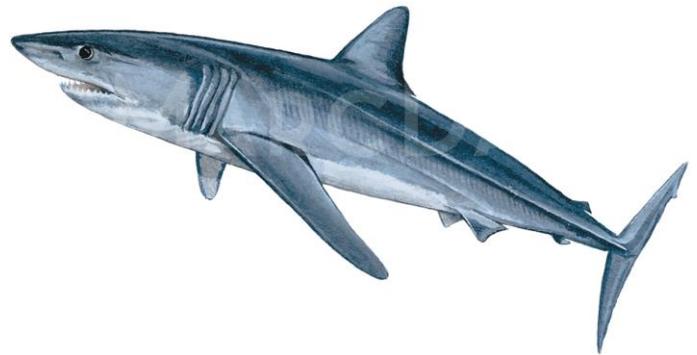


# Fact Sheet

MAKO SHARK  
TAUPE BLEU & TAUPE PETIT  
MARRAJO DIENTUSO & MARRAJO CARITE



Shortfin Mako  
*Isurus oxyrinchus*



Longfin Mako  
*Isurus paucus*

## MAKO SHARK

**Class:** *Chondrichthyes*

**Order:** *Lamniformes*

**Family:** *Lamnidae*

**Species:** *Isurus oxyrinchus* - Shortfin Mako

*Isurus paucus* - Longfin Mako

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This fact sheet was produced by the Advisory Committee of the Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU).

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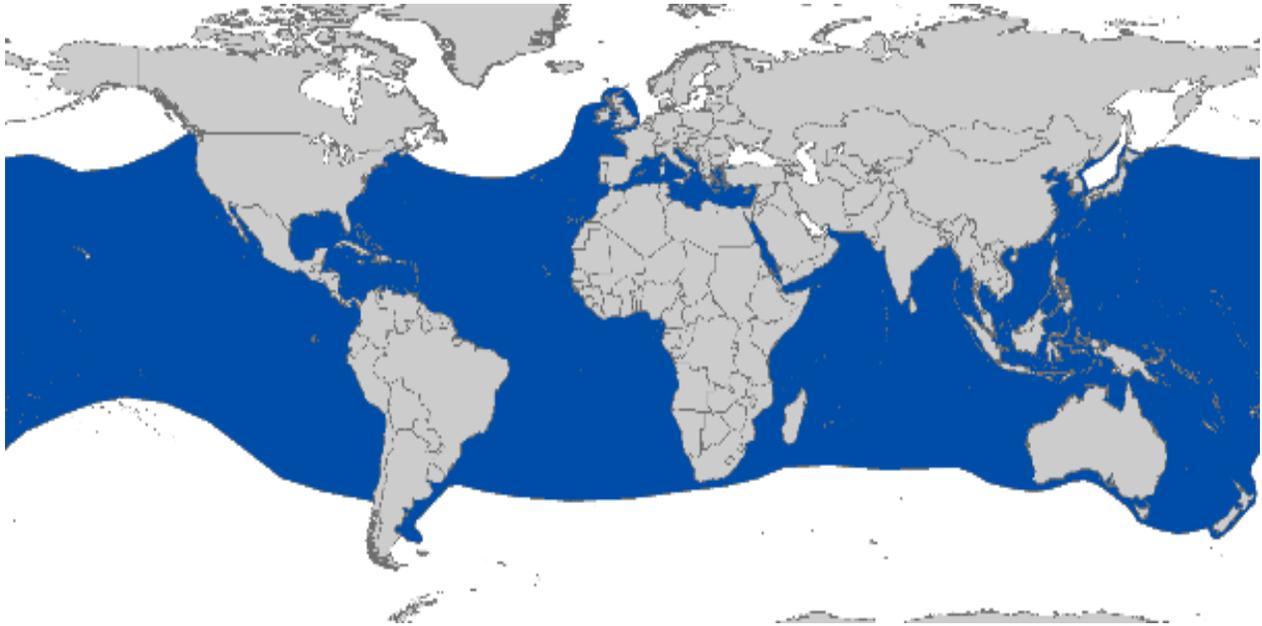
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## 1. Biology

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 (at least 30 years) with low fecundity (11 young every 3 years) and late age at maturity (18 - 19 years for females), population recovery times for Shortfin Mako are slow (Smith et al 2008). 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).



