



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

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**Gap analysis of activities for the conservation of species listed in Annex 1 under
relevant fisheries related bodies**

(Prepared by S L Fowler)

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**Gap analysis of activities for the conservation of species listed in Annex 1
under relevant fisheries related bodies**

Document prepared for the
First Meeting of the Sharks MOU Conservation Working Group
(CWG1)
Bristol, UK, 31 October – 1 November 2016

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Abbreviations and acronyms

ABNJ	Areas Beyond National Jurisdiction
APFIC	Asia-Pacific Fishery Commission
BOBLME	Bay of Bengal Large Marine Ecosystem
CBD	Convention on Biological Diversity
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources
CCMs	Commission Members, Cooperating Non-members, and Participating Territories\
CCPS	Comisión Permanente del Pacífico Sur
CCSBT	Commission for the Conservation of Southern Bluefin Tuna
CECAF	Fishery Committee for the Eastern Central Atlantic
CFP	Common Fisheries Policy (European Union)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CMMs	Conservation and Management Measures (as adopted by RFMOs)
CMS	Convention on the Conservation of Migratory Species of Wild Animals
Code	FAO Code of Conduct for Responsible Fisheries
COFI	Committee on Fisheries (FAO)
COP	Conference of the Parties (Member States of the treaty)
CP	Contracting Party
CPCs	Contracting Parties and Cooperating Non-Contracting Parties (Non-Members)
CPPS	Permanent Commission for the South Pacific
CSRP	Subregional Fisheries Commission (West Africa)
CTMFM	Comisión Técnica Mixta del Frente Marítimo
CWG	Conservation Working Group
EAF	Ecosystem approach to fisheries
EC	European Commission
EEZ	Exclusive economic zone
EU	European Union
EU-POA	European Union Plan of Action
FAO	Food and Agriculture Organization of the United Nations
FAO COFI	FAO Committee on Fisheries
FCWC	Fishery Committee of the West Central Gulf of Guinea
GCC	Permanent Committee of Fish Resources of RECOFI
GEF	Global Environment Facility
GFCM	General Fisheries Commission for the Mediterranean
GSRI	Global Sharks and Rays Initiative
IATTC	Inter-American Tropical Tuna Commission
ICCAT	International Commission for the Conservation of Atlantic Tunas
ICES	International Council for the Exploration of the Sea
IGO	Intergovernmental Organization
IOTC	Indian Ocean Tuna Commission

IPOA	(FAO) International Plan of Action
IPOA-Sharks	FAO International Plan of Action for the Conservation and Management of Sharks
IUCN	International Union for Conservation of Nature
IUU	Illegal, unreported and unregulated (fishing)
LME	Large Marine Ecosystem
MCS	Monitoring, control and surveillance
MEA	Multilateral Environmental Agreement
MPA	Marine Protected Area
NAFO	Northwest Atlantic Fisheries Organization
NEAFC	North East Atlantic Fisheries Commission
NEI	Not elsewhere included
NGO	Non-governmental organization
NPOA	(FAO) National Plan of Action
NPOA IUU	National plan of action to combat illegal, unreported and unregulated fishing
NPOA Sharks	National Plan of Action for the Conservation and Management of Sharks
OLDEPESCA	Latin American Organization for Fisheries Development
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden
POA	Plan of Action
PSMA	FAO Port State Measures Agreement
RECOFI	Regional Commission for Fisheries (regional fishery body for the Gulf)
RFB	Regional Fisheries Body
RFMO	Regional Fisheries Management Organization
RPOA	(FAO) Regional Plan of Action
RSP	Regional Seas Programme of the United Nations Environment Programme (UNEP)
RSPAC	Regional Seas Programme and/or Action Plan of the United Nations Environment Programme (UNEP)
SCMFMCSG	Sub-Regional Cooperation in Marine Fisheries Monitoring, Control and Surveillance in the Southern Gulf of Guinea on the Harmonisation of Fisheries Laws and Regulations of the Region
SEAFDEC	Southeast Asian Fisheries Development Centre
SEAFO	Southeast Atlantic Fisheries Organization
SIOFA	Southern Indian Ocean Fisheries Agreement
SPRFMO	South Pacific Regional Fisheries Management Organisation
SSC	Species Survival Commission (of IUCN)
SSG	Shark Specialist Group
SWIOFC	South West Indian Ocean Fisheries Commission
TAC TACC	total allowable catch/total allowable commercial catch
UNCED	United Nations Conference on Environment and Development
UNCLOS	United Nations Convention on the Law of the Sea 1982
UNEP	United Nations Environment Programme

UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFSA	United Nations Fish Stocks Agreement
UNGA	United Nations General Assembly
VMS	vessel monitoring system
WCPFC	Western and Central Pacific Fisheries Commission
WECAFC	Western Central Atlantic Fishery Commission

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Executive Summary

This report describes the results of a desk study commissioned by CMS under one of the Terms of Reference for the Sharks MOU Conservation Working Group (CWG), in preparation for the first meeting of the CWG in October/November 2016. The context of the study is provided by the text of the Sharks MOU, which clearly recognizes “*that successful shark conservation and management require the fullest possible cooperation among governments, intergovernmental organizations, non- governmental organizations, stakeholders of the fishing industry and local communities, and engagement pursuant to this Memorandum of Understanding with the fisheries industry, FAO, RFMOs, as appropriate, RSCs, CITES, the Convention on Biological Diversity (CBD) and other relevant international organizations.*”

The Sharks MOU Advisory Committee (AC) is tasked *inter alia* with providing expert advice, information and making recommendations to the Secretariat and the Signatories, assisted by the CWG. This desk study collated background information and drafted recommendations that might assist the CWG to fulfill one of its tasks: identifying research, management and information gaps that may be addressed by the Sharks MOU, including key regions and capacity-building needs in areas not covered by RFMOs that would benefit from support. The document summarises the work of the Food and Agriculture Organization of the United Nations (FAO), Regional Seas Conventions and Action Plans (RSCAPs), Regional Fisheries Bodies (RFBs) and other relevant Multilateral Environmental Agreements (MEAs) and organizations that are or might become involved with MOU Annex 1 species and makes recommendations for engaging them with the Sharks MOU. It then presents ten very brief regional summaries, each considering Annex I species present, regional organisations with relevant responsibilities and/or activities underway, and some very broad research management and information gaps. Recommendations are made for each region. Annex 3 is a tabulated summary of these recommendations.

This desk study found a generally low awareness of the existence of the CMS Sharks MOU among many other Multilateral Environmental Agreements (MEAs) and Regional Fisheries Bodies (RFBs). This is probably because the Sharks MOU is a relatively young MEA. Although complementarities between CITES and the work of the RFBs are broadly recognised, potential synergies and complementarities between CMS, other MEAs and RFBs mostly appear not to have been considered by these organisations.

Many of the recommendations in this study therefore focus upon forging closer links between the Sharks MOU and these other bodies, at global and regional level. This is proposed in order to raise awareness of the MOU, seek opportunities for collaboration, and to clarify research, management and information gaps and synergies for Annex 1 species, the Work Programme, and the broader remit of the MOU. This considerations may be at an individual species level, where an Annex 1 shark or ray species also falls under the remit of RFBs and RSCAPs, or more broadly, through capacity-building, research, data-collection, and bycatch mitigation projects.

The Conservation Working Group meeting in October/November 2016 is invited to review the recommendations of this study and use it as a basis for setting priorities for action that take into account relevance, urgency, opportunities for synergies and complementary activities, and the limited financial resources and institutional and technical capacities of the CMS Sharks MOU.

1 Background

The Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU), developed by the Convention on the Conservation of Migratory Species of Wild Animals (CMS) was opened for signature in 2010. The **preamble to the MOU** expresses the conviction of the Signatories that the vulnerability of migratory sharks to mortality from a range of impacts and threats is such that it warrants further development of conservation measures where they do not already exist, and the enhanced implementation and enforcement of existing conservation measures. However, the Signatories also recognise that the conservation mandate of the MOU is relatively narrow and excludes fisheries management.

The preambular text of the Sharks MOU specifically notes, therefore, that actions taken under the MOU must be consistent with the roles of other international bodies and existing shark and ray conservation management initiatives, including the FAO voluntary International Plan of Action (IPOA) for sharks. Further, the Signatories recognize that industry, consumers and conservation NGOs have critical complementary roles to play in achieving the common objective of ensuring the conservation and management of migratory sharks and their long-term sustainable use. This text also records the intentions of the Signatories to involve Regional Fisheries Management Organisations in the development and implementation of the MOU, recognising that it will be necessary to work with and through these organizations to avoid duplication or inconsistency of efforts. The Signatories also recognize the role of the Regional Seas Conventions in the conservation of marine biodiversity and the importance of collaborating with these organizations to achieve the objectives of the Sharks MOU.

The first paragraph of **Section 3, the Fundamental Principles** of the Sharks MOU, states:

The Signatories recognize that successful shark conservation and management require the fullest possible cooperation among governments, intergovernmental organizations, non-governmental organizations, stakeholders of the fishing industry and local communities, and engagement pursuant to this Memorandum of Understanding with the fisheries industry, FAO, RFMOs, as appropriate, RSCs, CITES, the Convention on Biological Diversity (CBD) and other relevant international organizations.

Section 4, the Conservation Plan (CP), also stresses the importance of enhancing national, regional and international cooperation, with the Signatories recognizing the need to make every effort to, *inter alia*:

- a) *Cooperate with relevant organizations so as to facilitate the work conducted in relation to the CP;*
- b) *Engage with the fisheries industry, FAO, RFMOs as appropriate, conservation NGOs, RSCs and other international organizations that deal with fisheries to develop a working relationship, analyze the strengths and weaknesses of current conservation and management initiatives, and involve them in the improvement and execution of the CP;*
- c) *Promote practical and enforceable conservation recommendations within relevant RFMOs and RSCs by the Signatories to this Memorandum of Understanding that are members of the RFMOs and RSCs;*

Section 7 of the Sharks MOU concerns the establishment of an **Advisory Committee** (AC), tasked *inter alia* with providing expert advice, information and making recommendations including suggestions on new initiatives and on the implementation of this Memorandum of Understanding, to the Secretariat and the Signatories. The AC has established a Conservation Working Group (CWG) to serve and assist it.

This desk study was undertaken to collate information that might assist the CWG to fulfill one of the tasks assigned to it during its first meeting in 2016.

2 Objectives

The Terms of Reference for the Conservation Working Group, set by the Second Meeting of the Signatories to the Sharks MOU, require it to review “the work of the Food and Agriculture Organization of the United Nations (FAO), Regional Seas Conventions and Action Plans (RSCAPs), Regional Fisheries Bodies (RFBs) and other relevant organizations that are involved with Annex 1 listed species, identifying research, management and information gaps that may be addressed by the Sharks MOU. This will include identifying key regions and capacity-building needs in areas not covered by RFMOs that would benefit from support”.

This document was produced in preparation for the First Meeting of the CMS Sharks MOU Conservation Working Group. It summarises the work of FAO, the RSCAPs, RFBs and other relevant Multilateral Environmental Agreements (MEAs) and organizations that are involved with the conservation and management of shark and ray species listed in Annex 1 of the CMS Sharks¹ MOU. Its primary objectives were to identify:

- research, management and information gaps that may be addressed by the Sharks MOU; and
- key regions and capacity-building needs in areas not covered by regional fisheries bodies that would benefit from support.

