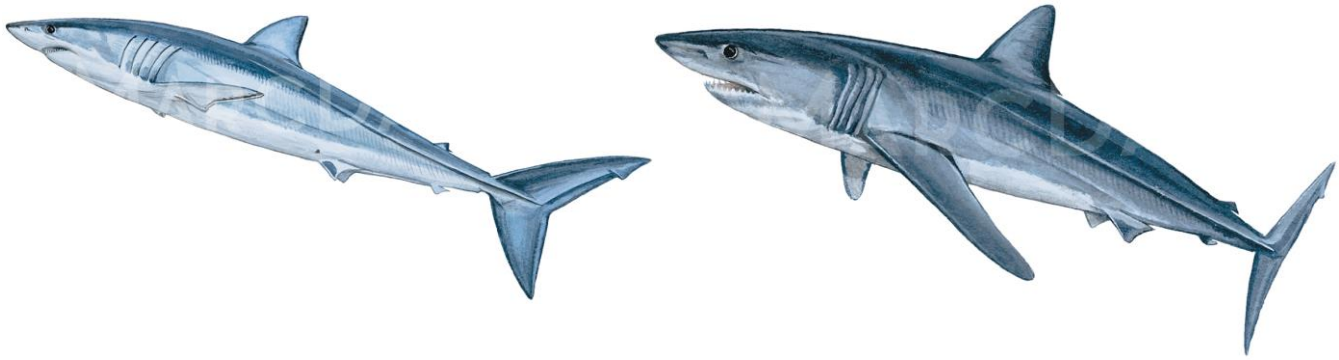
Memorandum of Understanding on the Conservation of Migratory Sharks

Mako Sharks Fact Sheet



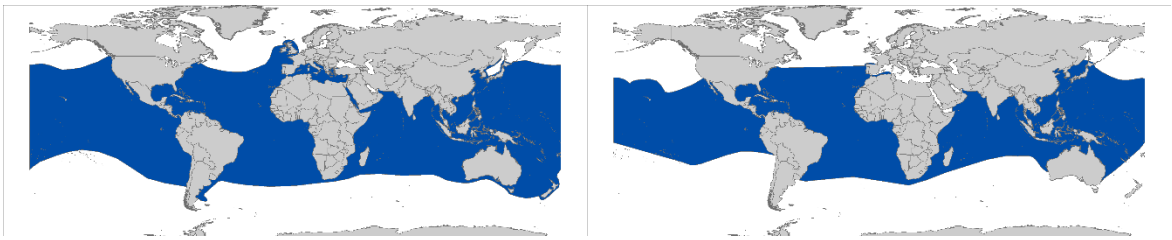
Class:	Chondrichthyes	Mako sharks Taupe bleu & Taupe petit Marrajo dientuso & Marrajo carite
Order:	Lamniformes	
Family:	Lamnidae	
Species:	*Isurus oxyrinchus – Shortfin Mako* *Isurus paucus – Longfin Mako*	Illustration: © Marc Dando

1. BIOLOGY

The shortfin mako shark (*Isurus oxyrinchus*) and the longfin mako shark (*Isurus paucus*) occupy epipelagic habitats in tropical and warm-temperate seas. As a long-lived species with low fecundity (11 young every 3 years) and late age at maturity (18 years for females), population recovery times for shortfin mako are slow. While there is little information on the biology of longfin mako, it is assumed longfin mako would have similar life history traits.

2. DISTRIBUTION

Shortfin mako prefer temperate to tropical waters with temperatures between 17-22°C. They occur from the surface to 500 m depths and typically in oceanic waters, but have occasionally been observed in shelf seas (Vaudo et al. 2016). Records on longfin mako sharks are sporadic and their complete geographic range is not well known (Reardon et al. 2006).



Isurus oxyrinchus *Isurus paucus*

Figure 1: Distribution of mako shark species courtesy of IUCN.

3. CRITICAL SITES

Critical sites are those habitats that may have a key role for the conservation status of a shark population, and may include feeding, mating, pupping, overwintering grounds and other aggregation sites, as well as corridors between these sites such as migration routes. Critical sites have not been accurately defined for these species in all areas, but some potentially important grounds have been proposed REFS.

