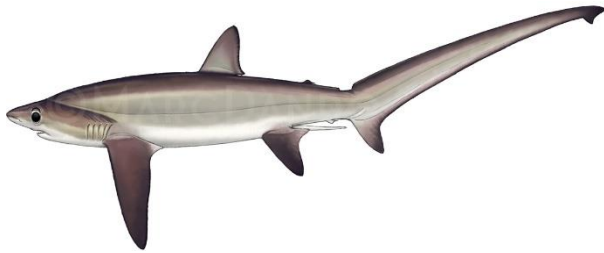
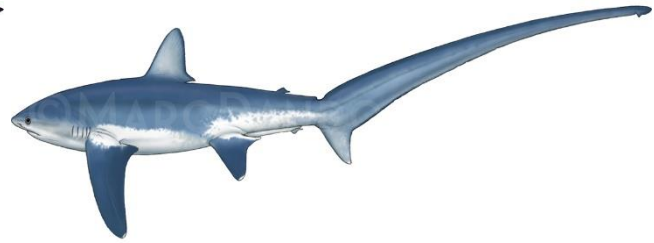


Memorandum of Understanding on the Conservation of Migratory Sharks

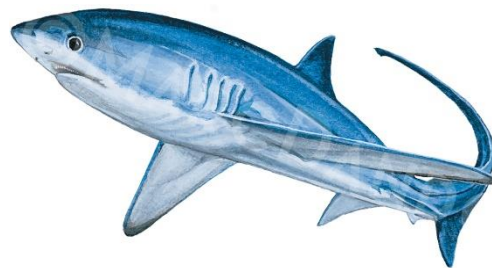
Thresher Sharks Fact Sheet



Alopias superciliosus – Bigeye Thresher



Alopias vulpinus – Common Thresher



Alopias pelagicus – Pelagic Thresher

Class:	Chondrichthyes	Thresher sharks
Order:	Lamniformes	Requins-renard
Family:	Alopiidae	Tiburón azotador
Species:	<i>Alopias superciliosus</i> – Bigeye Thresher	
	<i>Alopias vulpinus</i> – Common Thresher	
	<i>Alopias pelagicus</i> – Pelagic Thresher	

Illustration: © Marc Dando

1. BIOLOGY

All three species of thresher shark belong to the genus *Alopias* and include the Pelagic (*Alopias pelagicus*), Bigeye (*Alopias superciliosus*) and Common (*Alopias vulpinus*) Thresher. Whilst all three species have biological characteristics that result in very low productivity, *A. superciliosus* in particular is one of the less productive pelagic shark species, due to the very low fecundity (2 pups per cycle) and late maturity (12–13 years for females). Several demographic studies have ranked this species as one of the least productive elasmobranch (Cortes 2002). In contrast, *A. vulpinus*, which attains the largest size, is the fastest growing and earliest-maturing of the three species (Smith et al. 2008).

2. DISTRIBUTION

Alopias superciliosus and *A. vulpinus* occur circumglobally, whilst *A. pelagicus* is restricted to the Indian and Pacific Oceans. All three species are epipelagic, occurring in the upper parts of the water column, but their depth range can extend to deeper (500–750 m) water. Whilst often associated with oceanic habitats, both *A. vulpinus* and *A. pelagicus* are often associated with shelf sea habitats and may occur in shallower water close to land. Their latitudinal distributions are restricted mainly to tropical and warm temperate waters, with *A. vulpinus* also extending into higher latitudes (Compagno 2001).