The rationale behind the above terms of reference is that the mandate of the Sharks MOU and other MEAs is relatively narrow: they address conservation objectives, but have no remit to take action on fisheries management matters. These constraints are widely recognised. The study is undertaken at a time when UN Environment Programme (UNEP) and the Convention on Biological Diversity (CBD) are placing increased emphasis on strengthening cooperation, coordination and synergies among national and regional UN biodiversity-related conventions (UNEP 2015, 2016), and other UN bodies, including FAO, and between biodiversity management organisations and regional fisheries bodies. The second session of the UN Environment Assembly (UNEA), in May 2016, called “for continued cooperation and coordination among all relevant global and regional fora and organisations on maritime issues, to deliver coherently on Sustainable Development Goal 14 and its related goals”. The Assembly invited “Member States and regional seas conventions and action plans, in cooperation, as appropriate, with other relevant organizations and fora, such as regional

¹ Unless explicitly stated otherwise, in this document the term ‘shark’ means any species in the Class *Chondrichthyes*, which includes sharks, rays, skates and chimaeras.

fisheries management organizations, to work towards the implementation of, and reporting on, the different ocean-related Sustainable Development Goals and associated targets, and the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets”. The relevant UNEA Resolutions include **UNEP/EA.2/Res.17** Enhancing the work of the United Nations Environment Programme in facilitating cooperation, collaboration and synergies among biodiversity-related conventions, and **UNEP/EA.2/Res.10** on Oceans and Seas.

This is such a rapidly developing field that the outputs of some recent meetings are not available at the time of writing. Furthermore, the United Nations Conference to Support the Implementation of Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) will be convened at United Nations Headquarters from 5 to 9 June 2017 (UNGA 70/303). Preparatory materials for this conference may provide additional information on information gaps that might be addressed by the Sharks MOU, while the Conference could pose new opportunities for CMS to become engaged in collaborative activities with other MEAs and fisheries bodies.

3 Organisations

3.1 UN Food and Agriculture Organization (FAO)

FAO plays a leading role in international fisheries policy. Although FAO traditionally emphasises food security, nutrition, economic growth, and poverty alleviation, it also works towards the implementation of the Code of Conduct for Sustainable Fisheries and associated International Plans of Action, the Ecosystem Approach to Fisheries, and the Port State and Flag State Measures Agreements to prevent, deter and eliminate illegal, unreported and unregulated (IUU) fishing. These all contribute to the objectives of the CMS Sharks-MOU and other MEAs. Regular meetings of the Committee on Fisheries (COFI) guide FAO's fisheries work programme and addresses recommendations to governments, the regional fisheries bodies (RFBs, whose work is fostered and promoted by FAO), NGOs, fish workers, FAO, and the international community. FAO has a dedicated work stream on shark and ray management, conservation, and capacity building, arising from its work on the IPOA-Sharks and collaborations with CITES and CMS.

3.1.1 International Plan of Action for the Conservation and Management of Sharks (IPOA-Sharks)

The FAO IPOA-Sharks (1999) is voluntary, but all shark fishing States are encouraged to implement it. FAO supports these efforts, including the preparation, development and implementation of national Shark-plans, and the implementation of fishery management programmes, through in-country technical assistance and capacity-building projects. Some of these activities may be undertaken in collaboration with intergovernmental organizations (e.g. CITES, CMS, IUCN and NGOs). The IPOA-Sharks covers target and bycatch fisheries, commercially important and threatened species, in territorial waters, EEZs and on the high seas. Initial progress was slow, due partly to lack of data, capacity and resources and a low political priority. At its last global review of implementation in 2012, FAO reported that 18 of the top 26 shark fishing countries (these are States that reported more than 1% global shark catches during 2000–2009) already had an NPOA-Sharks and five were developing plans. Three had not yet addressed the issue (Fischer et al. 2012). The development, review and updating of Shark-Plans continues. There is no single updated list of NPOAs or RPOAs available from FAO, but PDFs of at least some of these documents can be downloaded from <http://www.fao.org/ipoa-sharks/tools/ipoa-sharks-documents/en/>.

The IPOA-Sharks also encourages States to cooperate through regional fisheries management organizations (RFMOs) and to ensure the effective management of transboundary stocks. The first Regional Shark-Plan (RPOA) was adopted in 2001 by the West African regional fisheries body, the Commission Sous-Régionale des Pêche (CSR/P/SRFC), in addition to the national Shark-Plans developed by each CSR/P member country. This was followed by the European Union's Community Shark-Plan (EU CPOA, 2009), two Pacific Island RPOAs (one of which involved several RFBs), and a draft RPOA from OLDEPESCA, covering the Pacific and Caribbean coasts of Central America. More are in preparation.

The preparation of Regional Shark Plans has not solely been the initiative of RFBs. The Pacific Island RPOA was a collaboration between several RFBs (FFA, SPC and WCPFC) and a RSCAP (SPREP). The Bay of Bengal Large Marine Ecosystem (BOBLME) has formed a regional sharks working group and is engaged in promoting an RPOA, as well as assisting member countries with

the development of their NPOAs. The South East Pacific RPOA was produced by a RSCAP: the Permanent Commission for the South Pacific (CPPS). The Regional Shark Plan developed for the Mediterranean Sea was the initiative of the RSCAP and focuses upon the conservation of threatened species, not upon fisheries management (although the RFMO for the Mediterranean, GFCM, has adopted some of its species-specific recommendations for threatened species).

3.1.2 Regional shark bodies and management measures

In addition to Regional Shark Plans (above), numerous regional fisheries management organisations (RFMOs) have adopted measures relevant for the conservation and management of sharks. See Section 3.2.

FAO's role includes establishing new RFBs in regions where fisheries management is lacking, providing technical and administrative support to the RFBs established under FAO's constitution, and monitoring the performance of other RFBs. It also promotes collaboration among all RFBs and fisheries arrangements, including through the Regional Fishery Body Secretariats' Network. FAO expects RFBs to participate actively in its decision-making process, technical forums such COFI, and relevant "technical consultations." RFB participation in these activities has grown significantly since the adoption of the Code of Conduct for Responsible Fisheries in 1995.

3.1.3 Database of Measures, Identification guides, software, and other publications

FAO has produced and hosts an excellent online database of measures on the conservation and management of sharks². At the time of writing, this provided links to the primary international and regional management measures in force for 49 species and a few generic categories of sharks and rays, lists of management measures introduced by some RFMOs, CITES and CMS, and management measures by country (Shark Plans and fisheries legislation). It does not yet cover all RFMOs with shark conservation and management measures, RSCAPs or Regional Shark Plans.

FAO's numerous shark and ray identification guides (regional and global) and identification software, also available online, will assist Parties with their implementation of the CMS Sharks MOU.

3.1.4 Capacity-building initiatives

The FAO and CITES Secretariats have been working in very close partnership over the conservation and sustainable use of sharks and rays and related issues. It would be helpful to extend this collaboration to CMS, particularly for those States with different national contact points for CITES and CMS. For example, FAO has held Regional workshops on Implementing the 2009 FAO Agreement on Port State Measures to Combat Illegal, Unreported and Unregulated Fishing and a workshop on The Impact of CITES Listing of Sharks and Ray Species in the South and Southeast Asian Region. These considerations are also relevant to the implementation of the CMS Sharks MOU, particularly when the same species are listed by CITES and CMS.

² <http://www.fao.org/ipoa-sharks/database-of-measures/en/>

Recommendations : FAO

- The CMS Secretariat to alert CMS Focal Points to FAO’s online resources, and investigate joining the existing marine species management capacity building initiative between FAO and CITES.

3.2 Regional Fisheries Bodies (RFBs)

Regional Fisheries Bodies (RFBs) are established by international agreements or treaties. Some RFBs function under the umbrella of FAO, while others are independent. Most have a Secretariat that operates under a governing body of member States, but ‘regional fisheries arrangements’ do not. All promote long-term sustainable fisheries at regional and national levels, and are most important where international cooperation is required for species conservation and the management of shared fish populations. Their functions may include the collection, analysis and dissemination of information, coordinating fisheries management through joint schemes and mechanisms, serving as a technical and policy forum, providing a forum for capacity-building, and taking decisions relating to the conservation, management, development and responsible use of the resources.

RFBs can be divided into two main categories: those that are purely advisory, and those with a management mandate. The former provide non-binding scientific advice, decisions or coordinating mechanisms. The latter, the Regional Fisheries Management Organizations (RFMOs) adopt, by consensus, conservation and management measures (CMMs) that are binding on their Members (the Contracting and/or Cooperating Non-Contracting Parties – CPCs), although FAO reviews have noted that enforcement of and compliance with many RFMO measures is poor. While all RFMOs are RFBs, not all of the >50 RFBs are RFMOs.

RFMOs play the main role in facilitating international fisheries management, providing the only realistic means of governing fishing operations on the high seas, and conserving populations that move between the exclusive economic zones (EEZs) or territorial waters of neighbouring states, and/or between EEZs and the high seas. The UNFSA has declared RFMOs as the most important and relevant forum for cooperation on straddling and highly migratory fish stocks. The five “tuna RFMOs” are the most widely recognised: the Indian Ocean Tuna Commission (IOTC), Inter-American Tropical Tuna Commission (IATTC), International Commission for the Conservation of Atlantic Tunas (ICCAT), Commission for the Conservation of Southern Bluefin Tuna (CCSBT), and Western and Central Pacific Fisheries Commission (WCPFC). These RFMOs manage high seas pelagic fisheries in 91% of the world’s oceans and have the ability, if not the explicit responsibility, for managing other species (such as sharks) taken in association with tuna and billfish fisheries. However, perhaps half of all other RFBs are also engaged in some form of shark and ray conservation and management (advisory or regulatory), or could become so.

Although the earliest RFMOs were established solely in order to deliver the conservation, management and/or development solely of the fisheries for which they are responsible, the UNCLOS, UNFSA and the Code all highlight their role in the conservation and management of vulnerable species, including sharks and rays, and that they should also consider the effects of fisheries on other species belonging to the same ecosystem and adopt the ecosystem approach to fisheries (EAF). Some more recently-established RFBs clearly have a broader mandate; they are

explicitly responsible for ensuring that the fisheries they manage do not damage the marine ecosystem, and addressing non-target species that are captured by the fisheries under their remit. While the language of the UNCLOS, UNFSA and the Code means that all RFBs are able to broaden their remit to non-target species, consensus-building within CPCs in order to achieve this end can be a slow process.

In contrast to the RFMOs, most of the CMS Sharks MOU and RSCAPs' marine species conservation activities are voluntary in nature, and/or implemented by environment rather than fisheries authorities, unless also adopted by RFMOs. While several RFBs have noted the relevance and complementarity of CITES' mandate in their work, the CMS Sharks MOU appears not to have such a high profile.

Many RFMOs have their own internal advisory bodies, e.g. Scientific and Bycatch, or Ecologically-related Species Committees, but they may also rely upon the advice of other RFBs when developing management measures; RFB advice is essential if an RFMO lacks internal advisory arrangements. Advisory RFBs are therefore very important and their role must not be overlooked when developing recommendations to address research, management and information gaps that may be addressed by the CMS Sharks MOU. Indeed, FAO³ notes (in the context of strengthening governance) that *“the role of RFBs with an advisory mandate – and their relationships with RFMOs – should also be fully taken into account. Their activities may lead to improved national fisheries governance and harmonized regional measures. They contribute to the efforts of RFMOs in key areas such as monitoring, control and surveillance (MCS), information exchange, and scientific advice.”*

FAO lists over 50 RFBs⁴, covering both freshwater and marine areas, including some RSCAPs and hybrid bodies such as the Bay of Bengal Programme, which is an inter-governmental organisation (IGO). Some RFBs cover areas outside the national jurisdictions of their members, but most include the EEZs under the jurisdiction of their members in the region and contiguous areas beyond national jurisdiction. Over 20 RFBs are already engaged in some form of shark and ray fisheries advice, capacity-building or management, or may soon become active (see Annex 1 to this document), and this list is likely to continue to grow.