4. POPULATION STATUS AND TRENDS

Most information available on the population status and trends in this taxon consists of fisheries catch data and is therefore either not species specific or focusses primarily on shortfin mako shark. The subpopulation structure of the longfin mako shark is widely unknown due to scarcity of data. However, it is suspected that two subpopulations in the Atlantic Ocean and an the Indo-Pacific could be isolated from each other (Reardon et al. 2006). RFMOs assessing shortfin mako are examining stocks in the North Atlantic and South Atlantic ICCAT and Indian Ocean IOTC to be undertaken in 2019 tbc. Stock units have not been defined in the Pacific Ocean. The current IUCN Red List status for the global populations for shortfin mako and longfin mako are Vulnerable (Cailliet et al. 2009) and Vulnerable (Reardon et al. 2006), respectively[1].

Species	Estimated Decline	Region	Time Period	Reference
ATLANTIC				
Isurus oxyrinchus	61% decline	North Atlantic	1950-2015	ICCAT (2017)
PACIFIC				
Isurus spp.	≈ 7% decline per year	North Pacific	1995 to 2010	(Clarke et al. 2013)

5. KEY THREATS

- **Fisheries**: Both species are caught in pelagic longlines, drifting or set gill nets and on hook-and line fisheries (Cailliet et al. 2009). Shortfin mako shark can constitute a considerable proportions of pelagic sharks caught in some long line fleets, but the longfin mako shark is caught in a much lower proportion due to its rarity (Reardon et al. 2006).
- **International trade:** The shortfin mako shark is a higher value shark species for meat products. Clarke et al. (2006) found that fins of shortfin mako sharks enter the international fin trade, where they account for approximately 2.7% of the fins traded. Longfin mako sharks are mostly sold in the same category with shortfin mako or thresher fins due to a similarity of appearance and market value.

1 See IUCN website for further details on the population assessments: http://www.iucnredlist.org/details/39341/0 and http://www.iucnredlist.org/details/60225/0.

6. KEY KNOWLEDGE GAPS

- Recent and accurate estimates of population sizes and demographic structure with regard to sustainable levels of fishing pressure are urgently needed;
- Further, the distribution, life-history, and ecological parameters of both species are lacking. Especially, data on *Isurus paucus* are underrepresented.

7. KEY MANAGEMENT AND CONSERVATION GAPS

- There are currently no agreed management actions for mako sharks in any RFMO area;
- National fishery or conservation measures are limited;
- Full stock assessments have only been conducted for the two Atlantic stocks, excluding the Mediterranean. The assessment for south Atlantic stock was considered to be highly uncertain.
- Critical habitats have not been identified and delineated;
- Fishery data (landings, discards, size frequency, catch and effort) are lacking in some areas.

8. RECOMMENDATIONS FOR CONSERVATION AND MANAGEMENT ACTION

a) Incorporate conservation measures for mako sharks into national legislation of all Parties/Signatories.

- Implement relevant international measures (e.g. CMS and RFMOs).

b) Improve the understanding of mako sharks through strategic research, monitoring and information exchange, including data collection of biological and distributional data and population status.

- Identify critical sites of mako shark abundance and seasonality;
- Address data gaps in biological knowledge (life history parameters) of shortfin mako
- Investigate life history of longfin mako;
- Develop stock assessment in cooperation with RFMOs for all areas;
- Further investigate post-release survivorship of mako sharks to inform improved handling and release protocols;
- Enhance or develop where necessary collection of fishery data (including landings, discards, size frequency, catch and effort where needed).

c) Improve multilateral cooperation among regions & RFBs

- Support the introduction of appropriate management and conservation measures for mako sharks at international and regional fora (e.g. Co-sponsor proposals / resolutions within multilateral agreements);
- Promote better regional cooperation between RFMOs and RFBs (e.g. data-sharing or involvement in the Kobe process[2]);
- Support the development and implementation of appropriate management plans for mako sharks;
- Identify synergies with other Range States/stakeholders to support coordinated and resource-effective research & conservation programs.

2 http://www.tuna-org.org

d) Identify the effective approaches to reduce bycatch and improve survivorship of mako sharks, including gear modifications e.g. hook and trace type, and fishing practices e.g. soak time and safe release handling guidelines.

e) Raise awareness about the threats to mako sharks

- Inform the public about the need of shark conservation via educational, social media and local outreach campaigns.

