



WCS Mozambique

A Wildlife Conservation Society Program

Advancing Shark and Ray Conservation in Mozambique

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The role of sharks and rays in marine ecosystems

Sharks and rays play important roles in marine ecosystems, both as predators and as prey. Sharks are particularly known for controlling the abundance of organisms in the food chain below them, thereby maintaining balance and ecological functioning. Shark and ray species are therefore critical to many ecosystems, and changes in their abundance and diversity can provide a barometer for the health of the oceans.

In Mozambique, approximately 147 shark and ray species have been documented to date, with southern Mozambique falling within a global *hotspot* for shark and ray species richness, endemism and evolutionary distinctiveness.

There is, however, global concern about the increasing catches of sharks and rays and the consequences this has for the populations of many of these species, in many areas of the world's oceans. Slow growth rates, late maturity, and low reproductive potential make sharks and rays highly susceptible to overfishing. There is considerable fishing pressure in Mozambique and, in most fisheries, sharks and rays are targeted or taken as bycatch. As such, sharks and rays in Mozambique are heavily overfished, with 65 species (44%) currently considered threatened with extinction (Vulnerable, Endangered, or Critically Endangered), and a further 18 species (12%) being classified as Data Deficient, by the International Union for Conservation of Nature (IUCN) Red List of Threatened Species.

Partnership between WCS and the Government of Mozambique

The Wildlife Conservation Society (WCS) Mozambique has been working with the Ministry of Sea, Inland Waters and Fisheries (MIMAIP), namely the National Institute for Fisheries Research (IIP), to increase knowledge of sharks and rays in the country in order to support the definition, preparation and implementation of measures for their adequate management and conservation.

In this context, since 2018, WCS and IIP have been collaborating to collect detailed information on this biological group. Research activities include periodic catch surveys within coastal artisanal fishing communities in Cabo Delgado, Nampula, Zambézia, Inhambane and Maputo Provinces, and biological sampling using baited remote underwater video surveys (BRUVs). This work has been supported by other partners, such as the Faculty of Natural Sciences of the University of Lúrio, the World Wide Fund for Nature (WWF) and the South African Institute for Aquatic Biodiversity (SAIAB) (and with the financial support of donors such as the John D. and Catherine T. MacArthur Foundation and the Shark Conservation Fund).



Fishery catch surveys to collect information on species and sizes of sharks and rays caught in artisanal fisheries (Photo credits: Stela Fernando/IIP)



Deployment of baited remote underwater video cameras to record sharks and rays in their natural environments (Photo credits: WCS)

The findings obtained to date through these surveys have made it possible to verify that the southern area of Mozambique is of great importance for the conservation of sharks and rays. A noteworthy finding from the BRUV surveys was the first records of the shorttail nurse shark *Pseudoginglymostoma brevicaudatum* (formerly *Ginglymostoma brevicaudatum*) in Mozambique. This is the single most threatened shark species (currently listed as Critically Endangered on the IUCN Red List) that is endemic to the Western Indian Ocean (WIO). A scientific paper documenting these findings was published in the journal *Marine Biodiversity* (<https://rdcu.be/cdo9z>).

These data are now being explored by WCS and IIP through a spatial biodiversity assessment to inform a scenario development exercise for the potential expansion of the national network of marine conservation areas to achieve the protected area targets to which the country has committed.

Support on legislation: the new Sea Fisheries Regulation (REPMAR)

Until the end of 2020, sea fishing was regulated by the 2003 Decree (Decree 43/2003 of 10 December). In January 2021 the new Maritime Fisheries Regulation (REPMAR - Decree No. 89/2020 of 8 October) came into force, which updates the previous decree, introducing important elements in the framework of national maritime fisheries. The new decree is expected to contribute to making these fisheries more sustainable and their management increasingly participatory.

The review of the former REPMAR was carried out over the last few years, in a process led by MIMAIP, highlighting the work of the National Fisheries Administration (ADNAP), IIP and the National Directorate for Sea Policies (DIPOL) with the support of various cooperation and conservation partners.

Throughout 2019 and 2020 WCS supported the development of this document by providing technical and logistical support and funding for the final technical workshop to prepare the document.

