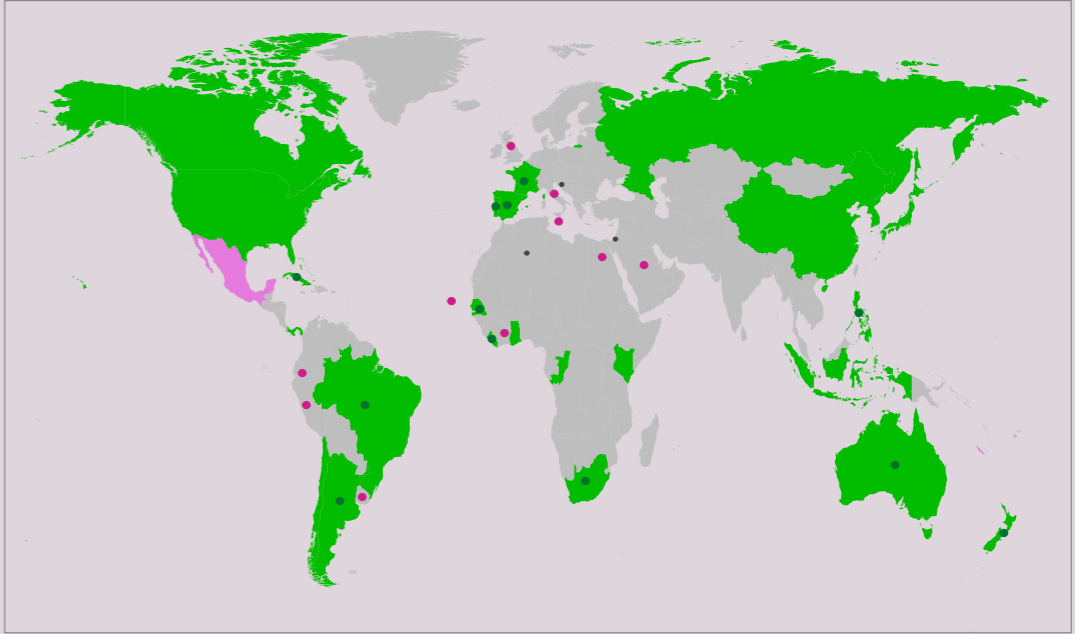
MAP LEGEND

- N/A
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

White sharks

Carcharodon carcharias

Great white shark,
White shark
Carcharodon carcharias



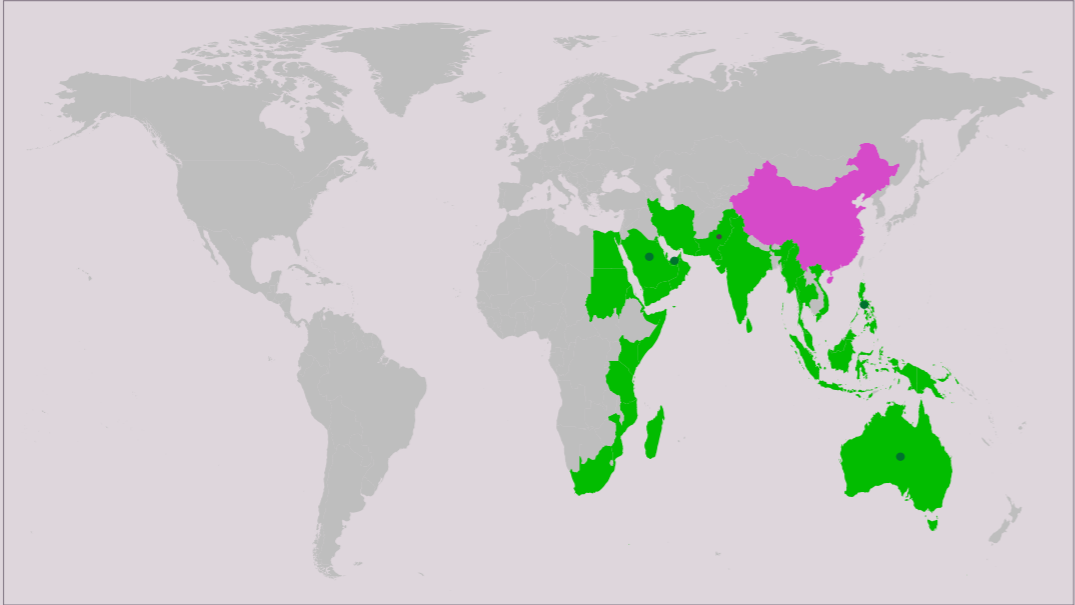
MAP LEGEND

- N/A
- Range State in CMS proposal only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

