



SHARKS AND RAYS: A DEADLY HARVEST

WIDESPREAD EVIDENCE OF ILLEGAL, UNREPORTED AND UNREGULATED FISHING IN THE MEDITERRANEAN

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Illegal fishing for sharks and rays is devastating marine ecosystems, and the situation in the Mediterranean is worse than anywhere in the world. In this busy, overexploited and semi-enclosed sea, more than half of all shark and ray species are severely threatened, and some face the real possibility of extinction in the region.

Despite legislation banning the landing of protected species of sharks and rays and restricting pressure on others, fishing for sharks and rays is very weakly controlled and bans are badly enforced. Toothless regulations aimed at conserving vulnerable shark and ray populations don't go nearly far enough, and – as our evidence shows – those that are in place are routinely ignored in poorly managed markets all over the region.

The result: threatened species of sharks and rays are illegally caught while for others there is next to no reporting or management. And over the last decade, the situation has got much worse: it's not yet a lost cause, but we need to take urgent action right now.

MEDITERRANEAN SPECIES: DIVERSITY AND DECLINE

The Mediterranean is a biodiversity hotspot for sharks and rays, with an amazing 80+ different species counted in its waters. But for how much longer? Shocking figures from the IUCN's most recent assessment speak for themselves: more than a quarter of all 73 assessed species are 'Critically Endangered', which means they face an extremely high risk of extinction.

SHARKS UNDER THREAT IN THE MEDITERRANEAN

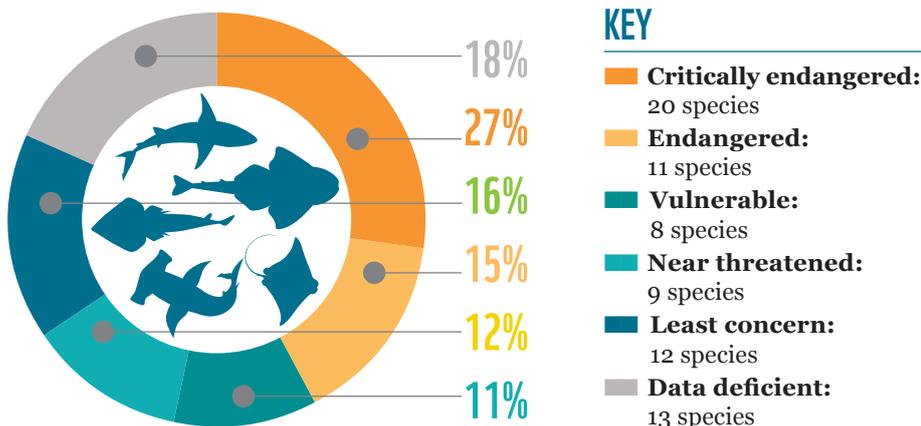


Figure 1: IUCN Red List figures for the Mediterranean, showing shark and ray species at risk of extinction - more than half are severely threatened.

WHY DO SHARKS AND RAYS MATTER?

- Sharks and rays are indicators of – and fundamental to – healthy oceans. Their influence extends from surface waters down to deep sea beds.
- As apex predators some sharks keep food webs diverse and in balance.
- Rays support complex sea-bottom ecosystems and transfer nutrients up through the water column.
- Globally sharks and rays are increasingly popular with tourists, offering a potential new source of income for coastal communities.
- Shark fisheries can support thousands of livelihoods and provide an important food source in the Mediterranean, but sustainable management is critical.

IUU FISHING

Illegal, Unreported and Unregulated (IUU) fishing is the number one threat to sharks and rays in the Mediterranean today, and we have compelling evidence that it continues to take place all over the region. All kinds of species of sharks and rays are regularly caught by nets and longlines, whether as unwanted catch (bycatch) or as directly targeted quarry. Because of widespread illegality and a lack of management and control, far too many are killed each year, causing enormous damage to marine ecosystems.

Many of these species are protected and critically endangered. If we want them to survive into the future, we need to fix all three parts of the IUU problem.

ILLEGAL – Legislation prohibits retaining, landing and selling 24 species of sharks and rays in the Mediterranean.¹ But enforcement is another matter: many fishers are either unaware of or simply ignore the restrictions, and catch and sell prohibited species anyway. In some cases, they sell them fraudulently as swordfish or other more commercially valuable seafood.

UNREPORTED – Fisheries management needs detailed data, and sharks and rays make up a significant proportion of fishery bycatch. Incredibly though, 97% of all sharks and rays caught and brought to market in the Mediterranean are not reported by species: if we don't know which species are being caught, where and when, we can't design measures to conserve them.

UNREGULATED – Some sharks and ray fisheries fall outside any regulations, despite States' responsibilities for the conservation of living marine resources under international law, which means there are no safeguards in place to manage their exploitation. As mostly slow-growing, late-breeding animals, shark and ray populations may fail to recover if they're subject to even a short period of overfishing – so management is critical.

WHY DOES IUU HAPPEN?