The technical support provided by WCS was directed towards the Chapter on the conservation and protection of fisheries resources, namely in the preparation of the list of species prohibited from capture (Annex XIII of the new decree). Support was also provided for the definition of the ways in which marine conservation areas (full protection or sustainable use, according to the Mozambican legislation) and resource recovery zones (temporary and permanent) can be established and how they relate to the law and regulation for the protection, conservation and sustainable use of biological diversity.



Meeting organised by WCS, Verde & Azul and ADNAP in 2019 with participation of Government and various NGOs to discuss lessons learned to date on the implementation of Community Managed Fishing Areas (LMMAs) (Photo credits: Hugo Costa/WCS)

WCS also supported ADNAP in the development of Section III of REPMAR on the participatory management of fisheries resources, which now recognizes community management fishing areas. This important innovation in fisheries legislation allows artisanal fishermen, through community-based organizations, to co-manage areas of customary use of their community, ensuring the sustainable use and management of existing coastal and marine resources, as well as the conservation of natural resources and sites of historical, religious, spiritual and cultural use, thereby contributing to sustainable development.

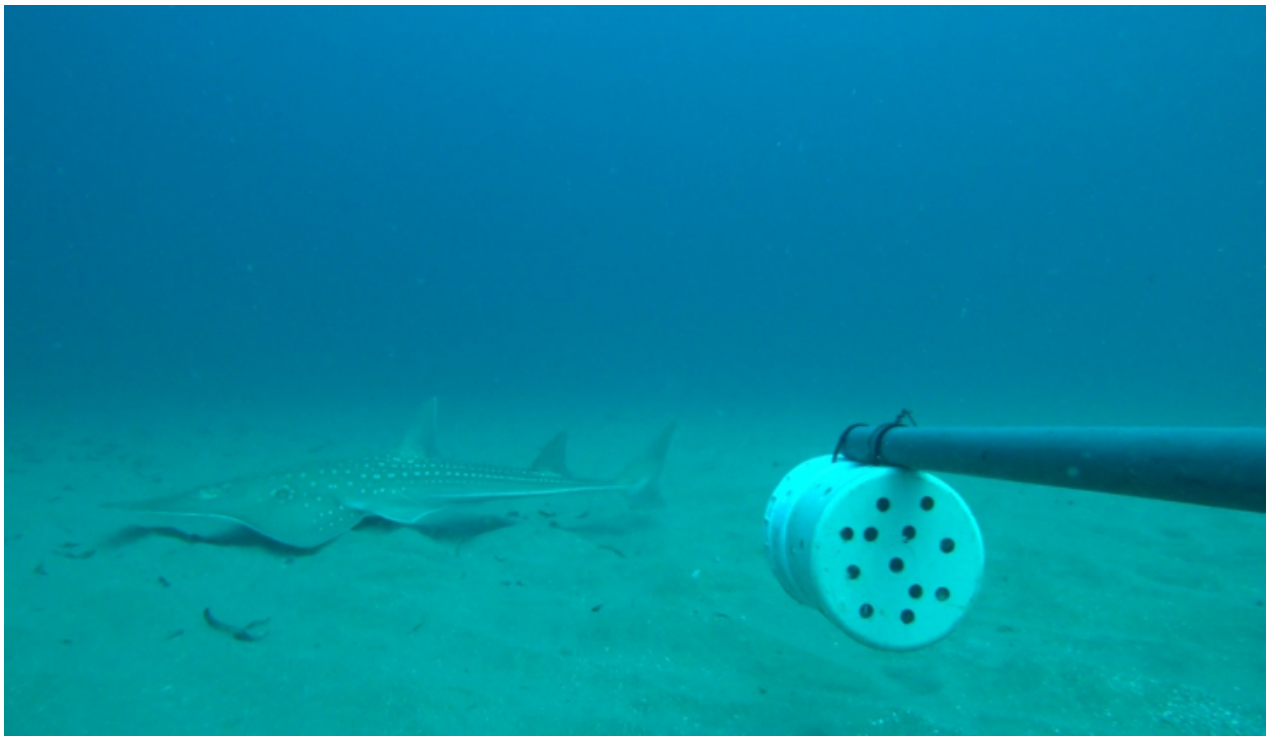
In conjunction with the World Bank-led SwioFish project, and through collaboration with WWF and RARE, WCS is supporting ADNAP to develop specific guidelines for the legalisation of community-managed fishing areas, their management and enforcement.