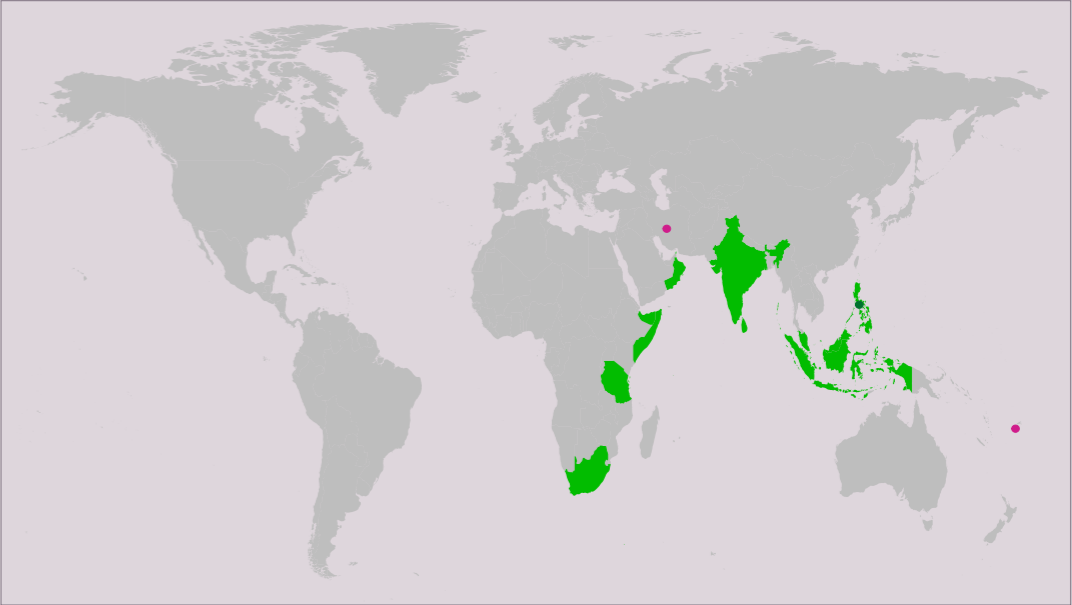
Manta and devil rays

Family Mobulidae

Pygmy devil ray,
Longhorned
devil ray
Mobula eregoodootenkee



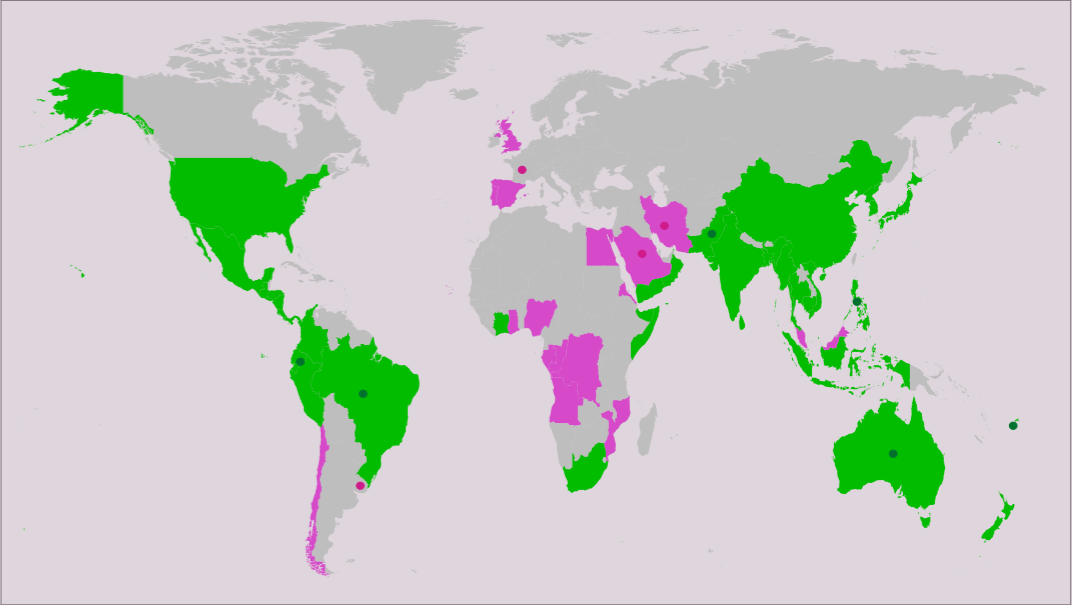
Shortfin devil ray,
Lesser devil ray
Mobula kuhlii



Munks devil ray,
Pygmy devil ray,
Smoothtail mobula
Mobula munkiana



Spinetail mobula,
Spinetail devil ray,
Japanese devil ray
Mobula japonica



MAP LEGEND

- N/A
- Range State in CMS proposal only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

MAP LEGEND

- N/A
- Range State in CMS proposal only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