3.2.1 Tuna RFMOs

Commission for the Conservation of Southern Bluefin Tuna (CCSBT)

The CCSBT focuses on the management of southern bluefin tuna. Its southern oceans region overlaps with ICCAT, IOTC and WCPFC. It has not adopted any specific measures for sharks and rays, but recommends that all of its Members implement the IPOA–Sharks and comply with measures adopted by the three other tuna RFMOs when fishing within their Convention areas. The CCSBT has established a Working Group on Ecologically Related Species (ERS WG) and its Members are required to collect and provide data on ecologically related species and to conduct an assessment of risks to such species posed by fishing for southern bluefin tuna.

³ COFI/2007/9 Rev.1. Strengthening Regional Fisheries Management Organizations and Their Performances.

⁴ <http://www.fao.org/fishery/rfb/search/en>

The annual meetings of the ERSWG⁵ pay particular attention to the measures adopted by the above tuna RFMOs concerning mitigating the incidental catches of ecologically related species, particularly sharks, seabirds and turtles⁶.

Inter-American Tropical Tuna Commission (IATTC)

This RFMO covers stocks of tunas and tuna-like species and other species of fish taken by vessels fishing in the tropical eastern Pacific Ocean. IATTC prohibits shark finning and requires its CPCs to establish and implement NPOA–Sharks and conduct research to identify shark nursery areas. It is also actively addressing many bycatch issues for threatened sharks and rays taken in its fisheries, including several Shark MOU Annex I species – silky shark, whale shark, mobulids and manta rays. Mako sharks, threshers and hammerheads are not covered by IATTC measures.

IATTC presently provides the best example of bycatch mitigation activities for sharks and rays being undertaken by a tuna RFMO, through a series of Resolutions⁷, backed by strong guidance from the Secretariat Staff in Document IATTC-90-04d (Rev) Recommendations by the Staff for Conservation Measures in the Eastern Pacific Ocean, 2016⁸. For example, Resolution C-05-03 on the Conservation of Sharks Caught in Association with Fisheries in the Eastern Pacific Ocean (amended in 2016) requires that “CPCs, where possible, in cooperation with the IATTC scientific staff, undertake research to: a. identify ways to make fishing gears more selective, where appropriate, including research into alternative measures to prohibiting wire leaders; b. improve knowledge of key biological/ecological parameters, life-history and behavioural traits, and migration patterns of key shark species; c. identify key shark mating, pupping, and nursery areas; and d. improve handling practices for live sharks to maximise post-release survival.”

International Commission for the Conservation of Atlantic Tunas (ICCAT)

ICCAT is responsible for the conservation of tunas and tuna-like species in the Atlantic Ocean and adjacent seas. It has adopted shark conservation and management measures since 2003, through a series of non-binding Resolutions (Res 95-02, 03-10), and mandatory Recommendations (Rec 04-10, 07-06, 09-07, 10-06, 10-07, 10-08, 11-08, 12-05, 13-10, 14-06, 15-06). Shark finning is prohibited, ICCAT’s CPCs are required to adopt an NPOA-Sharks and encouraged to release unwanted sharks alive and to research improved gear selectivity and shark nursery areas. Prohibited MOU Annex I species are silky shark, bigeye thresher shark, and hammerhead sharks family Sphyrnidae (all species except for *Sphyrna tiburo*). Recommendations on data collection cover porbeagle (Rec.15-06) and Shortfin mako (Rec. 15-06) and require live release of porbeagle. Rec. 12-05 notes poor compliance by CPCs with reporting on shark conservation and management measures. Common thresher, white, whale and basking sharks and mobulid rays are not covered by ICCAT.

⁵ https://www.ccsbt.org/sites/ccsbt.org/files/userfiles/file/docs_english/meetings/meeting_reports/ccsbt_22/report_of_ERSWG11.pdf

⁶ <https://www.ccsbt.org/en/content/bycatch-mitigation>

⁷ <http://www.iattc.org/ResolutionsENG.htm>, Resolution C-15-04 on the Conservation of Mobulid Rays Caught in Association with Fisheries in the IATTC Convention Area; Resolution C-16-06 Conservation Measures for Shark Species, with Special Emphasis on the Silky Shark (*Carcharhinus falciformis*), for the years 2017, 2018, and 2019.

⁸ <http://www.iattc.org/meetings/meetings2016/june/pdf-files/IATTC-90-04d-Conservation-recommendations-2016REV.pdf>

Indian Ocean Tuna Commission (IOTC)

The IOTC Agreement covers tuna and tuna-like species, and the remit of the IOTC Working Party on Ecosystem and By-catch includes sharks. Measures for the conservation and management of sharks have been in force since 2005. These currently include annual reporting requirements for shark catches, a finning prohibition, and encouraging the live release of unwanted bycatch. MOU Annex I species are covered by (binding) Resolution 12-09, which prohibits the retention of thresher sharks (other than for scientific research), and Resolution 13-05, which prohibits intentionally setting purse seines on whale sharks, mandates the live release of accidental catches and sets reporting requirements. Silky sharks will benefit from reduced bycatch under Res 15-08 on a FAD management plan. CPCs are also encouraged to undertake research into more selective fishing gear and to identify shark nursery areas.

Western Central Pacific Fisheries Commission (WCPFC)

The WCPFC aims to ensure the effective management, long-term conservation and sustainable use of all highly migratory fish stocks listed in Annex 1 of the UNCLOS in the western and central Pacific Ocean. Its Scientific Committee undertakes stock assessments and provides advice on the status of key shark species. Over-arching requirements for Members include implementing the IPOA-Sharks, minimizing waste and discards from shark catches (including prohibiting finning) and encouraging live release of incidental shark catches. CCMs are encouraged to research strategies for shark bycatch avoidance, minimize shark catches in long line fisheries for tuna and billfish, and develop management plans for target shark fisheries (CMM 2014-05). Whale shark is protected from purse seine operations (CMM 2012-04). Annex I shark species with annual reporting requirements include silky shark (CMM 2013-08), mako, thresher, porbeagle and hammerhead sharks (CMM 2010-07). The WCPFC Secretariat is undertaking a wide range of scientific, compliance and management activities relating to sharks⁹. These include a shark research plan and stock assessments for the silky shark. The WCPFC Secretariat also provides the Technical Coordinator for Sharks (TC-Sharks) for the Tuna Project within GEF's five-year project on Areas Beyond National Jurisdiction (ABNJ)¹⁰. The shark components of the ABNJ Tuna Project include conducting four pan-Pacific stock status assessments, one of which will likely be for porbeagle shark¹¹. Other Sharks MOU Annex 1 species may be assessed.

3.2.2 Other RFMOs

Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR)

CCAMLRs remit is not confined to commercially exploited fin fish, molluscs and crustaceans, but extends to the conservation of all living organisms south of the Antarctic Convergence. It is also a RSCAP. Directed fishing for sharks has been prohibited in the CCAMLR Area since 2006, other than for scientific research. Any accidental bycatch of sharks shall, as far as possible, be released

⁹ <https://www.wcpfc.int/sharks>

¹⁰ <http://www.commonoceans.org/>

¹¹

https://www.ccsbt.org/sites/ccsbt.org/files/userfiles/file/docs_english/meetings/meeting_reports/ccsbt_22/report_of_ERSWG11.pdf

alive (CM 32-18 2006). CCAMLR has also adopted guidelines for releasing skates to minimize damage, and quotas for skate and ray bycatch (CM 33-02, 2012; 33-03, 2015), and measures to minimize incidental mortality of non-target species, including sharks.

General Fisheries Commission for the Mediterranean (GFCM)

The GFCM has competence for the management of all living marine resources in the Mediterranean Sea, Black Sea and connecting waters. It adopts all the Resolutions and Recommendations of ICCAT (see above for measures relating to Annex 1 species: Silky, Bigeye thresher, Hammerhead, Porbeagle and Shortfin mako sharks). GFCM has also adopted separate Recommendations specifically for Mediterranean and Black Sea sharks and rays. GFCM/36/2012/3, on fisheries management measures for conservation of sharks and rays in the GFCM Area, prohibits finning, reduces trawl fishing within three nautical miles of the coast where the depth is less than 50m, protects some elasmobranch fishes listed in Annex II to the SPA/BD Protocol of the Barcelona Convention (White shark, Basking shark, Giant devil ray and Sawfishes), and (*inter alia*) requires CPCs to adopt data gathering and reporting activities. GFCM/39/2015/4, introducing management measures for the depleted Spiny dogfish stock in the Black Sea, aims to allow recovery to MSY no later than 2020.

Joint Technical Commission of the Maritime Front (CTMFM)

This advisory body has two members, Argentina and Uruguay. Their collaboration has resulted in a protected pupping and nursery ground for gravid and juvenile elasmobranchs (Resol. CTMFM 08/2007), the creation of an elasmobranch working group to develop a bi-national POA, and a shark finning prohibition (Resol. CTMFM5-2009). The CTMFM region is likely important for Spiny dogfish and for Porbeagle sharks (the latter protected in Uruguayan waters), and possibly also for other Annex 1 species.

Northwest Atlantic Fisheries Organization (NAFO)

NAFO's objective is "to ensure the long term conservation and sustainable use of the fishery resources in the Convention Area and, in so doing, to safeguard the marine ecosystems in which these resources are found". The Convention applies to all fishery resources in the Convention Area, except those covered by other authorities (salmon, tunas and marlins, cetaceans), and sedentary shelf species. Measures adopted for sharks and rays include a finning prohibition, reporting requirements, encouraging the live release of unwanted shark bycatch, and gear requirements, a TAC and quotas for skates. CPs are encouraged to research improvements to the selectivity of fishing gears to protect sharks and to identify nursery areas. NAFO's Conservation and Enforcement Measures for Sharks were updated in 2016.

North East Atlantic Fisheries Commission (NEAFC)

NEAFC ensures the long-term conservation and optimum utilisation of the fishery resources in its Convention Area, providing sustainable economic, environmental and social benefits. The fisheries resources are fish, molluscs and crustaceans, excluding species dealt with under other international agreements (e.g. ICCAT).

NEAFC has adopted a shark finning prohibition, and prohibits target fishing for 17 deepsea shark species, Basking shark, Spiny dogfish and Porbeagle – the latter species must be released alive. There are reporting requirements for prohibited species.

NEAFC and OSPAR have collaborated under an MOU¹² since 2008. This recognises their complementary competences and responsibilities for fisheries management and environmental protection, respectively, within the North-East Atlantic. OSPAR includes the Annex 1 Basking shark, Spiny dogfish and Porbeagle in its list of Threatened and Declining Species (and several deepsea shark species managed by NEAFC).

Regional Commission for Fisheries (RECOFI)

RECOFI's purpose is to promote the development, conservation, rational management and best utilization of all living marine resources in the Persian or Arabian Gulf, north of the IOTC. It is empowered to adopt conservation and management measures that are binding on its Members, but has not yet done so for sharks and rays. The last meeting of the RECOFI Working Group on Fisheries Management, held in December 2014, noted the relevance of the mandate of CITES in the work of RECOFI for species listed in the CITES Appendices and that RECOFI might, if designated as a Scientific Authority issue NDFs. There is no evidence that RECOFI has considered its mandate in relation to the CMS Sharks MOU although some of its Members are signatories. The report of the 2014 meeting noted that Member States of the Permanent Committee of Fish Resources, GCC, had recommended banning targeted shark fishing, and that this recommendation had been endorsed by four GCC Members.