Marine protected species in Mozambique

There is global and national concern about the increasing catches of various marine organisms and the associated consequences for the populations of many species in the region. Mozambique has joined several international conventions and initiatives that have established measures to promote better management and conservation of sharks, rays and other marine species. In October 2019, a meeting was held among ADNAP, IIP, WCS and WWF to define the criteria for species requiring protection.

Initially, species were proposed for listing based on their global threat status (using the IUCN Red List of Threatened Species), the Convention on the Conservation of Migratory Species of Wild Animals (CMS), the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), species prohibited according to resolutions of the Indian Ocean Tuna Commission (IOTC) and by taking into account the protection status of species as listed in national legislation of other countries in the WIO region. Species accepted for inclusion in the final list, however, were those listed under CMS appendix I and IOTC prohibited species. The process of establishing this list took about a year.

Sharks and rays were the most prominent group in the revised list of species prohibited from any form of capture or fishing, with 13 new species being listed on Annex XIII of REPMAR, besides the great white shark which was already protected; it should be noted that prior to the publication of REPMAR, only one species of shark was considered as protected in Mozambique, the white shark *Carcharodon carcharias*. Seahorses and certain species of bivalves, gastropods and holothurians are now listed as protected in Mozambique for the first time, with all marine mammal and sea turtle species also listed as prohibited.



A critically endangered whitespotted wedgefish *Rhynchobatus djiddensis* investigates a baited video camera in southern Mozambique (Photo credits: IIP & WCS)

Currently, WCS, WWF and RARE are supporting the Government of Mozambique to raise awareness of these new regulations and protected species, having produced posters and other information materials that are being distributed throughout the country.



The National Plan of Action for the Conservation and Management of Sharks and Rays (NPOA)

Another tool that will be essential for the conservation of sharks and rays in Mozambique is the NPOA. This plan makes a diagnosis of the current situation of sharks and rays in the country, defines objectives to improve the conservation of the species and identifies a set of actions to achieve them. Supported since 2017 by WWF and the non-governmental organization TRAFFIC, this process has also had the collaboration of WCS since 2019 through technical and logistical support.

In this context, WCS and IIP are organizing a series of training workshops for government staff, the national CITES management and scientific authorities, scientists and managers who deal with international trade in endangered species, which will take place in 2021 and 2022. This training aims to increase the capacity of public institutions in the management of CITES processes as they relate to sharks and rays, the identification of these species and the preparation of *Non-Detriment Findings* (NDF) assessments, i.e. the assessments that are necessary for the Government to decide whether or not to authorize international trade in particular species which are listed on CITES Appendix II, including export quotas where relevant.

The future of marine biodiversity in Mozambique

The approval of Decree 89/2020 on the Regulation of Maritime Fisheries is a major step towards the conservation of marine biological diversity, promoting more sustainable management of species and fisheries. It also demonstrates the effort that Mozambique is making in terms of biodiversity conservation and its preservation for future generations.

With the accession to the *High Ambition Coalition* (HAC) initiative at the end of 2019, Mozambique is part of a set of about 70 countries that have already committed to protecting about 30% of their terrestrial and marine environment by 2030. Recently, WCS and IIP, as part of their project to develop scenarios for the expansion of the national network of marine conservation areas, provided a six-day online training workshop to the focal points of the biodiversity conventions ratified by Mozambique and the HAC, with the aim of improving their capacity for the implementation of resolutions taken by member countries.

Through the efforts described above and through other ongoing projects with the Government, such as the support for the development of the National Strategy and Action Plan for the coral reefs of Mozambique, WCS is an active partner of the Government in making economic development compatible with the conservation and sustainable use of biological resources, with benefits for the local communities that depend on marine ecosystems.