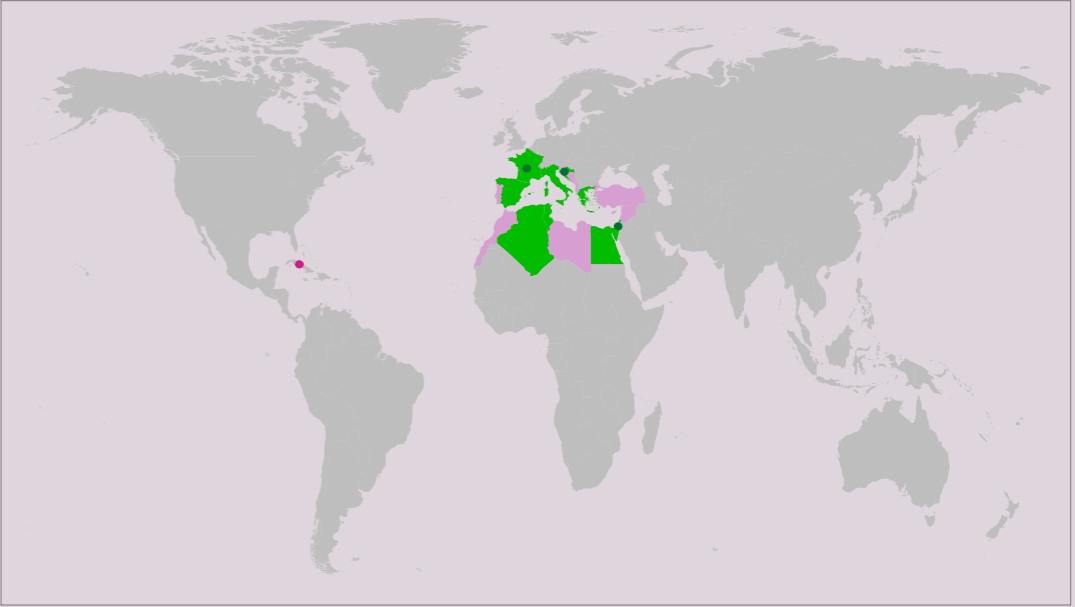
Manta and devil rays

Family Mobulidae

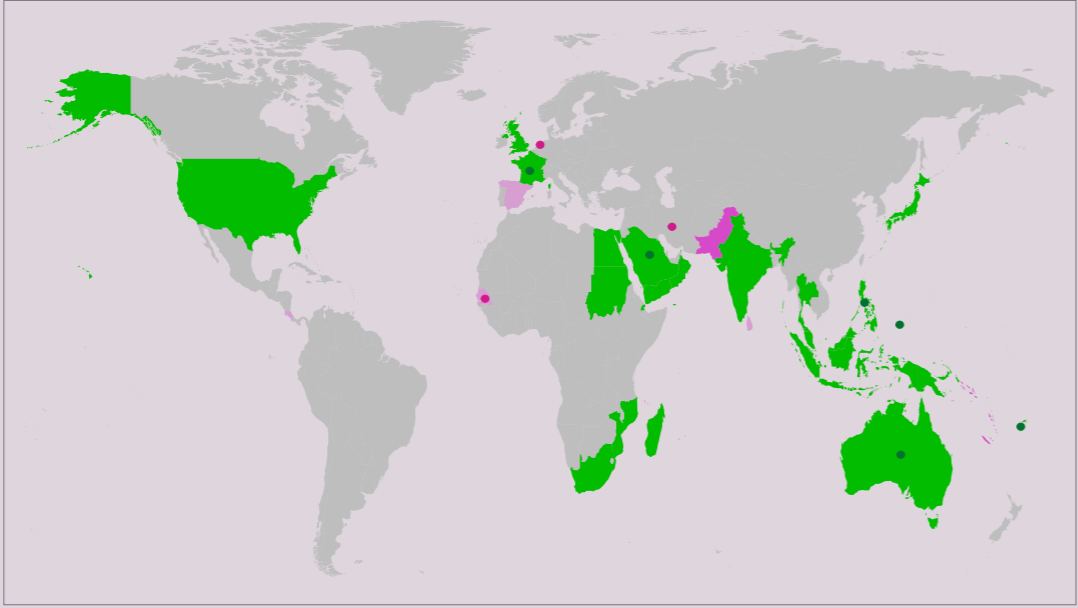
Atlantic devil ray,
Lesser devil ray
Mobula hypostoma



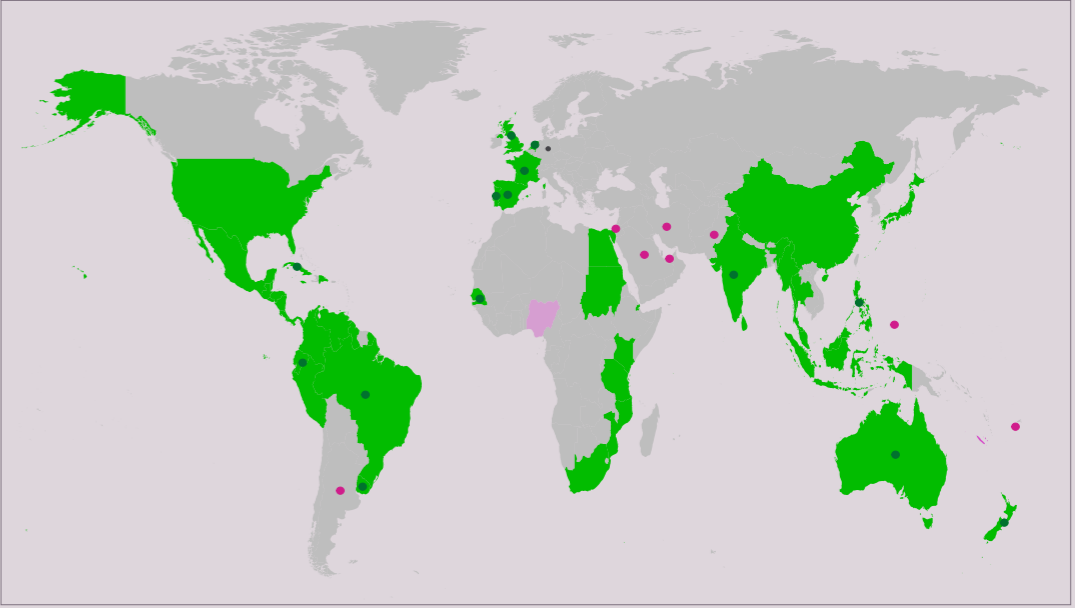
Giant devil ray
Mobula mobular



Reef manta ray,
Prince Alfreds ray,
Inshore manta ray,
Coastal manta ray,
Resident manta ray
Manta alfredi



Oceanic manta ray
Manta birostris



MAP LEGEND

- N/A
- Range State in CMS proposal only
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

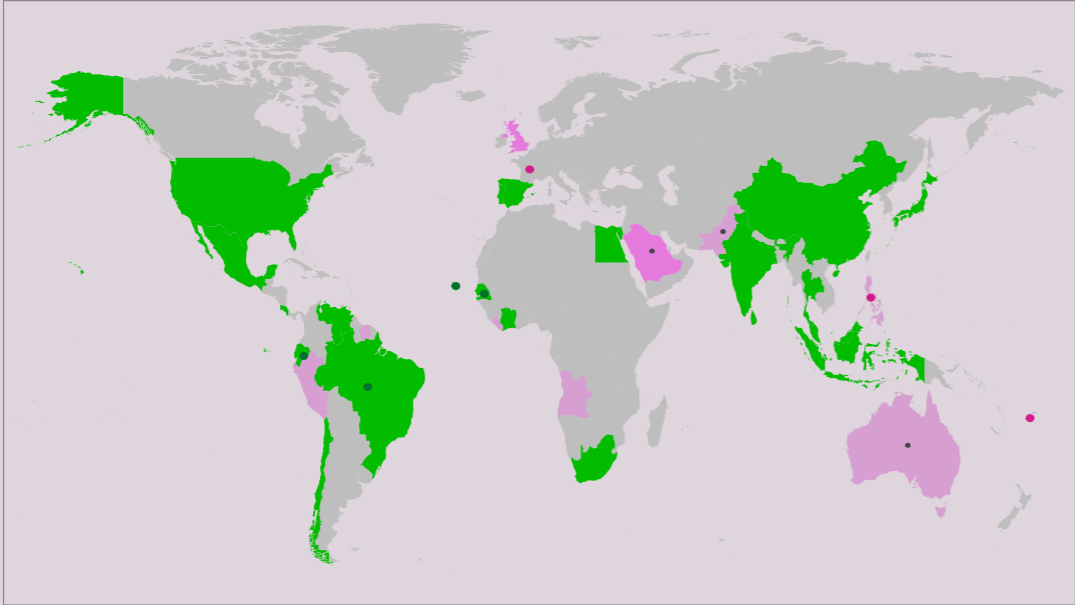
MAP LEGEND

- N/A
- Range State in CMS proposal only
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