Southeast Atlantic Fisheries Organization (SEAFO)

SEAFO aims to ensure the long-term conservation and sustainable use of the fishery resources in the South- East Atlantic Ocean. It applies to fishery resources and takes account of the impact of fishing operations on ecologically related species. SEAFO has adopted a shark finning ban, requires CPs to report shark catches, and encourages live release of unwanted incidentally caught sharks, research into increased selectivity of fishing gears and identification of shark nursery areas (CM 04/06). Directed deep-water shark fisheries are prohibited.

South Indian Ocean Fisheries Agreement (SIOFA)

SIOFA entered into force in 2012. It has competence for fisheries management on the high seas, excluding highly migratory species listed in Annex 1 of UNCLOS, and has the power to take binding decisions on conservation and management measures. Its aim is to ensure the long-term conservation and sustainable use of the fishery resources in its area of competence through cooperation among the Contracting Parties, and to promote the sustainable development of fisheries, taking into account the needs of developing States bordering the competence area, and in particular the least-developed among them and small island developing States. No information was located on SIOFA activities or management measures. Based on the track record of similar bodies, such as SPRFMO (see below), SIOFA could adopt measures for shark and ray research and conservation.

¹² http://www.ospar.org/site/assets/files/1357/mou_neafc_ospar.pdf

South Pacific Regional Fisheries Management Organization (SPRFMO)

SPRFMO covers all species except for highly migratory species in South Pacific areas outside national jurisdictions. This represents some 25% of the world's high seas areas. It primarily manages jack mackerel, jumbo flying squid and, to a lesser degree, deep sea species associated with sea mounts. Despite the exclusion of highly migratory species from its remit, Annex 14 ("other species of concern") of the SPRFMO's Conservation and Management Measure CMM 4.02 "Standards for the Collection, Reporting, Verification and Exchange of Data" lists some CMS MOU Annex 1 species. These are the Basking, White and Whale sharks, and Manta and Mobulid rays. In October 2016, the SPRFMO's Scientific Committee added several deepwater sharks and rays to this list, suggesting that there may be opportunities in future to add more MOU Annex 1 species to Annex 14 of CMM 4.02 in order to improve data collection.

3.2.3 Advisory Regional Fisheries Bodies

The advisory RFBs also have an important role to play in any strategy to improve shark and ray conservation measures by RFMOs and fishing States, and many are therefore included in this review.

Commission Sous-Régionale des Pêche (CSR/SRFC)

This West African/Eastern Central Atlantic advisory body was one of the first RFBs to address shark and ray conservation measures across its region, by developing a regional shark plan (published in 2001) and promoting the adoption of NPOA-Sharks by its seven Member States. The CSR is an important regional leader in shark and ray conservation through the implementation of CITES and CMS measures and the promotion of sustainable shark and ray fisheries and sawfish conservation.

Fisheries Commission of the West Central Gulf of Guinea (FCWC)

The FCWC covers all fisheries resources in the territorial seas and EEZs of its six Member States. It promotes cooperation between its Members with a view to ensuring, through appropriate management, the conservation and optimum utilization of the living marine resources, and encouraging sustainable development of fisheries based on such resources. It has no shark and ray management initiatives underway.

Forum Fisheries Agency (FFA)

The Pacific Islands Forum Fisheries Agency is an advisory body. It provides support to its Members for the conservation and management of living marine resources, particularly highly migratory species, within EEZs and the region. Its objective is to enable Member Countries to manage, conserve and use their tuna resources, through national capacity-building and regional cooperation.

International Council for Exploration of the Sea (ICES)

ICES provides assessments and scientific advice on stocks, TACs and other management measures to Northeast Atlantic littoral States and RFMOs, through its Working Groups. The ICES Working Group on Elasmobranch Fishes, established in 2002, meets annually and provides advice on a two year cycle. ICES elasmobranch advice for Annex I species currently covers Threshers¹³, Porbeagle¹⁴, Basking shark¹⁵ and Spiny dogfish¹⁶.

Latin American Organization For Fisheries Development / Organización Latinoamericana de Desarrollo Pesquero (OLDEPESCA)

OLDEPESCA was established to meet Latin American food requirements and make use of fisheries resources for the benefit of Latin American peoples, by promoting national development and strengthening regional cooperation in the fisheries sector. It covers national waters and the EEZs of its Members, in the Caribbean and the Eastern Central Pacific. OLDEPESCA has been active in supporting the development of NPOA-Sharks by its Members and engaged in some regional and sub-regional initiatives. It has held regional shark workshops, including in collaboration with OSPESCA, and has expressed interest in contributing towards CITES NDFs for shark species. Annex I species in the OLDEPESCA region include Mantas and Mobula rays, White, Whale, Mako and Hammerhead sharks, probably also Sawfishes.

Central American Fisheries and Aquaculture Organization/ Organización del Sector Pesquero y Acuícola del Istmo Centroamericano (OSPESCA)

OSPESCA, whose area and Members partly overlaps with those of OLDEPESCA (national waters and EEZs), aims *inter alia* to encourage the development and the coordinated management of regional fisheries activities and help to strengthen Central American integration. The OSPESCA Working Group on Sharks and Highly Migratory Species provides technical assistance in the region with identifying, coordinating and monitoring the wise use, management and conservation of sharks and highly migratory species and, as noted above, has undertaken activities in cooperation with OLDEPESCA. There is also a Sport Fishing Working Group. OSPESCA has developed cooperative agreements and MOUs with several bodies. Annex I species in the OSPESCA region include Mantas and Mobula rays, White, Whale, Mako and Hammerhead sharks, and probably Sawfishes.

Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA)

PERSGA has the twin roles of the coordinating body for the Red Sea regional seas programme and the regional fisheries advisory body. It has benefited from a Strategic Action Programme that has produced one of the strongest regional capacity building, training and technical assistance programme for shark and ray fisheries in the broader Indian Ocean region. PERSGA has

¹³ <http://ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/thr-nea.pdf>

¹⁴ <http://ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/por-nea.pdf>

¹⁵ <http://ices.dk/sites/pub/Publication%20Reports/Advice/2015/2015/bsk-nea.pdf>

¹⁶ <http://ices.dk/sites/pub/Publication%20Reports/Advice/2016/2016/dgs-nea.pdf>

undertaken baseline surveys as the basis for a regional shark assessment programme.

Southeast Asian Fisheries Development Centre (SEAFDEC)

SEAFDEC has no management remit. It provides technical advice, training, and guidance on all fisheries resources within its region, to countries in its region (Southeast Asia and Pacific). Its activities include shark and ray monitoring and identification and the development of NPOAs-Sharks in the region. SEAFDEC is aware of CITES activities for listed shark and ray species that overlap with its remit, but possibly not the Sharks MOU.

Western Central Atlantic Fisheries Commission (WECAFC/COPACO)

WECAFC covers all living marine resources, without prejudice to the management responsibilities and authority of other competent management organizations or arrangements in its area. While WECAFC is aware of the complementarity between CITES and stocks within its region, there is no record of similar awareness of CMS and the Sharks MOU. There is a WECAFC Shark Working Group, but no reports of its activities have been identified (there is no WECAFC website).

Recommendations : Regional Fisheries Bodies

- Develop closer links between the Sharks MOU Secretariat and RFBs (management and advisory) to raise awareness of the Sharks MOU and complementarities between their respective work programmes and competencies.
- Seek opportunities for collaboration with RFBs where the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation overlap with their work.
- Evaluate the use of MOUs to promote joint activities, such as conservation, research, awareness raising and capacity building activities outlined in the Programme of Work to support Sharks MOU implementation.
- Request that CMS Parties and/or Signatories to the MOU that are CCPs to relevant RFBs provide information on CMS' activities under the Sharks MOU to CCP and RFMO Working Group meetings.

3.3 Regional Seas Conventions and Action Plans (RSCAPs)

The eighteen Regional Seas Programmes (RSPs) participate in global coordination and information exchange under the UNEP Regional Seas Programme. See Annex 2 to this document. They generally operate through the implementation of regional Action Plans, most of which are accompanied by a legally binding Regional Seas Convention and associated protocols for, *inter alia*, specially protected areas and biodiversity. RSCAPs focus on promoting regional cooperation for sound management of the marine and coastal environment, and formulate collective strategic directions to link their regional processes with UNEP's global Regional Seas Programme.

A core strategy for the UNEP Regional Seas Strategic Directions (2017-2020) is to “Strategically work in collaboration with international and regional organizations, including Multilateral

Environmental Agreements (MEAs), Regional Fisheries Management Organizations (RFMOs) and other relevant stakeholders”.

In addition to their environmental remit, some RSCAPs also act as RFBs; these are described in the previous section. For example, the Antarctic Regional Seas Programme operates under the Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), the Permanent Commission for the South Pacific (CPPS) is the home of the Convention for the Protection of the Marine Environment and Coastal Areas of the South-East Pacific and the South-East Pacific Action Plan, and the Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden (PERSGA) is the coordinating body for the regional seas program as well as being the regional fisheries advisory body. Other RSCAPs explicitly do not have a fisheries advisory remit. However, because RSCAPs address very broad marine and coastal resource management, pollution, and biodiversity concerns, there is almost inevitably awareness of and reference to fisheries in their work. The lack of a specific fisheries remit does not necessarily prevent RSCAP measures and species-specific conservation recommendations from influencing fisheries regulations, for example when they are addressing bycatch issues or taking action for the recovery of threatened species that were formally commercially important. Furthermore, efforts to improve strategic collaboration between MEAs and fisheries bodies have included the development of an MOU¹⁷ between OSPAR, the Northeast Atlantic RSC, and the Northeast Atlantic Fisheries Commission (NEAFC). This and similar initiatives provide opportunities for extending awareness of the conservation and management needs of Annex 1 species, and building regional capacity for the implementation of the CMS Sharks MOU Programme of Work.

Overall, the RSCAPs vary greatly in scope and application for marine wildlife conservation, including delivery of activities that will contribute to the CMS Sharks MOU. Many do not yet have work programmes that specifically address sharks and rays, but have the potential to create globally comprehensive initiatives for marine and coastal conservation through a combination of protected areas, protected species measures, capacity-building, and fisheries management. Greater awareness and promotion of case studies where RSCAPs are already actively engaged in developing shark and ray conservation recommendations and programmes may encourage other RSCAPs to follow suit. Examples of potential case studies are the Mediterranean and the Northeast Atlantic RSCAPs, both of which could provide models for other regions.

Mediterranean RSCAP

The Barcelona Convention governs Mediterranean Regional Seas Programme activities. The Protocol Concerning Specially Protected Areas and Biological Diversity in the Mediterranean (SPA/BD Protocol) is the main tool for the regional implementation of the CBD in the region, for area protection and species conservation. The Mediterranean RSCAP cartilaginous fishes program developed an *Action Plan for the Conservation of Chondrichthyes in the Mediterranean Sea* in 2003, and regularly updates it. Annexes to the Mediterranean SPA/BD Protocol list Endangered and Threatened Species (Annex II) and Species Whose Exploitation is regulated (Annex III).