**Figure 1:** Distribution of Shortfin Mako (*Isurus oxyrinchus*), courtesy of IUCN<sup>i</sup>.

<sup>i</sup> For Figures 1 and 2: Map obtained from the International Union for Conservation of Nature (IUCN) on 20 November 2017.



**Figure 2:** Distribution of Longfin Mako Shark (*Isurus paucus*), 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.

### 4. Population Status and Trends

Most information available on the population status and trends consists of fisheries catch data and is therefore either not species specific or focusses primarily on Shortfin Mako Shark. The population structure of the Longfin Mako Shark is widely unknown due to scarcity of data. However, it is suspected that populations in the Atlantic Ocean and the Indo-Pacific could be isolated from each other (Reardon et al. 2006). ICCAT<sup>ii</sup> has assessed the status of shortfin Mako in the North Atlantic and South Atlantic. Stock units have not been defined in the Pacific Ocean. The current IUCN Red List status for the global population of Shortfin Mako and Longfin Mako is 'Endangered' (Rigby et al. 2019)<sup>iii</sup>. More details of the population status and trends can be found in the IUCN assessment.

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<sup>ii</sup> International Commission for the Conservation of Atlantic Tuna (ICCAT).

<sup>iii</sup> The IUCN Red List of Threatened Species uses a set of criteria to evaluate the extinction risk of species and subspecies. For more information see <https://www.iucnredlist.org/>.

## 5. Threats

- **Fisheries:** Both species are caught in pelagic longlines, drifting or set gill nets and in hook-and-line fisheries (Stevens 2008). Shortfin Mako Shark constitute larger proportions of bycatch in long line fleet than the longfin Mako Shark 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.

## 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.
- Life history information is needed for Longfin Mako.
- Estimates of total discards and post-release mortality rates across fisheries are needed.

## 7. Key Management and Conservation Gaps

- There is a general lack of management actions for Mako Sharks that have been implemented by RFMOs<sup>iv</sup>.
- National fishery or conservation measures are limited, especially establishment of sustainable catch limits.
- 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. Suggestions for Conservation and Management Action

- a) Incorporate conservation measures for Mako Sharks into national legislation of all Parties/Signatories (in compliance with the obligations of the for the Appendix I listed species of CMS<sup>v</sup> and in line with the objectives of the Sharks MOU)**
  - 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**

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<sup>iv</sup> Regional fisheries management organizations (RFMOs).

<sup>v</sup> Convention on the Conservation of Migratory Species of Wild Animals (CMS).

- 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.
- Further investigate post-release survivorship of Mako Sharks to inform improved handling and release protocols. Such studies are also needed to better understand efficiency of measures such as no-retention measures.
- 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 and RFBs<sup>vi</sup>**

- 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<sup>vii</sup>);
- 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 and conservation programs.

**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.
- Address data gaps in ecological and biological knowledge (life history parameters) of hammerhead sharks;
- Investigate post-release survivorship of Hammerhead sharks to improve handling and release protocols;
- Collect species-specific data on catch and bycatch especially in coastal and artisanal fisheries;
- Contribute to stock assessments in cooperation with RFMOs for hammerhead species.

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<sup>vi</sup> Regional Fishery Bodies (RFBs).

<sup>vii</sup> The joint tuna Regional Fisheries Management Organization (tRFMO), also known as the Kobe process seeks to harmonize the activities of the five tuna regional fisheries management organizations. For more information see <http://www.tuna-org.org>.

## 9. Legal Instruments

Instrument:	Description:	Species:
<p><b>Barcelona Convention</b> Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean</p>	<p><b>Annex II:</b> Endangered or threatened species; Parties shall ensure the maximum possible protection and recovery of, while prohibiting the damage to and destruction of, these species.</p>	<p><i>I. oxyrinchus</i></p>
<p><b>CCSBT</b> Commission for the Conservation of Southern Bluefin Tuna</p>	<p>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.</p>	<p><i>I. oxyrinchus</i></p>
<p><b>CMS</b> Convention on the Conservation of Migratory Species of Wild Animals</p>	<p><b>Appendix II:</b> 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.</p>	<p><i>I. oxyrinchus</i> <i>I. paucus</i></p>
<p><b>FAO</b> Food and Agriculture Organization</p>	<p><b>IPOA Sharks:</b> 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.</p>	<p><i>I. oxyrinchus</i> <i>I. paucus</i></p>
<p><b>GFCM</b> General Fisheries Commission for the Mediterranean</p>	<p><b>Rec. GFCM/36/2012/3:</b> Shark species listed under Annex III 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.</p>	<p><i>I. oxyrinchus</i></p>