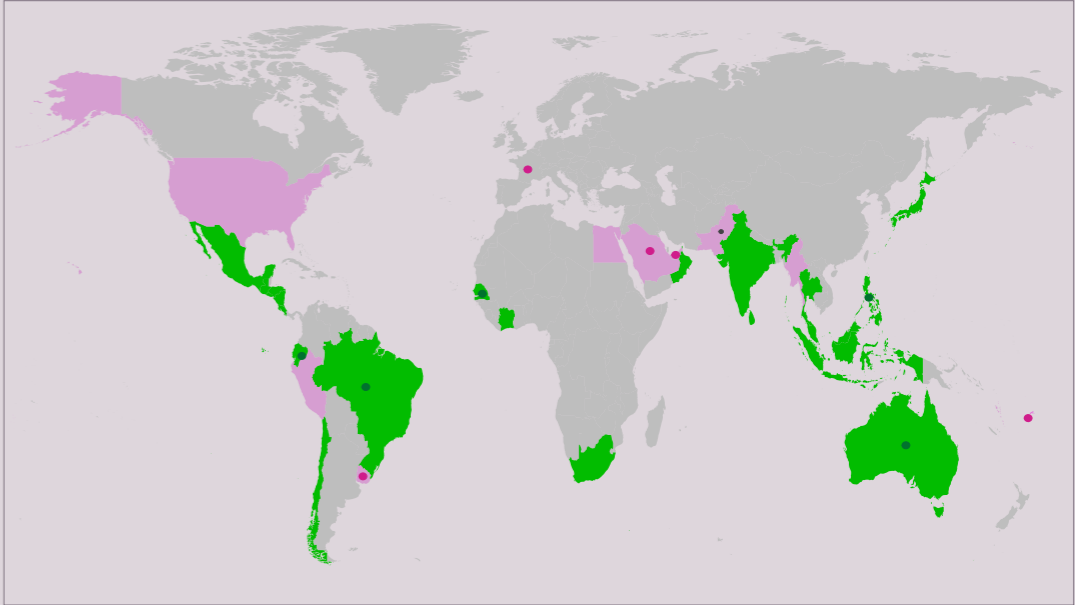
Manta and devil rays

Family Mobulidae

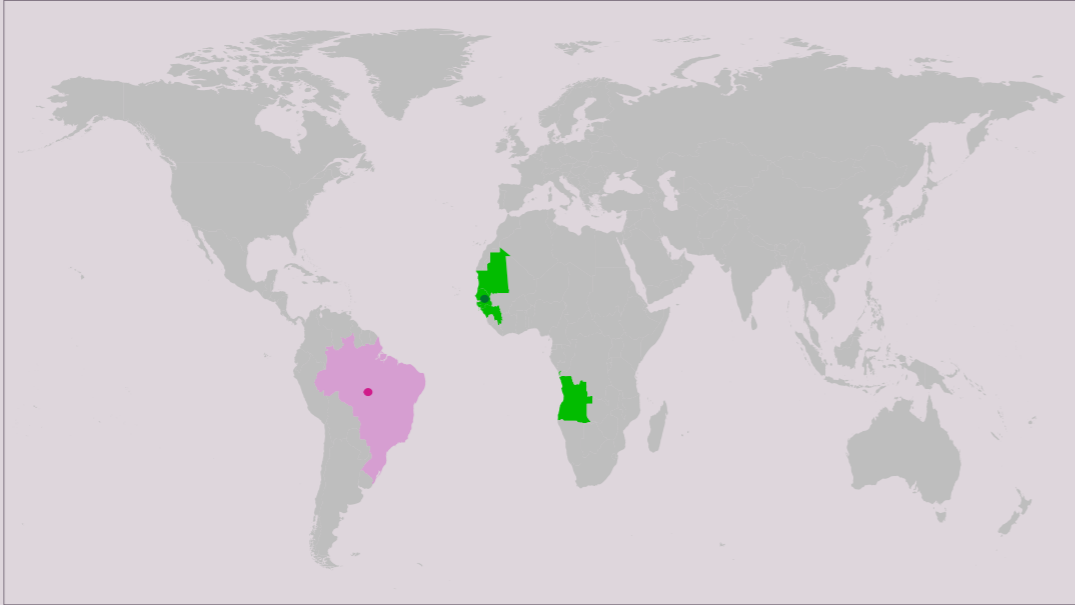
Chilean devil ray
Mobula tarapacana



Bentfin devil ray
Mobula thurstoni



Lesser Guinean devil ray
Mobula rochebrunei



MAP LEGEND

- N/A
- Range State in CMS proposal only
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

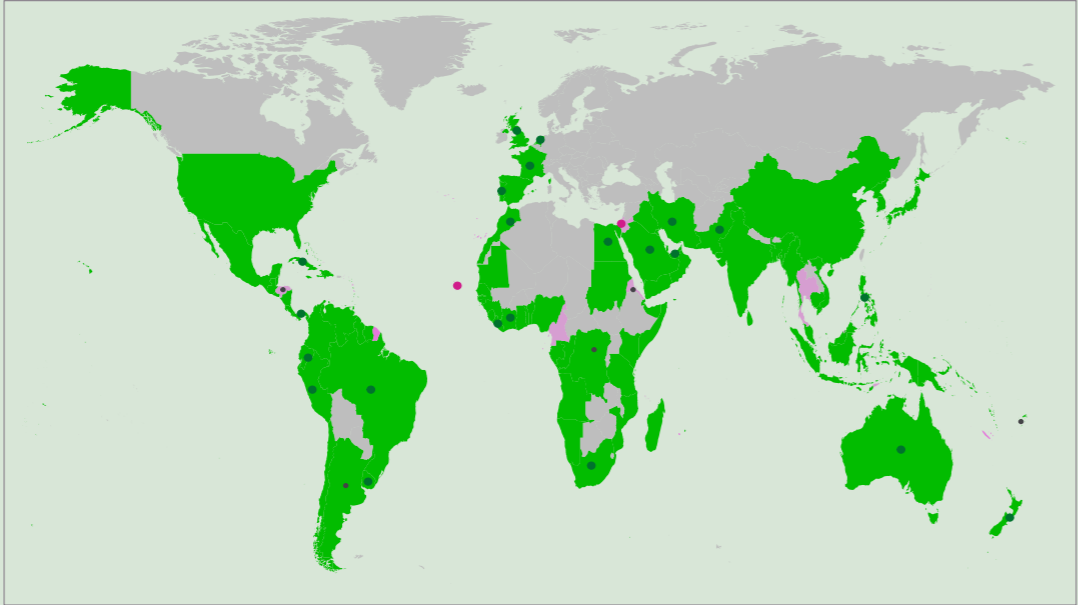
MAP LEGEND

- N/A
- Range State in CMS proposal only
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