¹⁷ http://www.ospar.org/site/assets/files/1357/mou_neafc_ospar.pdf

These Annexes, last updated in 2009, include 24 and 9 elasmobranch species (respectively), 11 of which are also on Annex I of the CMS Sharks MOU. These species lists were adopted in 2012 by the General Fisheries Commission for the Mediterranean (GFCM, the RFMO) in a Decision that requires the 24 GFCM Contracting Parties to prohibit retention of Annex II species (including five Sharks MOU Annex I species), improve monitoring of species in both Annexes, and undertake capacity building to support these measures. This Decision suggests a remarkable alignment of policy between the environmental and fisheries departments of the countries that are Parties to both treaties, with very few reservations having been taken out by GFCM CPs. Several years after adoption, however, evidence of implementation through national fisheries and biodiversity regulations is scant, illustrating the need for increased engagement by NGOs and MEAs such as CMS to promote policy implementation through this and other fisheries management bodies.

Northeast Atlantic RSCAP

The OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic guides certain (non-fishing) activities in this region. It is implemented by the OSPAR Commission, which brings together 15 signatory countries, the EU, and 27 environment and industry NGOs. OSPAR's Biological Diversity and Ecosystems Strategy has established a list of threatened and/or declining species and habitats in the region, following species nominations by its Parties. This list, which is used by the Commission to guide setting biodiversity protection priorities, includes three species of sharks that are listed in Annex I to the CMS Sharks MOU. In 2010, the Commission adopted OSPAR Recommendations for the protection of some elasmobranchs. Most of the OSPAR shark and ray species are now classified as prohibited species or are under a zero quota in EU waters and those of some other Parties.

Eastern African RSCAP

The Eastern African Regional Seas Programme, established under the Nairobi Convention for the Protection, Management and Development of the Marine and Coastal Environment of the Eastern African Region, is now addressing sharks and rays in its program of work. Although the Convention's Protocol Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region does not currently list any chondrichthyan fishes, a draft list of shark and ray species recommended for listing on the Annexes has been prepared through collaboration of the Wildlife Conservation Society (WCS), Florida International University, and experts in the region. Based on decisions at the December 2012 and June 2015 COPs, the Nairobi Convention Secretariat is working with the ten Member States and WCS to finalize the list of species recommended for listing under the treaty, as well as a regional status report on sharks and rays in the Southwest Indian Ocean that should provide guidance on priority actions at both the regional level, not only through the Nairobi Convention but also through RFBs, such as the Southwest Indian Ocean Fisheries Commission and Indian Ocean Tuna Commission, and national level. It would be very useful for CMS to become engaged in these activities.

Recommendations : Regional Seas Conventions and Action Plans

- The development of closer links between the Sharks MOU Secretariat and RSCAPs will help to raise awareness of the Sharks MOU and overlaps between their respective work programmes.

- Evaluate the use of MOUs between CMS and the Regional Seas Conventions and Action Plans, to promote joint activities, such as conservation, research, awareness raising and capacity building activities outlined in the Programme of Work to support Sharks MOU implementation.
- Investigate the development and promotion of case studies and partnerships, where RSCAPs are already engaged in activities that are helping to deliver aspects of the Sharks MOU Work Programme.

3.4 Other Multilateral Environmental Agreements

The study is undertaken at a time when UN Environment Programme (UNEP) and the Convention on Biological Diversity (CBD) are placing increased emphasis on strengthening cooperation, coordination and synergies among national and regional UN biodiversity-related conventions (UNEP 2015, 2016), and other UN bodies, including FAO, and between biodiversity management organisations and regional fisheries bodies. The second session of the UNEA, in May 2016, called “for continued cooperation and coordination among all relevant global and regional fora and organisations on maritime issues, to deliver coherently on Sustainable Development Goal 14 and its related goals”. The Assembly invited “Member States and regional seas conventions and action plans, in cooperation, as appropriate, with other relevant organizations and fora, such as regional fisheries management organizations, to work towards the implementation of, and reporting on, the different ocean-related Sustainable Development Goals and associated targets, and the Strategic Plan for Biodiversity 2011-2020 and its Aichi Biodiversity Targets”. The relevant UNEA Resolutions include **UNEP/EA.2/Res.17** Enhancing the work of the United Nations Environment Programme in facilitating cooperation, collaboration and synergies among biodiversity-related conventions, and **UNEP/EA.2/Res.10** on Oceans and Seas. The United Nations Conference to Support the Implementation of Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) will be convened at United Nations Headquarters from 5 to 9 June 2017 (UNGA 70/303). Preparatory materials for this conference may provide additional information on information gaps that might be addressed by the Sharks MOU, while the Conference could pose new opportunities for CMS to become engaged in collaborative activities with other MEAs and fisheries bodies.

3.4.1 CITES

There is a high level of cooperation between the two sister conventions, CITES and CMS. For more information see UNEP/CMS/StC42/Doc.6.1 (2014) on cooperation between CMS and CITES, and CITES Resolution Res. Conf. 13.3 on Cooperation and synergy with the Convention on the Conservation of Migratory Species of Wild Animals). Regional workshops provide regular opportunities to enhance collaboration between CITES and CMS at national (through National Biodiversity Strategies and Action Plans) and regional level. Several examples are provided in the UNEP Sourcebook (UNEP 2015) and CITES is not considered further here.

3.4.2 Convention on Biological Diversity (CBD)

The CBD's Strategic Plan for Biodiversity 2011-2020, and related Aichi Biodiversity Targets (see below) provide a coherent global framework to which implementation of all the biodiversity-related conventions contributes. The close cooperation between CMS and CBD, including joint activities between 2012 and 2015, and the joint work plan (JWP) for 2016-2018, are summarised in UNEP/CMS/StC44/18.1 prepared for the 44th meeting of the CMS Standing Committee in October 2015. There may, however, be other CBD initiatives that CMS could usefully join, in order to deliver activities under the Sharks MOU that will also contribute to some of the Aichi Targets. For example, in September 2016, a meeting was held for the CBD "Sustainable Ocean Initiative Global Dialogue with Regional Seas Organizations and Regional Fisheries Bodies on accelerating progress towards the Aichi Biodiversity Targets". This may have identified recommendations for action that would be of direct relevance to the objectives of this study, but its outputs were not available at the time of writing.

Aichi Targets of relevance to the CMS Sharks MOU

Strategic Goal B: Reduce direct pressures on biodiversity and promote sustainable use

Target 6: By 2020 all fish and invertebrate stocks and aquatic plants are managed and harvested sustainably, legally and applying ecosystem based approaches, so that overfishing is avoided, recovery plans and measures are in place for all depleted species, fisheries have no significant adverse impacts on threatened species and vulnerable ecosystems and the impacts of fisheries on stocks, species and ecosystems are within safe ecological limits.

Strategic Goal C: Improve the status of biodiversity by safeguarding ecosystems, species and genetic diversity

Target 11: By 2020, at least 17 per cent of terrestrial and inland water, and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscapes and seascapes.

Target 12: By 2020 the extinction of known threatened species has been prevented and their conservation status, particularly of those most in decline, has been improved and sustained.

3.4.3 Ramsar Convention on Wetlands

The Ramsar Convention is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. The 169 Ramsar Parties commit to producing national wetland inventories, establish a national stakeholder committee for decision-making, review and where necessary improve national

legislation and policies, develop an action plan, and designate a representative network of priority wetland habitats as Ramsar sites. The treaty provides for designated coastal wetlands to incorporate coastal zones adjacent to the wetlands, and bodies of marine water deeper than 6m at low tide that lie within the wetlands. These criteria enable coastal waters such as estuaries, tidal flats, mangroves and coral reefs and lagoons to form part of Ramsar sites.

In 1996, the Ramsar COP adopted specific criteria for the designation of wetlands based on fish within the Ramsar Sites Criteria. Criterion 7 stipulates that *a wetland should be considered internationally important if it supports a significant proportion of indigenous fish subspecies, species or families, life history stages, species interactions and/or populations that are representative of wetland benefits and/or values and thereby contributes to global biological diversity*. Criterion 8 stipulates that *a wetland should be considered internationally important if it is an important source of food for fishes, spawning ground, nursery and/or migration path on which fish stocks, either within the wetland or elsewhere, depend*.

Coastal habitats, including estuaries and mangroves, are important feeding, pupping and nursery grounds for sawfishes (which are also most vulnerable to incidental capture at all life stages in shallow coastal waters), and for hammerhead shark pups. Although the Ramsar habitat and fish criteria clearly provide for protection under the treaty on behalf of sharks and rays, it appears that no efforts have been made to encourage Parties to recognise the potential of existing sites to manage species listed in Annex 1 of the CMS Sharks MOU, or to use Ramsar designations to protect new wetland areas important to these taxa.

In addition to national-level implementation, the Convention has adopted guidelines for international cooperation and has established numerous regional initiatives. Resolution VII.19 (1999) on “Guidelines for international cooperation under the Ramsar Convention” includes a call for Parties to harmonise the implementation of the Ramsar Convention with that of other appropriate regional and international environmental conventions and work cooperatively with international programmes and organizations. These Guidelines appear to offer a framework for collaboration between Ramsar and the CMS Sharks MOU.

Ramsar’s 15 Regional Initiatives include four Ramsar centres and eleven regional networks. They are intended as operational means to provide effective support for an improved implementation of the objectives of the Convention and its Strategic Plan, as well as to raise the visibility of the Convention in specific geographical regions, through international cooperation on wetland-related issues of common concern, involving all relevant national and regional stakeholders. *Inter alia*, they promote scientific and technical cooperation and exchange of knowledge, and provide a platform for collaboration, respectively. Examples include the West African Coastal Zone Wetlands Network (WACOWet) and the Regional Initiative for the Integral Management and Wise Use of Mangroves and Coral Reefs, coordinated by Mexico and Ecuador.

3.4.4 Large Marine Ecosystems (LME)

Large Marine Ecosystems (LMEs) are relatively large areas of ocean space adjacent to continents, in coastal waters where primary productivity is generally higher than in the open ocean. They extend from river basins and estuaries, to the seaward boundaries of the continental shelf and outer

margins of major ocean currents running through shelf areas. Sixty-four LMEs have been designated globally, each approximately 200,000 km² or larger, with distinct bathymetry, hydrography, productivity and trophically-dependent populations. The objective of LMEs is to provide a tool for collaborative conservation and ecosystem-based management within transnational areas with distinct ecological boundaries. Many are focal areas for significant multilateral investment, including through the Global Environment Facility, which has invested in improving the management of one-third of the world's LMEs.

A few LMEs are bordered by only one coastal State (e.g. the shelves of Australia, Canada, Greenland, New Zealand, and USA), but most encompass the waters of several adjacent countries (e.g. the Caribbean LME). The LMEs for the Bay of Bengal (BOBLME) and the Agulhas and Somali Current (ASCLME, Western Indian Ocean) have undertaken shark and ray conservation and management activities. BOBLME supported the development of NPOA-Sharks in Bangladesh, Myanmar, and Sri Lanka, and collaboration towards a Bay of Bengal RPOA-Sharks. The Southwest Indian Ocean Fisheries Project (SWIOFP) has undertaken analyses of shark and ray fisheries and biodiversity and bycatch of vulnerable organisms, including sharks and rays, in the ASCLME.

This study identified only a few LMEs that are known to be actively engaged in shark and ray conservation and management activities, but at least 20 have received significant levels of investment to support their management. Many others may not yet have a governing body or work programme.