- **Lack of awareness** – many fishers don't know which species are protected, or why they matter to the ecosystem.
- **Lack of resources** – authorities don't have the capacity for training and/or to enforce existing rules.
- **Lack of data** – since species are not identified and recorded properly in logbooks or at landing, management and traceability is impossible. Both cause and consequence of IUU fishing, lack of data creates a vicious circle of bad management.
- **Lack of spatial protection** – many critical shark and ray habitats (like nursery and breeding areas) are not effectively protected, leaving them open to accidental catches. By closing these areas to all fishing activities, populations could start to recover.
- **Lack of compliance** – economic interest can drive fishers to ignore existing rules: as well as receiving cash for sales, they do not pay taxes or duties for IUU landings.

1. Recommendation GFCM/36/2012/3 now GFCM/42/2018/2, on fisheries management measures for the conservation of sharks and rays.

IUU FISHING: COMING TO A SEAFOOD MARKET NEAR YOU...

Protected and threatened shark and ray species are being killed and landed in Mediterranean fisheries in all EU and non-EU countries. We've received shocking evidence² proving the high levels of IUU fishing of sharks and rays, some of them critically endangered and protected by law. Current regulations seem to make little difference at sea: highly protected species keep getting caught, and they end up on our plates. This is a small selection of the cases we received.

ANGULAR ROUGH SHARK, *Oxynotus centrina*
Spain is the Mediterranean's and one of the world's largest importer and exporter of sharks, but market rules are still not always followed and critically endangered protected species are landed – as well as this angular rough shark, recent cases of illegally landed porbeagle sharks, spiny butterfly rays and tope have been reported.
SPAIN
Valencian Community, 6 February 2019

SHORTFIN MAKO SHARK, *Isurus oxyrinchus*
This juvenile specimen was found illegally for sale at a market. **Protected by regional legislation and critically endangered**, the fastest shark in the sea is particularly vulnerable to overfishing because of its slow growth, late maturity and low number of offspring.
FRANCE
Marseille, 11 May 2020

SHORTFIN MAKO SHARK, *Isurus oxyrinchus*
Despite legislation, there are still regular reports of mako sharks being illegally landed and sold in Italy, like this very large female found in Sicily. Scientific research shows a high level of seafood fraud: one recent study found shortfin mako and blue shark being sold as swordfish in 32 out of 80 samples tested. There are also reports of shortfin mako being landed and sold in other countries including Greece, Spain, Tunisia and Turkey.
ITALY
Catania, 23 May 2020

SMOOTH-HOUNDS, *Mustelus spp.*
Smooth-hounds are common on both domestic and export markets, yet despite legislation **Croatia doesn't record any details of the species when it is caught**. Smooth-hound fisheries management is urgently required as their numbers have declined 80-90% in the last century – but for this to happen, the first thing needed is data.
CROATIA
April 2020

BASKING SHARK, *Cetorhinus maximus*
This endangered gentle giant, the second largest fish in the world, can grow up to 12 metres in length. It's a harmless filter feeder that survives on zooplankton, but its feeding habits mean it is often trapped in set nets and ends up as bycatch.
GREECE
Evoikos Gulf, 23 March 2020

SPINY BUTTERFLY RAY, *Gymnura altavela*
According to regional regulation, this critically endangered ray, which plays an important role in seabed ecosystems, should not be landed or sold. But unfortunately this species is not yet on the national protected species list in Turkey.
TURKEY
Antalya, 20 October 2019

SMOOTH HAMMERHEAD, *Sphyrna zygaena*
The smooth hammerhead is very rare in the Mediterranean. However, despite protection from fishing, specimens still sometimes turn up at markets, like this one in Morocco.
MOROCCO
Tétouan, October 2019

GIANT DEVIL RAY, *Mobula mobular*
This 'Mediterranean Manta' has been illegally landed and brought for sale at market. The elegant species moves long distances and plays a key role in marine ecosystems, but **today it's endangered and its population is still decreasing**. Reports of other illegal catches have been received from Spain, Tunisia, Greece and Turkey.
ALGERIA
Tlemcen, May 2019

WHITE SHARK, *Carcharodon carcharias*
Mediterranean white sharks are extremely rare and critically endangered. However, despite being protected, in some regions there is little awareness of how important they are to the marine ecosystem, and little capacity to enforce the rules when – as in this example – **they're illegally caught and sold**.
TUNISIA
Zarzis, May 2018

COMMON GUITARFISH, *Rhinobatos rhinobatos*
This endangered bottom-dwelling ray is subject to intense fishing pressure from longlines and trawls, and in some southern Mediterranean communities the commercial bycatch is an important source of income. **Guitarfish are protected from fishing by regional law, but fisheries regulations are harder to enforce in some countries** than others, and are often not properly implemented at national level.
LIBYA
Benghazi, 03 May 2020

SAWBACK ANGELSHARK, *Squatina aculeata*
Angel sharks used to be widespread, and were highly prized for eating. But unsustainable exploitation of this slow-breeding family led to population collapse: today they are one of the most endangered shark families worldwide, and all three Mediterranean species are critically endangered. **Illegal catches like this put their future further in doubt**.
CYPRUS
Paphos, 10 February 2020

2. The MECO project (Mediterranean Elasmobranch Citizen Observations) collected evidence via local citizen scientists using social media as a basis for this report. Their evidence shows a wide range of species across all countries of the Mediterranean being caught and landed.