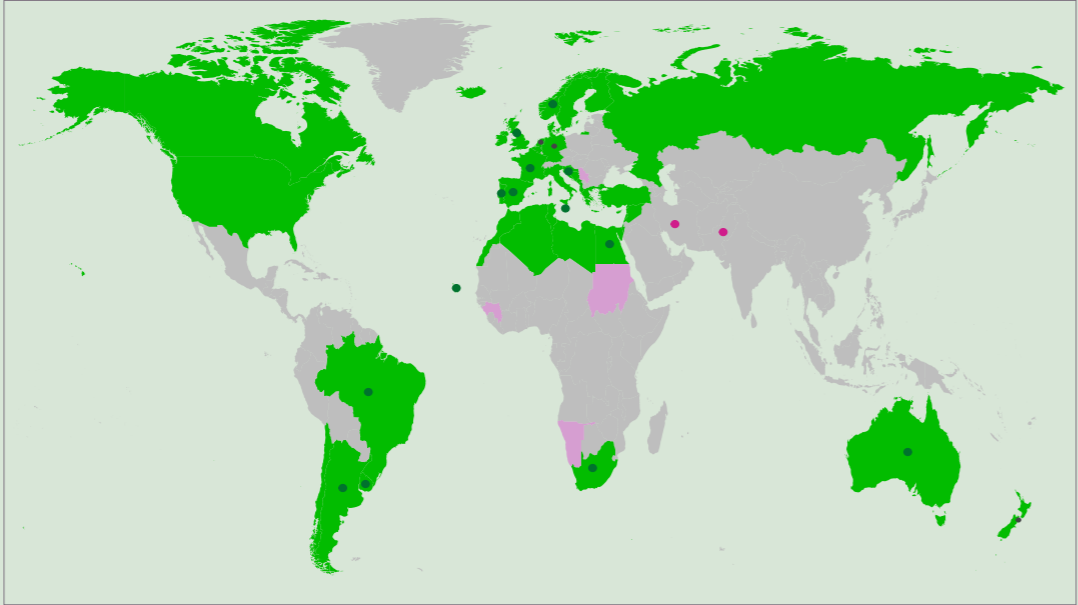
Appendix 2: CMS Appendix II species maps