Recommendations : Other Multilateral Environmental Agreements

- Extend the existing joint programme between CMS and CBD, to incorporate specific activities that deliver elements of the Sharks MOU, linking these to the Global dialogue with RSCAPs and RFMOs on accelerating progress towards the Aichi Targets.
- In the context of Ramsar Resolution VII.19 (1999) on “Guidelines for international cooperation under the Ramsar Convention” seek the expansion of Ramsar initiatives to address the conservation of critical coastal habitats for Annex I species. These could include reviewing the potential of existing sites to manage species listed in Annex 1 of the CMS Sharks MOU, or using Ramsar designations to protect new wetland areas important to these taxa.
- Engage with preparations for the United Nations Conference to Support the Implementation of Sustainable Development Goal 14 (Conserve and sustainably use the oceans, seas and marine resources for sustainable development) in June 2017 (UNGA 70/303), with a view to identifying additional information on information gaps that might be addressed by the Sharks MOU, and opportunities for collaborative activities with other MEAs and fisheries bodies.
- Review the status of the 68 LMEs, their governing bodies and work programmes. Investigate opportunities to develop collaborations between LMEs and the CMS Sharks MOU, increase awareness of the MOU and deliver shark and ray conservation actions through these existing networks.

4 Overview of activities and gaps

Two approaches were considered for reviewing the work of the organisations identified in section 2 and identifying the research, management, and information gaps that may be addressed by the Sharks MOU. Firstly, a review by region (albeit based on ocean and sea areas rather than by CMS Regions). Secondly, a taxonomic approach, particularly for those Annex I species for which global conservation planning strategies are available. The latter would be most appropriate for sawfishes, Family Pristidae (Harrison and Dulvy, 2014) and could have been applied for the mantas and devil rays, Family Mobulidae, if that strategy was available. However, since there are so few remaining populations of sawfishes, and the mobulid strategy is not yet available, only the regional approach was used.

4.1 Regional analysis

This section takes a geographical approach to reviewing the work of organisations identified in section 2 and identifying the research, management, and information gaps that may be addressed by the Sharks MOU. Regions are defined by ocean and sea areas, rather than by CMS Regions; the latter may not be useful for identifying key regions for marine species when they are bordered by different oceans. Because all regions are covered by at least one fisheries body (and often by more than one), the review identifies the key regions and capacity-building needs that are apparently not yet addressed by RFBs, and where support provided through the Sharks MOU could supplement RFB, RSCAP and other MEA activities. The Arctic, Antarctic and inland water bodies, including the Caspian Sea, are excluded from this analysis because they do not support populations of CMS Sharks MOU Annex I species.

4.1.1 North Atlantic Ocean and Baltic Sea (temperate waters, Europe and North America)

Important populations of Annex I species

Nearshore temperate waters of the North Atlantic are important for basking shark, porbeagle, spiny dogfish, common thresher and, in the Northwest Atlantic, also scalloped hammerhead and white shark. Mako sharks, bigeye thresher and silky sharks are usually recorded offshore. The more common southern European hammerhead shark is smooth hammerhead, *Sphryna zygaena*, which is not listed in Annex 1.

Regional fisheries bodies

ICCAT, the tuna RFMO, has prohibited a few of the pelagic species (bigeye thresher, silky and hammerhead sharks) and requires data collection for porbeagle and shortfin mako. In the east, NEAFC has implemented ICES management recommendations and prohibits target fishing for porbeagle, basking shark and spiny dogfish. In the west, NAFO's shark management is more generic, covering live release of unwanted bycatch, gear improvements and encouraging research.

Regional Seas Conventions and Action Plans

In the Northeast, OSPAR is working on the conservation of basking sharks, porbeagle and spiny dogfish, and has an MOU for cooperation with NEAFC.

Research, management and information gaps

Research, management and data on sharks and rays is generally good in the temperate North Atlantic, due to strong national and regional capacity in Europe, Scandinavia, North America, and the important coordinating and data-sharing roles of ICES and the Scientific advisory bodies of ICCAT, NAFO and NEAFC.

Recommendations : North Atlantic Ocean and Baltic Sea

- Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU.

4.1.2 Mediterranean and Black Sea (Europe, North Africa, Asia)

Important populations of Annex I species

The Mediterranean and Black Sea have been described as the world's most dangerous places for sharks and rays. Populations of Annex 1 species are depleted, many of them seriously. Sawfishes are no longer considered to occur in the Mediterranean, and may only have been present, historically, as vagrants. Most other listed species are now only rarely reported. The (formerly) more common European and Mediterranean hammerhead shark is *Sphryna zygaena*, which is not listed in Annex 1.

Regional fisheries bodies

The GFCM is the only Mediterranean RFB. It has prohibited some Annex I species, bigeye thresher, silky and hammerheads, by adopting ICCAT's measures (see above) and has also protected the Barcelona Convention Specially Protected Areas and Biodiversity (SPA-BD) Protocol Annex II species, including the giant devil ray and sawfishes, white shark and basking shark.

Regional Seas Conventions and Action Plans

The Barcelona Convention RSCAP has prepared an Action Plan for cartilaginous fishes (2003), which is updated from time to time. It lists some Sharks MOU Annex I species in Annex II and III to the SPA-BD Protocol. Annex II species are now prohibited by the GFCM (see above). Annex III species include shortfin mako, porbeagle, common thresher, hammerhead sharks and spiny dogfish.

Research, management and information gaps

Despite the activities of the GFCM and RSCAP, there are still major research and information gaps in the Mediterranean. Although there are apparently high levels of legal protection for MOU Annex 1 species, capacity or willingness to implement these measures, compliance monitoring and enforcement is lacking.

Recommendations : Mediterranean and Black Sea

- Develop closer links with the Mediterranean RFMO and the RSCAP to raise awareness of the Sharks MOU.
- Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation
- Seek opportunities to promote and become involved in capacity building initiatives in the south and east of the Mediterranean region.

4.1.3 Caribbean Sea & Western Central Atlantic (Central America and Caribbean)

Important populations of Annex I species

The warmer waters of the Caribbean and Western Central Atlantic do not support more temperate species such as porbeagle, white and basking sharks and spiny dogfish. However, there are important populations of whale sharks, hammerheads, mantas and some mobulid species, threshers, silkies and makos. The highest conservation priority are sawfishes. There is a recovering population of smalltooth sawfish in US and Bahamas waters and likely scattered individuals or relict populations sparsely distributed across other areas of the Caribbean. The largetooth sawfish may be regionally extinct.

Regional fisheries bodies

In addition to ICCAT, mentioned above, several advisory RFBs are active in this region. These are the Western Central Atlantic Fishery Commission (WECAFC), Caribbean Regional Fisheries Mechanism (CRFM), OSPESCA and OLDEPESCA. WECAFC and OSPESCA both have Shark Working Groups.

Regional Seas Conventions and Action Plans

The Cartagena Convention/Caribbean Environment Programme (CEP) has not yet added any sharks or rays to its Protocol Concerning Specially Protected Areas and Wildlife (SPA) Protocol, but this may soon be a possibility.

Research, management and information gaps

Some of the many countries in this region have strong scientific research and management frameworks, the majority less so. Sawfish and whale shark research are relatively strong but programmes for other species less so. Case study 23 in the UNEP (2015) Sourcebook reports on the development by the Caribbean Community (CARICOM) of a draft reporting template for the Biodiversity-related Conventions in the Region. This template is designed to cover the information requirements of the CBD, CITES, Ramsar Convention and the SPAW Protocol. This initiative may provide a very useful opportunity to obtain more information on regional activities of relevance to the Shark MOU and Annex 1 species, as well as raising awareness.

Recommendations : Caribbean Sea & Western Central Atlantic

- Develop closer links with RFBs and the RSCAP to raise awareness of the Sharks MOU.
- Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation.
- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries that are CMS Parties or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, introduce species-specific national legal protection for sawfishes.
- Investigate the status of the CARICOM draft reporting template for MEAs in the region to determine whether CMS can be included and the template could be used to gather information on the management status of all Annex 1 species, research activities, and information gaps.

4.1.4 Southwest Atlantic (South America)

Important populations of Annex I species

Brazil may hold the last breeding population of largetooth sawfish in this region, although smalltooth sawfish could be regionally extinct. Many other Annex I species occur in this region, including some healthy populations of whale shark, devil rays and mantas (particularly around offshore islands), also porbeagle, threshers, silkies, makos, and hammerheads.

Regional fisheries bodies

ICCAT on the high seas. WECAFC and OLDEPESCA cover some of the northern area of the region, and the Joint Technical Commission of the Maritime Front (CTMFM) part of the south.

Regional Seas Conventions and Action Plans

The Wider Caribbean and CCAMLR occur at the northern and southern edges, respectively, of this region. Centrally, the Upper Southwest Atlantic RSCAP may be inactive.

Research, management and information gaps

Research and management capacity is better from Brazil to Argentina than it is north of Brazil. Information gaps likely mirror this picture and the proposed CMS MOU-Sharks online survey may confirm this. The Global Sawfish Strategy highlighted the need for significantly improved enforcement and greater resources for protection of sawfishes in Brazil (not yet a Signatory to the Sharks MOU).

Recommendations : Southwest Atlantic

- Develop closer links with RFBs and RSCAP to raise awareness of the Sharks MOU.

- Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation
- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries that are CMS Parties or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, to introduce species-specific national legal protection for sawfishes.

4.1.5 Eastern Central and Southeast Atlantic (Africa)

Important populations of Annex I species

There may still be small populations of largetooth and smalltooth sawfishes in West Africa – these are extremely high priority for conservation action. Fishers reportedly target migrating aggregations of devil rays in some countries. Thresher, silky, mako and hammerhead sharks may be more abundant in some areas, possibly with porbeagle and white shark in cooler waters in the south of the region. The very high levels of commercial and artisanal fisheries activity over much of this region may be affecting the status of many Annex I species, particularly in nearshore areas.

Regional fisheries bodies

ICCAT, as noted, is the tuna RFMO for the whole Atlantic Ocean. There are several other RFBs along the coast of Africa, some of them overlapping, including the Fishery Committee for the Eastern Atlantic, the Sub-regional Fisheries Commission (CSRP), the Regional Commission of the Gulf of Guinea and the Fishery Committee of the West Central Gulf of Guinea, and the South East Atlantic Fisheries Organisation. The extent of liaison between these organisations was not investigated.

Regional Seas Conventions and Action Plans

The Abidjan Convention, WACAF, is not engaged in shark and ray conservation.

Research, management and information gaps

There are very large gaps in research and knowledge within this extensive region, and generally limited management activity directed towards shark and ray fisheries. There is more information for the countries of the CSRP than most others in the region. Namibia probably has the most research activity, management and data availability in the region.

Recommendations : Eastern Central and Southeast Atlantic

- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes, with emphasis on the CSRP region. Remind priority countries that are CMS Parties or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, introduce species-specific national legal protection for sawfishes.

- Review the Global Devilray Strategy when this becomes available and consider promoting its application in the region.
- Encourage RFBs and the RSCAP to become engaged in the conservation and management of other Annex I species in the region and to exchange species-specific information.

4.1.6 Indian Ocean, Red Sea and Gulf (Africa, Asia)

Important populations of Annex I species

There are a few surviving populations of sawfishes (two, perhaps three species) in the Indian Ocean, Red Sea and Gulf, which are a very high priority for action. Plankton feeding mantas, devil rays and whale sharks are important for ecotourism in some countries, while devil rays are also fished. Threshers and whale sharks are protected by the IOTC, but still landed. Silky shark stocks have been depleted, particularly as bycatch in pelagic fisheries, but are still important for commercial and subsistence fisheries. Mako sharks and hammerheads are taken in many fisheries.