9. LEGAL INSTRUMENTS

Instrument	Description	Species
Barcelona Convention Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean	**Annex II**: Endangered or threatened species; Parties shall ensure the maximum possible protection and recovery of, while prohibiting the damage to and destruction of, these species.	*I. oxyrinchus*
CCSBT Commission for the Conservation of Southern Bluefin Tuna	CCSBT encourages both Members and Cooperating Non-Members to comply with a variety of binding and non-binding measures in order to protect species ecologically related to Southern bluefin tuna, including sharks.	*I. oxyrinchus*
CMS Convention on the Conservation of Migratory Species of Wild Animals	**Appendix II**: Migratory species that have an unfavourable conservation status and need or would significantly benefit from international cooperation; CMS Parties shall endeavour to conclude global or regional agreements to benefit these species.	*I. oxyrinchus* *I. paucus*
FAO Food and Agriculture Organization	**IPOA Sharks:** International Plan of Action for Conservation and Management of Sharks based on which states should adopt and implement a national plan of action for conservation and management of shark stocks (NPO Sharks) if their vessels conduct directed fisheries for sharks or if their vessels regularly catch sharks in non-directed fisheries.	*I. oxyrinchus* *I. paucus*
GFCM General Fisheries Commission for the Mediterranean	**Rec. GFCM/36/2012/3**: shark species listed under Annex II of the Barcelona Convention cannot be retained on board, transshipped, landed, transferred, stored, sold or displayed or offered for sale and must be released unharmed and alive to the extent possible.	*I. oxyrinchus*
IATTC Inter-American Tropical Tuna Commission	**Res. C-16-01:** Amendment of resolution C-15-03 on the collection and analysis of data on fish-aggregating devices **Res. C-16-04:** Amendment to resolution C-05-03 on the conservation of sharks caught in association with fisheries in the eastern Pacific Ocean	*I. oxyrinchus*

Instrument	Description	Species
ICCAT International Commission for the Conservation of Atlantic Tunas	**Res. 95-02:** Cooperation with FAO to study status of stocks & shark by-catches **Res. 03-10:** Resolution by ICCAT on the sharks fishery **Rec. 04-10:** Recommendation by ICCAT concerning the conservation of sharks caught in association with fisheries managed by ICCAT **Rec. 07-06:** Supplemental recommendation by ICCAT concerning sharks **Rec. 10-06:** Recommendation by ICCAT on Atlantic Shortfin mako sharks caught in association with ICCAT fisheries **Rec. 11-10:** Recommendation by ICCAT on information collection and harmonization of data on bycatch and discards in ICCAT fisheries **Rec. 13-10:** Recommendation on Biological Sampling of Prohibited Sharks Species by Scientific Observers **Rec. 14-06:** Recommendation by ICCAT on Shortfin mako caught in association with ICCAT fisheries **Rec. 17-08:** Recommendation by ICCAT on the conservation of North Atlantic stock Shortfin mako caught in association with ICCAT fisheries	*I. oxyrinchus*
IOTC Indian Ocean Tuna Commission	**Res. 13/06:** On a scientific and management framework on the conservation of sharks species caught in association with IOTC managed fisheries **Res. 15/09:** On a fish aggregating devices (FADs) working group **Res.17/05:** On the conservation of sharks caught in association with fisheries managed by IOTC **Res. 17/07:** On the prohibition to use large-scale driftnets in the IOTC Area **Res 17/08:** Procedures on a FADs Management Plan including limitation on number of FADs, more detailed specifications of catch reporting from FAD sets, & development of improved designs to reduce incidence of entanglement of non-target species	*I. oxyrinchus*
Sharks MOU Memorandum of Understanding on the Conservation of Migratory Sharks	**Annex 1**: Signatories should endeavour to achieve and maintain a favourable conservation status for these species based on the best available scientific information and taking into account their socio-economic value.	*I. oxyrinchus* *I. paucus*
UNCLOS United Nations Convention on the Law of the Sea	**Annex I**: States whose nationals fish in the region for the highly migratory species listed in Annex I shall cooperate directly or through appropriate international organizations to ensure the conservation and optimum utilization of such species throughout the region, both within and beyond the exclusive economic zone.	*I. oxyrinchus* *I. paucus*
WCPFC Western & Central Pacific Fisheries Commission	**CMM 2008-04:** Conservation and management measures to prohibit the use of large sale driftnets on the high seas in the Convention Area **CMM 2009-02:** Conservation and management measures on the application of high seas FAD closure and catch retention **CMM 2010-07:** Conservation and management measures for sharks **CMM 2014-05:** Conservation and management measures for sharks	*I. oxyrinchus*

10. KNOWN CRITICAL SITES

There are no known critical sites for shortfin or longfin mako. Most information on mako shark is from commercial fishing sources and thus can be biased based on fishing tactics. Increased efforts using pop-off archival satellite tags will aid in enhancing information on critical sites.

11. REFERENCES

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