Whale shark *Rhincodon typus*
Porbeagle shark *Lamna nasus*

Whale shark
Rhincodon typus



Porbeagle
Lamna nasus

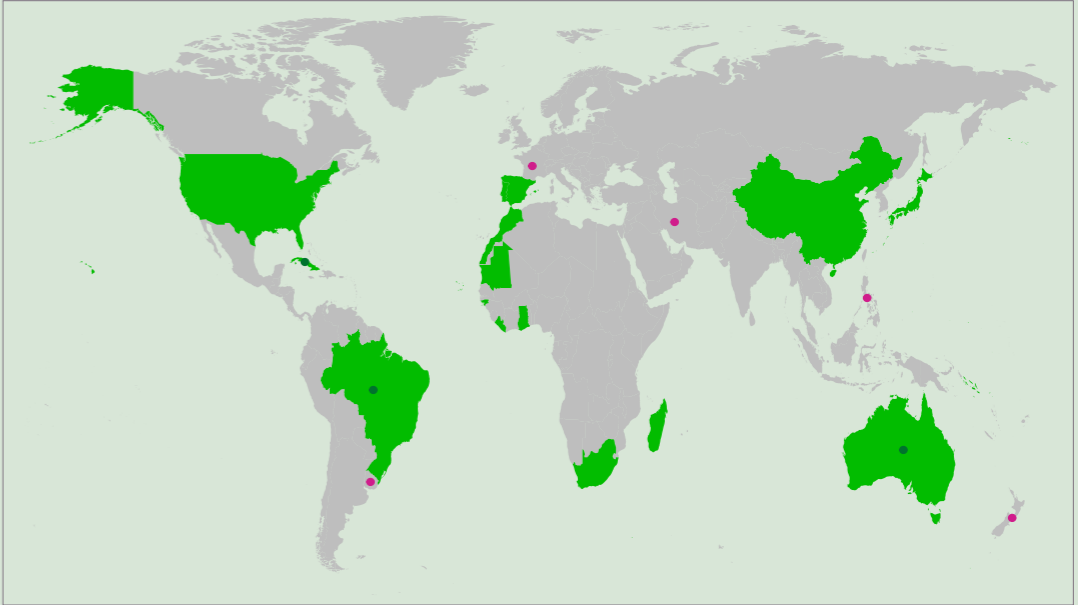


MAP LEGEND

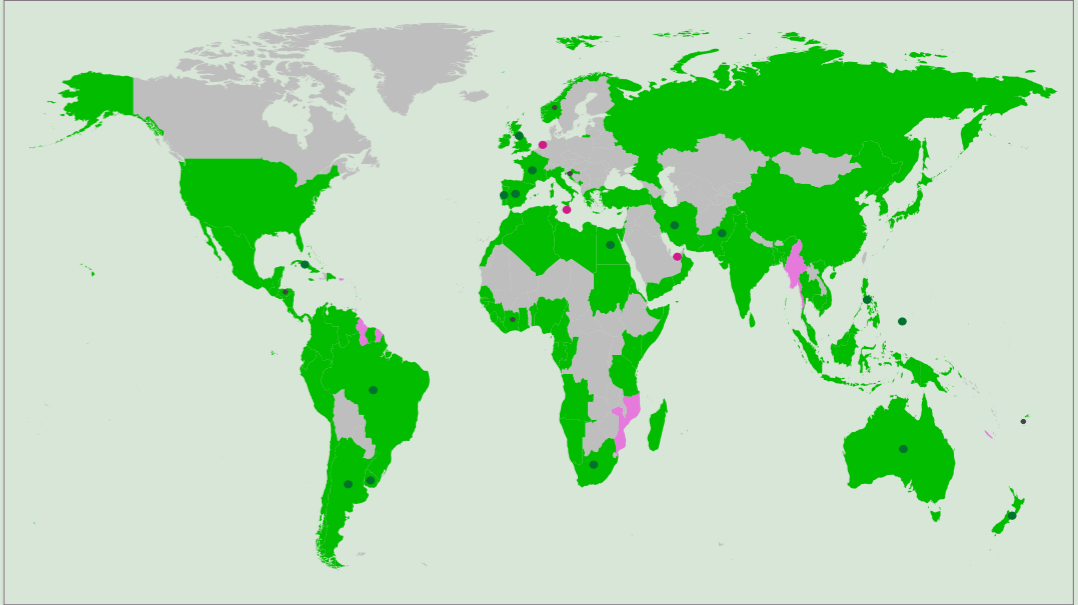
- N/A
- Range State in CMS proposal only
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

Mako sharks
Isurus spp.

Longfin mako shark
Isurus paucus



Shortfin mako shark
Isurus oxyrinchus



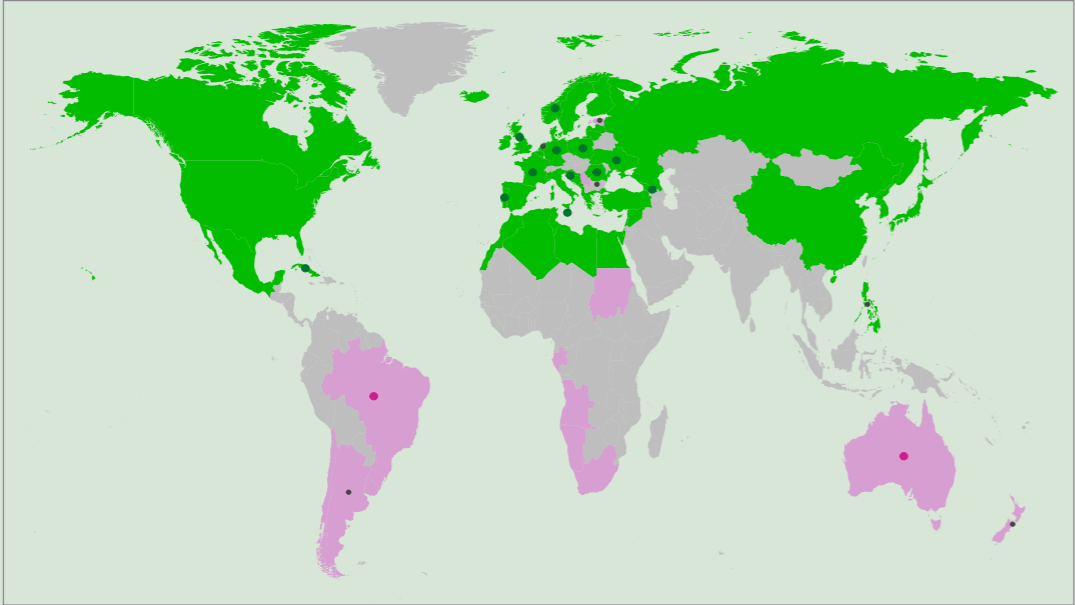
MAP LEGEND

- N/A
- Range State in CMS proposal only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

Spiny dogfish

Squalus acanthias

Spiny dogfish,
Spurdog, Piked dogfish
Squalus acanthias
Northern hemisphere
populations



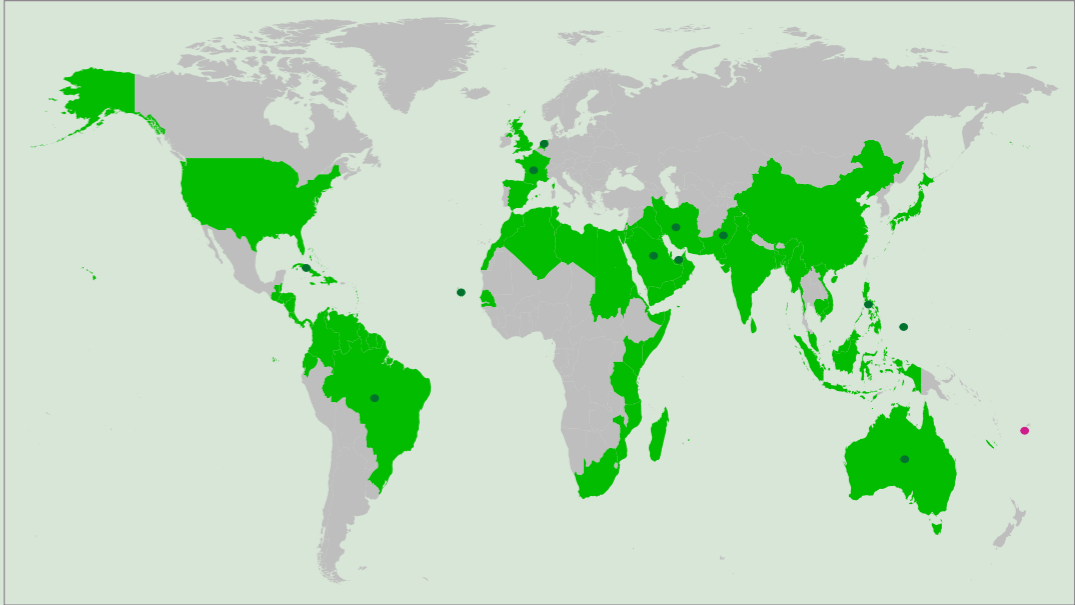
MAP LEGEND

- N/A
- Range State on CMS website only
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

