

Summary document: Regional status Report on Sharks and Rays in the Western Indian Ocean Region

Introduction

This document summarizes key findings from a recently published regional report on the status of sharks, rays, and other species in the class Chondrichthyes in the Western Indian Ocean (WIO) region. The report was prepared in response to Nairobi Convention Member States—at the 7th Conference of the Parties (CoP7)—calling for the preparation of a regional status report on the state of knowledge on sharks and rays in the WIO. The report covers chondrichthyan biodiversity and conservation; fisheries and trade; and management and policy in the WIO, with technical expert contributions from all Nairobi Convention Member States.

The report paints a worrying picture of the state of chondrichthyan in Nairobi Convention countries, the outcome of a complex of threats, and outlines the actions needed to reverse the decimation of these precious natural resources. Timely action to protect sharks, rays and related species will yield multiple benefits to the people and environment of the WIO, sustaining livelihoods and marine health, and building sustainability in the many economic sectors that depend directly or indirectly on chondrichthyan.

Chondrichthyan are species within the class Chondrichthyes – species that are characterized by a skeleton made of cartilage.

There are two subclasses within the Chondrichthyes: Holocephalans (includes Chimaera) and Elasmobranchs (includes sharks and batoids).

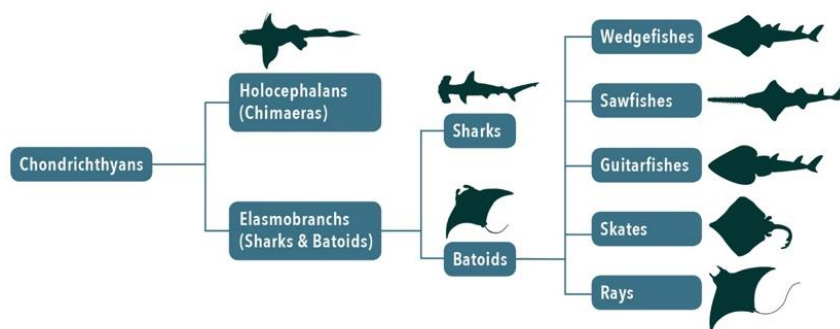


Figure 1: Schematic representation of the Class Chondrichthyes, cartilaginous fishes. Approximately, 1,280 species of chondrichthyes are known globally from diverse habitats, including estuaries, coral reefs, seagrass meadows, mangrove forests, and the open ocean

Of the 224 Chondrichthyan species identified in the WIO, 89 (40%) are now classified as threatened under the IUCN Red List 2021, among them 13 Critically Endangered, 32 Endangered and 44 Vulnerable species. This is a near doubling of threatened species over the past decade.

A further 56 chondrichthyan species occur in areas beyond national jurisdiction (ABNJ) in the region, pointing to the role of regional cooperation in the protection and conservation of chondrichthyan.

Key Messages

The Western Indian Ocean region is a global hotspot for chondrichthyan diversity, thanks to its rich and varied marine ecosystems— estuaries, mangroves, salt marshes, seagrass beds, sandy shores, rocky shores and reefs, coral reefs, a continental shelf and the deep sea — which support, and are supported by diverse marine flora and fauna, including chondrichthyans.

With 224 known species of sharks and other chondrichthyans, the Nairobi Convention area of the WIO harbours approximately 18% of all known chondrichthyan species globally, and WIO chondrichthyans have a high irreplaceability index.

Sharks, rays and related species are apex species and mesopredators, as well as prey for larger species, providing immense ecosystem services to people and the planet, and contributing to a healthy marine environment and human development. They exhibit slow growth, late age at maturity and low reproductive capacity, which render them extremely vulnerable to overexploitation and other threats such as pollution and climate change effects

The exploitation of chondrichthyans globally has risen beyond sustainable levels, with 40% of the 224 known species of sharks and other chondrichthyans in the WIO region now classified as threatened on the 2021 IUCN Red List: This is 10% higher than the global average, and double the level a decade ago.

The chondrichthyan families most at risk in the WIO include the Pristidae (sawfishes), Rhinidae (wedgedfishes), Myliobatidae (eagle rays), Sphyrnidae (hammerhead sharks), Mobulidae (manta and devil rays), Lamnidae (great white and mako sharks) and Alopiidae (thresher sharks).

The fisheries sector plays a key role in people’s livelihoods, food security and revenue generation in all Nairobi Convention Member States. It includes small-scale (subsistence, traditional and artisanal); semi-commercial; commercial and industrial; foreign fleets; and illegal, unreported and unregulated (IUU) fisheries.

Chondrichthyan species richness in countries and areas within the Nairobi Convention area of the Western Indian Ocean (ABNJ: areas beyond national jurisdiction).				
Country/Area	Shark	Batoid	Chimaera	Total
ABNJ	41	12	3	56
Comoros	31	7	0	38
France				
- La Réunion	36	12	0	48
- Mayotte	33	17	0	50
Kenya	45	33	1	79
Madagascar	72	35	1	108
Mauritius	42	14	0	56
Mozambique	77	51	3	131

Seychelles	51	18	0	69
Somalia	51	25	1	77
South Africa	93	57	5	155
Tanzania	57	40	1	98
Nairobi Convention area	135	80	9	224



Figure 2: Map of the Western Indian Ocean region

Whereas in the past, chondrichthyans were caught primarily for domestic and regionally traded shark meat and liver oil, international demand for chondrichthyan products in all forms (meat, fins and derivatives) has been a key driver of chondrichthyan fishing worldwide. A persistent large and lucrative global demand for shark fins and mobulid ray gill plates drives further shark mortalities and wastage. There is also evidence of trade in live shark individuals from WIO countries, including that of species prohibited under CITES.