Regional fisheries bodies

The IOTC is the tuna RFMO. RECOFI (an RFMO) and PERSGA (advisory) are the RFBs for the Persian/Arabian Gulf and the Red Sea/Gulf of Aden, respectively. Another RFMO, SIOFA, covers the Southern Indian Ocean, while BOBP-IGO (an LME with an active shark programme) is the advisory body for the Bay of Bengal. The Asia-Pacific Fisheries Commission borders the eastern Indian Ocean. CCBST and CCAMLR overlap in the southern Indian Ocean.

Regional Seas Conventions and Action Plans

In the west, the Nairobi Convention/East Africa Action Plan is just beginning to consider adding shark and ray species to their remit. PERSGA, referred to above as an RFBs, is also an RSCAP and actively engaged in shark and ray research, capacity building and the provision of conservation advice. ROPME (the Kuwait Convention & Action Plan) does not cover these species, nor does the South Asia Cooperative Environment Programme (SACEP) / South Asian Seas Action Plan (SASAP) in the east.

Research, management and information gaps

The Indian Ocean (and IOTC) is very data poor in terms of fisheries records, research and management. With a few exceptions (e.g. PERSGA), this situation extends across most countries and sea areas in the region.

Recommendations : Indian Ocean, Red Sea and Gulf

- Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU.
- Seek opportunities with RFBs and RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation.

- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes in the Northern Indian Ocean. Remind priority countries that are CMS Parties and/or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, to introduce species-specific national legal protection for sawfishes.
- Review the Global Devilray Strategy when this becomes available and consider promoting its application in the region.

4.1.7 Indo-Pacific triangle (Asia)

Important populations of Annex I species

Indo-Pacific coastal waters used to support the world's greatest diversity of sawfish species. Northern Australia is now the stronghold in this region, with all four species remaining, but two or three species are likely still to occur elsewhere in the Indo-Pacific triangle. This region is also very diverse for other shark and ray species, including Mobula and Manta rays, whale sharks, threshers, hammerheads, makos and silky sharks.

Regional fisheries bodies

Two tuna RFMOs, IOTC and WCPFC, meet in this region. The Asia Pacific Fisheries Commission (an advisory body) also covers the area. SEAFDEC is the advisory RFB for the region.

Regional Seas Conventions and Action Plans

COBSEA coordinates the Action Plan for the Protection and Development of the Marine and Coastal areas of the East Asian Region. It does not appear to be involved in shark and ray conservation.

Research, management and information gaps

SEAFDEC makes a major contribution to capacity building, research and advice on fisheries management in the region, but this is a large region with several developing States that have very little information on shark and ray populations and lack research and management capacity. The gaps are likely large, particularly in the northern part of the region.

Recommendations : Indo-Pacific triangle

- Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU.
- Seek opportunities with RFBs and RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation, including the exchange of species-specific information with SEAFDEC and other RFBs.
- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes in the Indo-Pacific region.

Remind priority countries that are CMS Parties and/or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, to introduce species-specific national legal protection for sawfishes.

- Review the Global Devilray Strategy when this becomes available and consider promoting its application in the region.

4.1.8 Western, Southern and Central Pacific (Asia, Oceania)

Important populations of Annex I species

This oceanic region does not support sawfish populations. Most other species listed in Annex I that have a Pacific distribution will occur here. Basking shark, white shark, whale shark, manta and mobulid rays are listed as ‘species of concern’ for bycatch monitoring in the South Pacific¹⁸.

Regional fisheries bodies

WCPFC and the South Pacific Regional Fisheries Management Organization (SPRFMO) are the RFMOs. The Secretariat of the Pacific Community and the Pacific Islands FFA are regional advisory bodies. All RFBs are engaged in some form of shark research, stock assessments, conservation and management activities.

SPRFMO has adopted a list of bycatch ‘species of concern’, based partly on CITES and CMS Appendices, including the Annex 1 species listed above (basking, white and whale sharks, mantas and mobulids). Other species may be added by the agreement of SPRFMO Members, on the advice of the Scientific Committee. For example, all threatened species of deepwater sharks and rays in the SPRFMO area were proposed for addition by the Deep Sea Conservation Coalition at the October 2016 Scientific Committee.

Regional Seas Conventions and Action Plans

SPREP actively promotes shark and ray conservation and management. SPREP’s Shark and Ray Conservation Officer is responsible, *inter alia*, for capacity-building and assisting States with the implementation of CITES shark listings.

Research, management and information gaps

Despite the region’s huge size, the shark and ray activities of the RFBs and SPREP are helping to reduce research, management and information gaps in this region, particularly for oceanic sharks.

Recommendations : Western, Southern and Central Pacific

- Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU.
- Seek opportunities with RFBs and RSCAPs, particularly SPREP, for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation.

¹⁸ Annex 14 of SPRFMO CMM 4.02 “Standards for the Collection, Reporting, Verification and Exchange of Data”

- Promote the conservation and management of Annex 1 species through SPREP and by seeking opportunities to add other Annex 1 species to Annex 14 of SPRFMO CMM 4.02, in order to improve data collection.

4.1.9 North Pacific (Asia, North America)

Important populations of Annex I species

It is uncertain whether there are any remaining sawfish populations in this region. Any that do remain are most likely in the far southwest, bordering the Indo-Pacific triangle. Mobulid rays are present; their conservation status in this region may be confirmed in the global strategy. Basking sharks may be virtually extirpated from the North Pacific, but other Annex 1 Pacific shark species should be present.

Regional fisheries bodies

The North Pacific Fisheries Commission (RFMO) and the North Pacific Marine Science Organisation (PICES, Advisory).

Regional Seas Conventions and Action Plans

Northwest Pacific Action Plan (no Convention).

Research, management and information gaps

Not much information is readily available for this region, but it seems likely that knowledge of oceanic species is good, because of the high levels of fishing pressures in the North Pacific and the strong research capacity of several of the fishing nations (Japan, Canada, USA).

Recommendations : North Pacific

- If sawfish occur in the southwest of the region, promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries that are CMS Parties and/or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, to introduce species-specific national legal protection for sawfishes.
- Contact PICES to share information on Annex 1 species, identify gaps, and investigate research and capacity-building needs.

4.1.10 Eastern Pacific (North, Central and South America)

Important populations of Annex I species

A very small population of largetooth sawfish still appears to survive along the coast of Central and Latin America. This is the highest priority Annex 1 species in the region. The coast also has important populations of manta and mobula rays, white and whale sharks, threshers, silky shark, makos and hammerheads. Basking sharks seem to be very rare.

Regional fisheries bodies

IATTC is the Tuna RFMO for tropical waters and responsible for most management of species listed in Annex 1. The North Pacific Fisheries Commission (NPFC) and the Permanent Commission for the South Pacific (CPPS) bracket the IATTC area, while OLDEPESCA and OSPESCA cover Latin America and Central America.

Regional Seas Conventions and Action Plans

There are two: the Antigua Convention for Cooperation in the Protection and Sustainable Development of the Marine and Coastal Environment of the Northeast Pacific does not appear to be active in shark and ray conservation. The CPPS, the Convention for the Protection of the Marine Environment and Coastal Areas of the South-East Pacific (and the South East Pacific Action Plan) has developed a regional shark plan for its Members – Chile, Colombia, Ecuador and Peru.

Research, management and information gaps

There are strong research and management programmes in the USA, also in Mexico, but gaps in information increase further south, while coastal management activities decline. IATTC undertakes excellent pelagic shark and ray conservation, research and management work, including bycatch mitigation.

Recommendations : Eastern Pacific

- Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU.
- Seek opportunities with RFBs and RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation.
- Develop closer links with IATTC and CPPS, to ensure that Annex 1 species continue to receive a high priority for these organisations' research and conservation activities.
- Promote, through the Sharks MOU, the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries that are CMS Parties and/or Sharks MOU signatories of their responsibilities under CMS to enforce existing laws and, where necessary, to introduce species-specific national legal protection for sawfishes.

4.2 Conclusions

This desk study has found a generally low awareness of the existence of the CMS Sharks MOU among many other Multilateral Environmental Agreements (MEAs) and Regional Fisheries Bodies (RFBs), particularly when compared to the latter's awareness of CITES. This is probably because the Sharks MOU is a relatively young MEA. Although the complementarities between CITES and the work of the RFBs are broadly recognised, potential synergies and complementarities between CMS, other MEAs and the management and advisory RFBs mostly appear not to have been considered by these organisations.

Many of the recommendations in this study therefore focus upon forging closer links between the Sharks MOU and these other bodies, at global and regional level. This is proposed in order to raise awareness of the MOU, seek opportunities for collaboration, and to clarify research, management and information gaps and synergies for Annex 1 species, the Work Programme, and the broader remit of the MOU. This considerations may be at an individual species level, where an Annex 1 shark or ray species also falls under the remit of RFBs and RSCAPs, or more broadly, through capacity-building, research, data-collection, and bycatch mitigation projects.

The task suggested for the Conservation Working Group meeting in October/November 2016 is to review the recommendations of this study and consider the following questions:

- Which of these global and regional recommendations (collated, summarised and presented in Annex 3) fall most clearly within the remit of the CMS Sharks MOU?
- Which are most urgent research, management and information gaps, and in which regions?
- What are the most obvious opportunities for developing synergies and complementary activities within the respective mandates of other MEAs, RSCAPs and RFBs, and the Sharks MOU?
- Where and how can CMS' limited financial resources and institutional and technical capacities be most effectively applied to address research, management and information gaps?

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International Commission for the Conservation of Atlantic Tunas: www.iccat.int

Large Marine Ecosystems: <http://www.lme.noaa.gov/>

Ramsar Convention: www.ramsar.org/

Regional Fisheries Bodies: <http://www.fao.org/fishery/rfb/en>

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Secretariat of the Pacific Regional Environment Programme: www.sprep.org/

UNEP Regional Seas Programme: <http://www.unep.org/regionalseas/programmes>

Western and Central Pacific Commission: www.wcpfc.int/

Annex 1. Regional Fisheries Bodies (management and advisory, ordered by ocean)

Acronym	Name	Ocean	Region	Website	CPPs	Type	Shark action
CECAF	Fishery Committee for the Eastern Central Atlantic	Atlantic	Africa	-	34		?
COREP	Regional Commission of Fisheries of Gulf of Guinea	Atlantic	Africa	www.corep-se.org	5		
FCWC	Fishery Committee of the West Central Gulf of Guinea	Atlantic	Africa	www.fcwc-fish.org	6	Advisory	
SEAFO	South East Atlantic Fisheries Organisation	Atlantic	Africa	www.seafo.org/	7	RFMO	Yes
NEAFC	North-East Atlantic Fisheries Commission	Atlantic	Europe	www.neafc.org/	5	RFMO	Yes
NAFO	Northwest Atlantic Fisheries Organization	Atlantic	N America & Greenland	www.nafo.int	12	RFMO	Yes
WECAF C/COPACO	Western Central Atlantic Fishery Commission	Atlantic	N, C, S America & Caribbean	www.fao.org/fishery/rfb/wecafc/en	34	Advisory	Yes (Shark WG)
ICES	International Council for the Exploration of the Sea	Atlantic	Scandinavia Europe	www.ices.dk	20	Advisory	Yes
CTMFM	Joint Technical Commission of the Maritime Front	Atlantic	South America	www.ctmfm.org/	2	RFMO	Yes
CSRP (SRFC)	Commission Sous-Regionale des Peches / Sub-Regional Fisheries Commission.	Atlantic	West Africa	www.spcsrp.org	7		Yes
COMHA FAT-ATLAFCO	Ministerial Conference on Fisheries Cooperation among African States Bordering the Atlantic	Atlantic	Africa	www.atlafco.org	14	Advisory	?
ICCAT	International Commission for the Conservation of Atlantic Tunas	Atlantic & adj seas	Scandinavia, Europe, Africa, Americas	www.iccat.int	51	RFMO	Yes
CRFM	Caribbean Regional Fisheries Mechanism	Caribbean	Central/South America	www.crfm.int www.crfm.net	16		