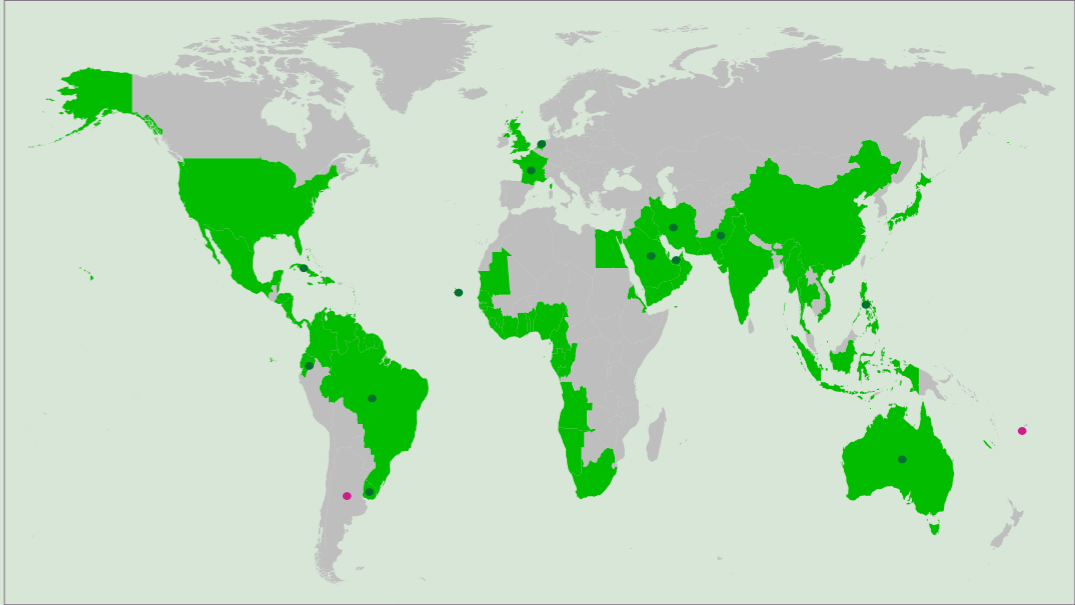
Hammerhead sharks

Sphyrna spp.

Great hammerhead
shark
Sphyrna mokarran



Scalloped
hammerhead shark
Sphyrna lewini

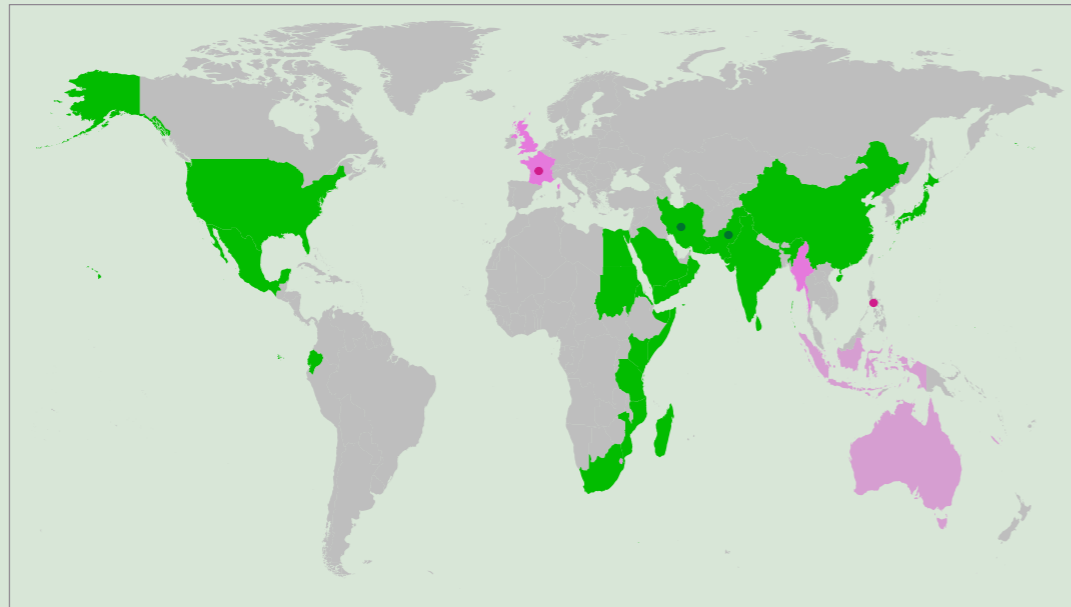


MAP LEGEND

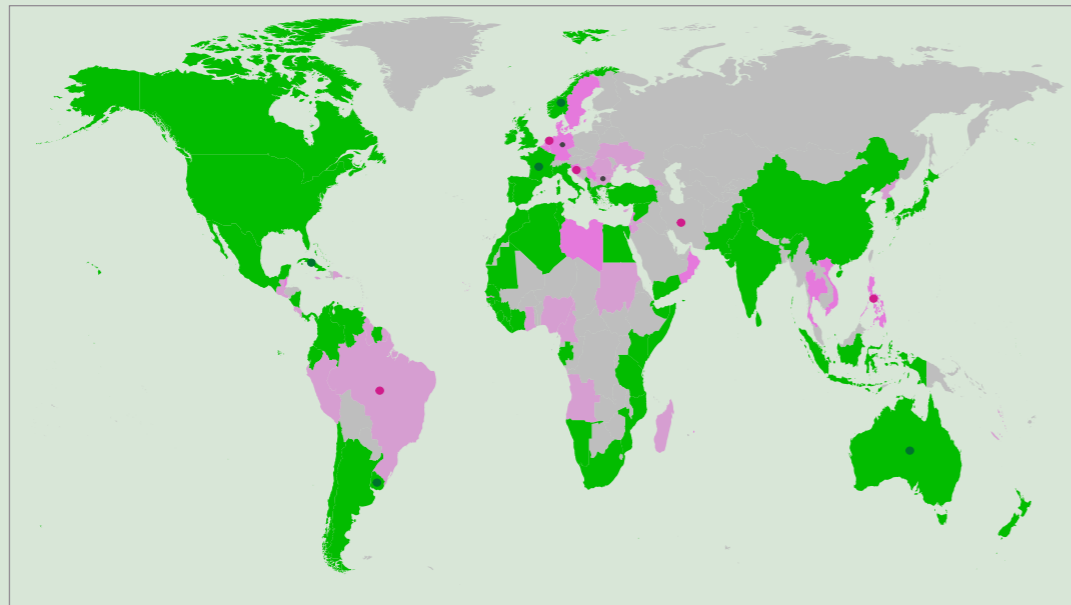
- N/A
- Confirmed Range State (proposal, website)
- National Report Range State, CMS Range State
- National Report Range State, CMS status unclear
- National Report not a Range State