HOW TO TURN THE TIDE

Sharks and rays in the Mediterranean have never been more threatened than they are today. But we don't have to stand by helplessly as ecosystems deteriorate, fisheries collapse and species go extinct – instead it's time to take action.



AWARENESS & EDUCATION

IUU fishing often occurs through ignorance.

Fishers, authorities and consumers all need to know more about why sharks and rays are so important to the Mediterranean; and to be aware of the regulations in place to protect them. Well designed public awareness campaigns and capacity building in species identification can get results.



COLLABORATION

Fishers are key allies for reducing the number of sharks and rays killed as bycatch. Many species

have a good chance of survival if they're carefully handled and are released into the water as soon as possible. Bycatch can also be reduced by switching to more selective gear. We need more champion fishers to develop new strategies to avoid catching unwanted sharks, and we need fishers to participate in the management of legal target shark fisheries.



ENFORCEMENT & IMPLEMENTATION

Where there are rules, they must be followed and enforced. Countries need to implement it. Authorities need to increase their capacity to monitor shark and ray landings, and have zero tolerance against illegal practices at all stages of the supply chain. Recreational fisheries should be restricted, and fishers trained, licensed and monitored.



DATA & SCIENCE

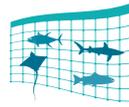
Data collection and reporting is the only way of improving our knowledge of shark and ray populations in the Mediterranean, and this needs to be radically increased so informed management decisions can be taken. All bycatch should be recorded and shared across a regional database. Observer and research programmes need to be adequately supported and funded.



MARKETS & TRADE

Some shark and ray populations can be fished sustainably, others can't. Species-specific information should be recorded in market and trade data so we can get a true picture of the effects of commercial fishery

exploitation. Traceability (including using modern methods such as DNA sampling) is also a key consideration in the fight against seafood fraud.



FISHERY LEGISLATION AND MANAGEMENT

Fishery authorities and managers should introduce a range of measures to reduce bycatch

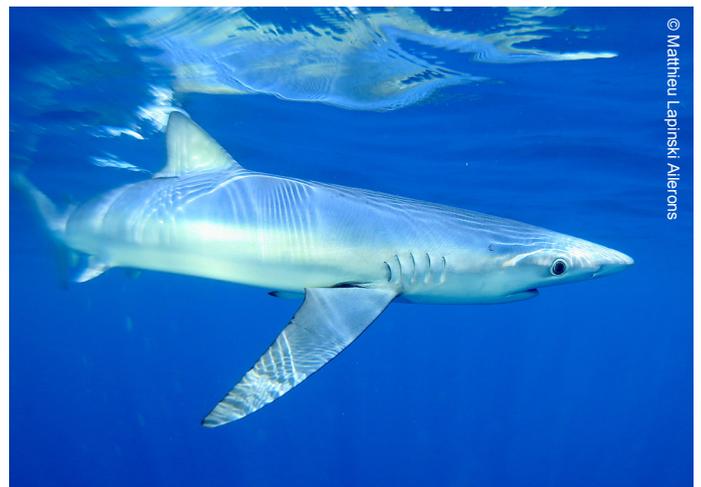
levels of sharks and rays, including adopting mitigation measures. Fishers should be included and consulted for their vast ecological knowledge and to increase compliance. Spatial protection can preserve critical habitats, seasonal variations can protect key life stages, gear modifications can reduce accidental catches.



NATIONAL ACTION PLANS FOR SHARKS

The FAO Code of Conduct for Responsible Fisheries and the EU call on all states to create

their own national plans of action to ensure sustainability for all shark and ray species. In addition, the Mediterranean Action Plan for the Conservation of Chondrichthyan Fishes¹ proposes priorities and actions to be undertaken at national and regional level. As of today, no states have yet fully launched their own national plans to ensure the conservation, management and long-term sustainable use of sharks and rays in the Mediterranean. States must act urgently!



A NEW DEAL FOR SHARKS AND RAYS

2020-2030 will be a crucial decade to protect at least 30% of the Mediterranean. Let's make sure we turn the tide and strike a new deal for sharks and rays.



M.E.C.O.

WWF would like to thank the MECO project for providing their social media evidence and for their contribution to the protection of sharks and rays in the Mediterranean.

The MECO Project (Mediterranean Elasmobranch Citizen Observations) is a Mediterranean initiative using social media to create a regional database of elasmobranch

observations through 10 local Facebook groups where local scientists collect shark and ray observations with the help of citizen scientists. The groups include Sharks in Israel, iSea, Marine Biology Libya, SUBMON, Marine and Environmental Research (MER) Lab, MedSea, and Associacio Lamna.

1. SPA/RAC-UN Environment/MAP, 2020. Action Plan for the Conservation of Cartilaginous Fishes (Chondrichthyans) in the Mediterranean Sea; by: Bradai, M N., Ed SPA/RAC. Tunis, 18 pp.



Why we are here

To stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature.

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