Acronym	Name	Ocean	Region	Website	CPPs	Type	Shark action
OSPESCA	Central American Fisheries and Aquaculture Organization	Caribbean & Pacific	Central America	www.sica.int/ospesca/	8	Advisory	Yes (Shark WG)
OLDEPE SCA	Latin American Organization For Fisheries Development	Caribbean and Pacific	Latin America (N/C/S America)	www.oldepe-sca.com/	12	Advisory	Yes
RECOFI	Regional Commission for Fisheries	Indian	Gulf	www.fao.org/fishery/rfb/recofi/en	8	RFMO	Yes?
PERSGA	Regional Organization for the Conservation of the Environment of the Red Sea and Gulf of Aden	Indian	Red Sea	www.persga.org	7	Advisory	Yes
IOTC	Indian Ocean Tuna Commission	Indian		www.iotc.org	34	RFMO	Yes
SIOFA	South Indian Ocean Fisheries Agreement	Indian Ocean	Africa, Asia, Oceania	<u>None yet</u>	8	RFMO	No action
BOBP-IGO	Bay of Bengal Programme Inter-Governmental Organization	Indian Ocean/ Bay of Bengal	Asia	www.bobpig-o.org	4	Advisory	Yes
APFIC	Asia-Pacific Fishery Commission	Indo Pacific Ocean	Asia	http://www.apfic.org	21	Advisory	No
GFCM	General Fisheries Commission for the Mediterranean	Mediterranean	Mediterranean & Black Sea	www.gfcm-online.org	24	RFMO	Yes
NPFC	North Pacific Fisheries Commission	Pacific	Asia, North America	http://nwpbf-o.nomaki.jp/	7		
SPC	Secretariat of the Pacific Community	Pacific	Oceania	www.spc.int/	25	Advisory	Yes
SPRFMO	South Pacific Regional Fisheries Management Organisation	Pacific	Oceania	www.sprfmo.int	14	RFMO	Yes
WCPFC	Western and Central Pacific Fisheries Commission	Pacific	Oceania to Asia	www.wcpfc.int	43	RFMO	Yes
FFA	Forum Fisheries Agency	Pacific	Pacific Islands	www.ffa.int	17	Advisory	Yes
CPPS	Permanent Commission for the South Pacific	Pacific	South America	www.cpps-int.org	4	RSCAP	Regional Shark Plan

Acronym	Name	Ocean	Region	Website	CPPs	Type	Shark action
SEAFDEC	Southeast Asian Fisheries Development Center	Pacific	Southeast Asia	www.seafdec.org	11	Advisory	Yes
IATTC	Inter-American Tropical Tuna Commission	Pacific	West coast Americas	www.iattc.org	25	RFMO	Yes
CCAMLR	Commission for the Conservation of Antarctic Marine Living Resources	Trans-ocean	Antarctic	www.ccamlr.org	25	RFMO	Yes
CCSBT	Commission for the Conservation of Southern Bluefin Tuna	Trans-ocean	Southern hemisphere	www.ccsbt.org	14	RFMO	Yes

Annex 2. Regional Seas Conventions and Action Plans

Sea Area	Governing structure	Members/Parties
Antarctica	Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR)	Argentina, Namibia, Australia, New Zealand, Belgium, Norway, Brazil, Poland, Chile, Russia, European Community, South Africa, France, Spain, Germany, Sweden, India, Ukraine, India, Italy, United Kingdom, Japan, United States of America, Republic of Korea, Uruguay, Bulgaria, Greece, Canada, Netherlands, Finland, Peru, Vanuatu
Arctic	Arctic Council	Canada, Denmark (inc Greenland & Faroe Islands), Finland, Iceland, Norway, Russian Federation, Sweden United States
Baltic	Helcom Convention	Estonia, Finland, Denmark, Germany, Latvia, Lithuania, Poland, Russian Federation, Sweden, European Community
Eastern Africa	Nairobi Convention. East Africa Action Plan	Comoros, France, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, Tanzania and the Republic of South Africa
East Asian Seas	COBSEA. Action Plan for the Protection & development of the Marine & Coastal areas of the East Asian Region	Australia, Cambodia, China, Indonesia, Korea (Republic of), Malaysia, Philippines, Singapore, Thailand, Vietnam
Mediterranean & Black Seas	Barcelona Convention / Mediterranean Action Plan	Albania, Algeria, Bosnia/Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Morocco, Montenegro, Slovenia, Spain, Syria, Tunisia, Turkey, European Community
North-East Atlantic	OSPAR Convention	Belgium, Denmark, European Union, Finland, France, Germany, Iceland, Ireland, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom
North-East Pacific	Antigua Convention for Cooperation in the Protection & Sustainable Development of the Marine & Coastal Environment of the NE Pacific	Colombia, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama
North-West Pacific	North West Pacific Action Plan	People's Republic of China, Republic of Korea, Japan, Russian Federation
Pacific	Apia Convention / Secretariat of the Pacific Regional Environment Programme (SPREP)	Australia, Cook Islands, Fiji, France, Kiribati, Marshall Islands, Micronesia (Federated States of), Nauru, New Zealand, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu, United States of America, Vanuatu. (Territories: American Samoa, Guam, Northern Mariana Islands, French Polynesia, New Caledonia, Wallis and Futuna, Tokelau)
Red Sea and Gulf of Aden	Programme for the Environment of the Red Sea and Gulf of Aden (PERSGA)	Djibouti, Egypt, Jordan, Kingdom of Saudi Arabia, Somalia, Sudan, Yemen
ROPME Sea Area (Gulf)	Kuwait Convention and Action Plan	Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates
South Asian Seas	South Asia Cooperative Environment Programme & Action Plan (SACEP & SASAP)	Bangladesh, India, Maldives, Pakistan, Sri Lanka
South-East Pacific	South-East Pacific Action Plan	Chile, Colombia, Ecuador, Peru
Western Africa	Abidjan Convention, WACAF	Angola, Benin, Cameroon, Cape Verde, Congo, Congo DR, Cote d'Ivoire, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia,

		Mauritania, Namibia, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, South Africa, Togo
Wider Caribbean	Cartagena Convention /Caribbean Environment Programme (CEP)	Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, France, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Netherlands, Nicaragua, Panama, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, United Kingdom, United States of America, Venezuela, European Union

Annex 3. Summarised Table of Recommendations

Partners/Regions	Recommendations (summarised – see report for full details)	Priority
FAO	The CMS Secretariat to alert CMS Focal Points to FAO’s online resources, and investigate joining the existing marine species management capacity building initiative between FAO and CITES	
Regional Fisheries Bodies	Develop closer links between the Sharks MOU Secretariat and RFBs to raise awareness of the Sharks MOU and the complementarities between their respective work programmes and competencies	
	Seek opportunities for collaboration with RFBs where the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation overlap with their work	
	Evaluate the use of MOUs to promote joint activities, such as conservation, research, awareness raising and capacity building activities outlined in the Programme of Work to support Sharks MOU	
	Request that CMS Parties and/or Signatories to the MOU that are CCPs to relevant RFBs provide information on CMS’ activities under the Sharks MOU to CCP and RFMO Working Group meetings	
Regional Seas Conventions and Action Plans	The development of closer links between Sharks MOU Secretariat & RSCAPs will help to raise awareness of the Sharks MOU and overlaps between respective work programmes	
	Evaluate the use of MOUs between CMS and the Regional Seas Conventions and Action Plans, to promote joint activities outlined in the Programme of Work to support Sharks MOU implementation	
	Investigate the development and promotion of case studies and partnerships, where RSCAPs are already engaged in activities that are helping to deliver aspects of the Sharks MOU Work Programme	
Other MEAs	Extend existing CMS:CBD joint programme to incorporate activities that deliver elements of the Sharks MOU, linking these to the Global dialogue with RSCAPs and RFMOs on progress towards Aichi Targets	
	In the context of Ramsar Resolution VII.19 (1999) seek the expansion of Ramsar initiatives to address the conservation of critical coastal habitats for Annex I species	
	Engage with preparations for June 2017 UN Conference to Support Implementation of Sustainable Development Goal 14 in (UNGA 70/303), to identify information gaps & opportunities for collaboration	

	Review the status of the 68 LMEs, their governing bodies and work programmes. Investigate opportunities to develop collaborations, increase awareness of the MOU and deliver shark and ray conservation	
North Atlantic and Baltic	Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU	
Mediterranean and Black Sea	Develop closer links with the Mediterranean RFMO and the RSCAP to raise awareness of the Sharks MOU	
	Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation	
	Seek opportunities to promote and become involved in capacity building initiatives in the south and east of the Mediterranean region	
Caribbean & Western Central Atlantic	Develop closer links with RFBs and the RSCAP to raise awareness of the Sharks MOU.	
	Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation.	
	Promote the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
	Investigate the status of the CARICOM draft reporting template for MEAs in the region to determine whether CMS can be included and the template could be used to gather information on the management status of all Annex 1 species, research activities, and information gaps	
Southwest Atlantic	Develop closer links with RFBs and RSCAP to raise awareness of the Sharks MOU	
	Seek opportunities for collaboration over conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation	
	Promote the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
Eastern Central and Southeast Atlantic	Promote the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes, with emphasis on CSRFP region. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
	Review the Global Devil ray Strategy when this becomes available and consider promoting its application in the region	
	Encourage RFBs and the RSCAP to become engaged in the conservation & management of other Annex I species in the region & exchange species-specific information	
Indian Ocean, Red Sea and Gulf	Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU	

	Seek opportunities with RFBs and RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation	
	Promote Global Sawfish Strategy for developing a regional conservation strategy for sawfishes in the Northern Indian Ocean. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
	Review the Global Devil ray Strategy when this becomes available and consider promoting its application in the region	
Indo-Pacific triangle	Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU	
	Seek opportunities with RFBs & RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation, including the exchange of species-specific information with SEAFDEC & other RFBs	
	Promote Global Sawfish Strategy for developing a regional conservation strategy for sawfishes in the Indo-Pacific region. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
	Review the Global Devil ray Strategy when this becomes available and consider promoting its application in the region	
Western, Southern and Central Pacific	Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU	
	Seek opportunities with RFBs and RSCAPs, particularly SPREP, for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation	
	Promote the conservation and management of Annex 1 species through SPREP and by seeking opportunities to add other Annex 1 species to Annex 14 of SPRFMO CMM 4.02, in order to improve data collection	
North Pacific	If sawfish occur, promote the recommendations of the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries of responsibilities under CMS to enforce existing laws & introduce national legal protection for sawfishes.	
	Contact PICES to share information on Annex 1 species, identify gaps, and investigate research and capacity-building needs	
Eastern Pacific	Develop closer links with RFBs and RSCAPs to raise awareness of the Sharks MOU	
	Seek opportunities with RFBs and RSCAPs for collaboration over the conservation, research and capacity building activities outlined in the Programme of Work to support MOU implementation	
	Develop closer links with IATTC and CPPS, to ensure that Annex 1 species continue to receive a high priority for these organisations' research and conservation activities	

	Promote the Global Sawfish Strategy for developing a regional conservation strategy for sawfishes. Remind priority countries of responsibilities under CMS to enforce existing laws and introduce species-specific national legal protection for sawfishes.	
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