Pelagic thresher shark *Alopias pelagicus*
Common thresher shark *Alopias vulpinus*

Pelagic thresher shark
Alopias pelagicus



Common thresher shark
Alopias vulpinus

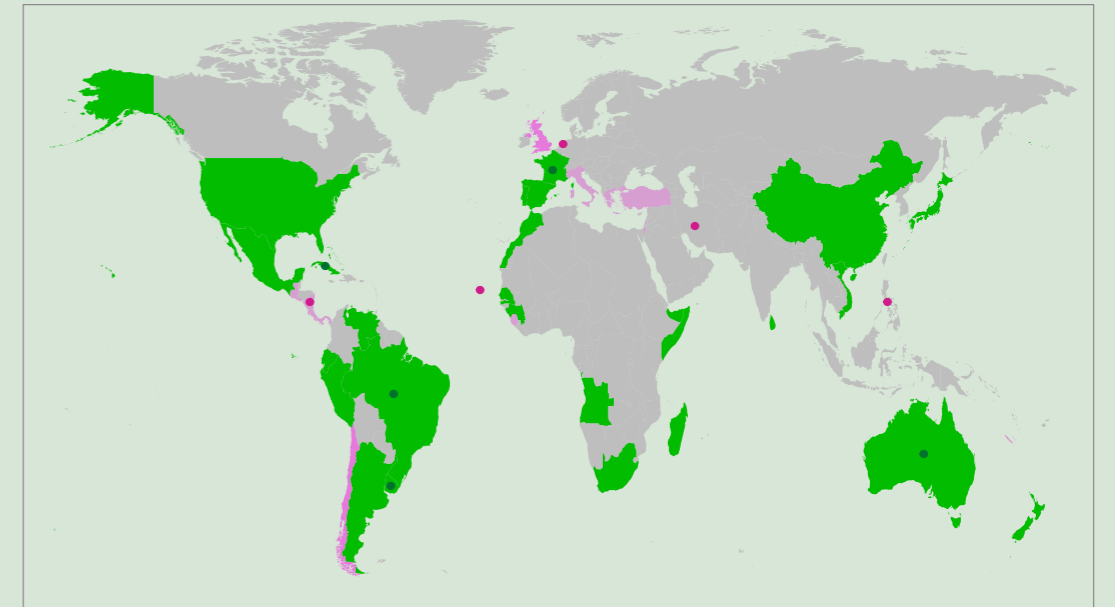


MAP LEGEND

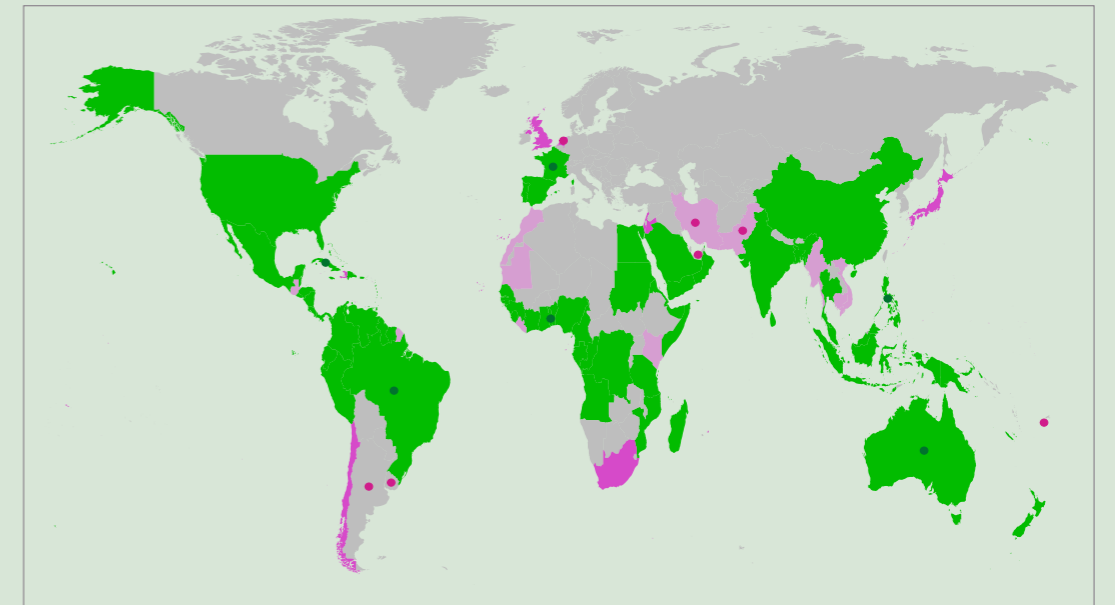
- N/A
- Confirmed Range State (proposal, website)
- Range State in CMS proposal only
- National Report Range State, CMS Range State
- Range State on CMS website only
- National Report Range State, CMS status unclear
- National Report not a Range State

Bigeye thresher shark *Alopias superciliosus*
Silky shark *Carcharhinus falciformis*

Bigeye thresher shark
Alopias superciliosus



Silky shark
Carcharhinus falciformis



MAP LEGEND

- N/A
- Confirmed Range State (proposal, website)
- Range State in CMS proposal only
- National Report Range State, CMS Range State
- Range State on CMS website only
- National Report Range State, CMS status unclear
- National Report not a Range State



Shark Advocates International (SAI) is a project of The Ocean Foundation dedicated to securing science-based policies for sharks and rays. Julia Lawson is an SAI fellow; Sonja Fordham is SAI's founder.

sharkadvocates.org

oceanfdn.org

The following organizations endorse this report and endeavor to help implement its recommendations:



The Shark Trust is a UK charity working to safeguard the future of sharks through positive change.

sharktrust.org



Defenders of Wildlife is dedicated to the protection of all native animals and plants in their natural communities.

defenders.org



Where Conservation Meets AdventureSM

projectaware.org



**Shark
Conservation
Fund**

This project was funded by the Shark Conservation Fund.