Instrument:	Description:	Species:
<b>IATTC</b> Inter-American Tropical Tuna Commission	<b><u>Res. C-16-01</u></b> : Amendment of resolution <b><u>C-15-03</u></b> on the collection and analysis of data on fish-aggregating devices.  <b><u>Res. C-16-04</u></b> : Amendment to resolution <b><u>C-05-03</u></b> on the conservation of sharks caught in association with fisheries in the eastern Pacific Ocean.	<i>I. oxyrinchus</i>
<b>ICCAT</b> International Commission for the Conservation of Atlantic Tunas	<b><u>Res. 95-02</u></b> : Cooperation with FAO to study status of stocks and shark by-catches.  <b><u>Res. 03-10</u></b> : Resolution by ICCAT on the sharks fishery.  <b><u>Rec. 04-10</u></b> : Recommendation by ICCAT concerning the conservation of sharks caught in association with fisheries managed by ICCAT.  <b><u>Rec. 07-06</u></b> : Supplemental recommendation by ICCAT concerning sharks.  <b><u>Rec. 10-06</u></b> : Recommendation by ICCAT on Atlantic Shortfin Mako Sharks caught in association with ICCAT fisheries.  <b><u>Rec. 11-10</u></b> : Recommendation by ICCAT on information collection and harmonization of data on bycatch and discards in ICCAT fisheries.  <b><u>Rec. 13-10</u></b> : Recommendation on Biological Sampling of Prohibited Sharks Species by Scientific Observers.  <b><u>Rec. 14-06</u></b> : Recommendation by ICCAT on Shortfin Mako caught in association with ICCAT fisheries.  <b><u>Rec. 17-08</u></b> : Recommendation by ICCAT on the conservation of North Atlantic stock Shortfin Mako caught in association with ICCAT fisheries	<i>I. oxyrinchus</i>
<b>IOTC</b> Indian Ocean Tuna Commission	<b><u>Res. 13/06</u></b> : On a scientific and management framework on the conservation of sharks species caught in association with IOTC managed fisheries.	<i>I. oxyrinchus</i>

Instrument:	Description:	Species:
	<p><b>Res. 15/09:</b> On a fish aggregating devices (FADs) working group.</p> <p><b>Res. 17/05:</b> On the conservation of sharks caught in association with fisheries managed by IOTC.</p> <p><b>Res. 17/07:</b> On the prohibition to use large-scale driftnets in the IOTC Area.</p> <p><b>Res 17/08:</b> Procedures on a FADs Management Plan including limitation on number of FADs, more detailed specifications of catch reporting from FAD sets, and development of improved designs to reduce incidence of entanglement of non-target species.</p>	
<p><b>Sharks MOU</b> Memorandum of Understanding on the Conservation of Migratory Sharks</p>	<p><b>Annex 1:</b> Signatories should endeavor to achieve and maintain a favorable conservation status for these species based on the best available scientific information and taking into account their socio-economic value.</p>	<p><i>I. oxyrinchus</i></p> <p><i>I. paucus</i></p>
<p><b>UNCLOS</b> United Nations Convention on the Law of the Sea</p>	<p><b>Annex I:</b> 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.</p>	<p><i>I. oxyrinchus</i></p> <p><i>I. paucus</i></p>
<p><b>WCPFC</b> Western and Central Pacific Fisheries Commission</p>	<p><b>CMM 2008-04:</b> Conservation and management measures to prohibit the use of large sale driftnets on the high seas in the Convention Area.</p> <p><b>CMM 2009-02:</b> Conservation and management measures on the application of high seas FAD closure and catch retention.</p> <p><b>CMM 2010-07:</b> Conservation and management measures for sharks.</p> <p><b>CMM 2014-05:</b> Conservation and management measures for sharks.</p>	<p><i>I. oxyrinchus</i></p> <p><i>I. paucus</i></p>

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## About the Sharks MOU

The Memorandum of Understanding on the Conservation of Migratory Sharks (Sharks MOU) is the first global instrument for the conservation of migratory species of sharks, rays, skates and chimaeras.

The Sharks MOU is an instrument of the Convention on the Conservation of Migratory Species of Wild Animals (CMS) that engages all relevant stakeholders in addressing threats to migratory species in concert with all other aspects of wildlife conservation and management.

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