Besides their extractive value, shark-based tourism contributes significant revenue in several WIO countries, representing a blue-economy revenue stream that is largely untapped in the WIO region.

Overfishing, both directed and bycatch, poses the greatest threat to shark and ray survival in the WIO. Other large contributors to the decimation of sharks in the region and globally include climate change, ocean acidification, pollution, and habitat degradation.

With human population growth and high levels of migration to coastal areas, competition for resources has seen cultural restrictions and taboos (known as *fadys* in Madagascar) governing fishing and consumption being eroded with each passing generation; this has further exacerbated the vulnerability of sharks to exploitation.

Concerted and multi-pronged local, national and regional efforts are needed to curb these interlinked threats. High demand for chondrichthyan products drives shark and ray mortality as targets and bycatch in artisanal, commercial and industrial fisheries.

Governance and management of chondrichthyans in WIO

Underpinned by national, regional and international legislation and guidance, recommendations for fisheries reform include: regulatory and spatial interventions; strengthening fishery regulations and improving enforcement of national and international agreements (including outlawing the use of large-mesh gillnets, fish-aggregating devices (FADs) and wire leaders); training fishers in the safe release of bycatch and species identification; Strengthening accurate data collection, recording and reporting; trade controls, including restrictions on endangered species; research to close numerous knowledge gaps; fostering ocean literacy at all levels, and broad public education and participation.

Sharks and rays are migratory species, spending important life stages in the waters and shorelines of several states, as well as areas beyond national jurisdiction (ABNJ). Indeed, 25 of the 37 chondrichthyan species listed on Appendices I and II of CMS (migratory species) occur in the WIO region. As such, successful intervention will require an Ecosystem Approach to Fisheries, and close regional cooperation among states. Furthermore, collaborative approaches to designing MPAs in the WIO would serve to protect chondrichthyans would support the survival of these species across political borders.

The report outlines global and regional management and policy frameworks useful for chondrichthyan protection and management in the WIO. Regional and global instruments include:

- Convention on the Conservation of Migratory Species of Wild Animals (CMS) and CMS Memorandum of Understanding for the Conservation of sharks (Sharks-MOU);
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES);
- UN Convention on the Law of the Sea (UNCLOS);
- UN Fish Stocks Agreement (UNFSA);
- Ramsar Convention;
- Food and Agriculture Organization (FAO);
- Port State Measures Agreement (PSMA);
- Indian Ocean Tuna Commission (IOTC);
- Southern Indian Ocean Fisheries Agreement (SIOFA);
- South West Indian Ocean Fisheries Commission (SWIOFC);
- Nairobi Convention Protocol of 1985 Concerning Protected Areas and Wild Fauna and Flora in the Eastern African Region

- Indian Ocean Commission (IOC);
- Southern African Development Community Protocol on Fisheries (SADC-PC) and
- United Nations General Assembly Resolution on Sustainable Fisheries (UNGA-RSF).
- To add BBNJ, ABNJ treaties, others

Millions of people in the WIO region depend directly or indirectly on fisheries for their livelihood. As such, management measures and actions need to account for people’s needs, to ensure equitable access to resources, and to minimize or avoid impacts to communities whilst ensuring the sustainability of coastal resources. This balance between human needs and ecological requirements represents a challenge for conservation and management of natural resources. Effective chondrichthyan conservation and management thus requires inclusion and inputs of all stakeholders, to identify and urgently implement appropriate and timeous solutions.

Actions needed to ensure sustainable chondrichthyans fisheries, conservation and management in the Nairobi Convention area of the Western Indian Ocean.

1. Strengthen management and conservation measures

- Reduce fishing-related mortality, through improved and (where necessary) stricter regulations and management measures;
- Designs of new MPAs to account for chondrichthyan needs;
- Amend management plans of existing MPAs to provide increased conservation benefits to chondrichthyan species present;
- Improve adherence to and implementation of binding and voluntary measures defined under MEAs (see chapter 5).

2. Strengthen policy and legislation

- Improve policy and legislation specifically for chondrichthyan species, including full protection of species where relevant;
- Improve legal frameworks for implementation of MEAs and global measures.

3. Improve compliance and enforcement

- Improve monitoring, control and surveillance (MCS) and enforcement of regulations required in most countries;
- Implement measures to combat/mitigate Illegal fisheries and illegal trade;
- Awareness raising among fishers could improve compliance.

4. Improve data collection, reporting and knowledge on chondrichthyans in the WIO

- Improve biological and ecological data (using data from WIO populations);

- Improve and standardize collection of catch data in all fisheries that take chondrichthyans, particularly species-level data;
- Increase observer coverage in commercial and industrial fisheries;
- Improve platforms for catch monitoring and reporting;
- Improve platforms for trade monitoring and reporting;

5. Strengthen national and regional capacity

- Improve capacity for chondrichthyan management, data collection, fishery and trade monitoring, MCS, enforcement, research, species identification.

6. Improve awareness-raising and communication

- Improve awareness among fishers, governments and other stakeholders;
- Improve communication of information, regulations and best practices.