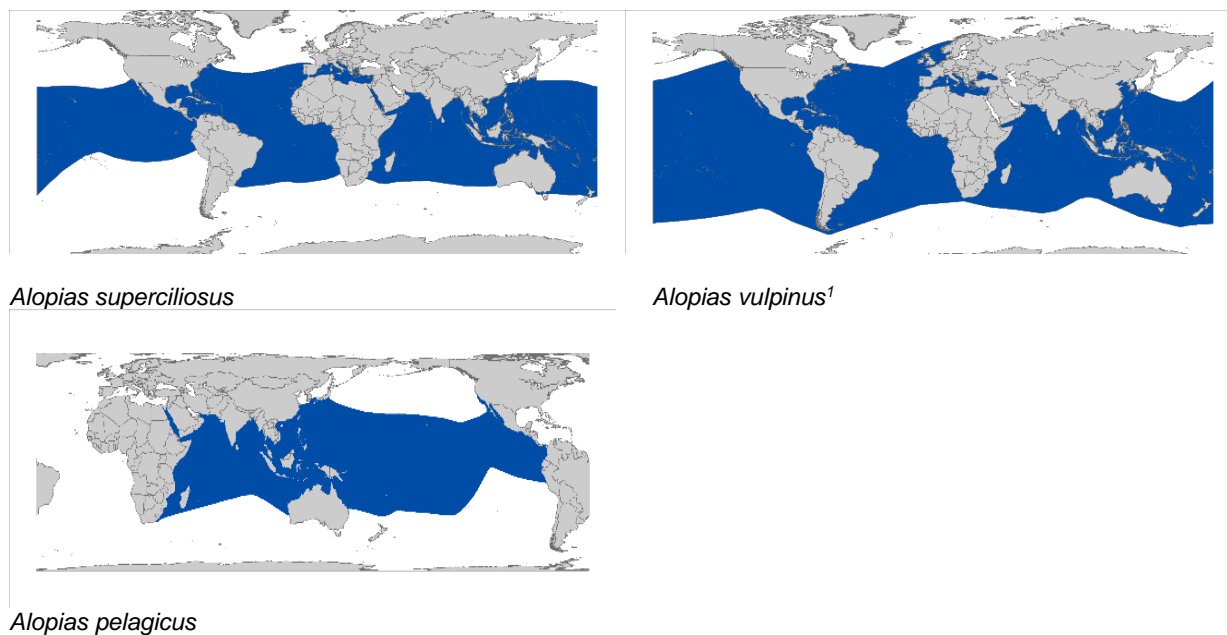


Figure 1: Distribution of thresher shark species, courtesy of IUCN.

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 and delineated for these species in all areas, but some potentially important grounds have been proposed, such as the Southern California Bight (Cartamil *et al.*, 2010) and the waters south of the Iberian Peninsula (Moreno & Morón, 1992).

4. POPULATION STATUS AND TRENDS

Most information available on the population status and trends in thresher sharks consists of fisheries catch data which, in many cases is not species-specific. The stock structures of all thresher sharks have not been defined, due to a lack of appropriate data. Ecological Risk Assessments have been conducted by tuna-RFMOs including *A. superciliosus* and *A. vulpinus* in the ICCAT area, and all three species in the IOTC and IATTC areas. All have shown that thresher sharks are amongst the most vulnerable of the pelagic shark species. In WCPFC, Rice *et al.* (2015) conducted an indicator-based analysis and found that there had been a decrease in the CPUEs of the thresher shark complex over the period 1995-2014. However, the index is difficult to interpret as most catches are not reported to species level (Rice *et al.* 2015). A sustainability risk assessment for *A. superciliosus* in the Pacific Ocean reported that while fishing mortality of

¹ Map requires updating: *A. vulpinus* likely does not occur in the Western Indian Ocean

this species is low in Pacific longline fisheries, it has exceeded the sustainability in some years (Fu et al. 2018). Young et al. (2016) reported the standardized CPUE of bigeye thresher shark using Hawaiian longline observer data for the period between 1995 and 2014, which shows general flat trend with large increase of the nominal CPUE in most recent years. The IUCN Red List² assessed the global populations of *A. superciliosus* (Amorim et al. 2009), *A. vulpinus* (Goldman et al. 2009), and *A. pelagicus* (Reardon et al. 2009) to be Vulnerable.

Species	Region	Trend	Time Period	Reference
ATLANTIC				
<i>A. vulpinus</i> , <i>A. superciliosus</i>	NW Atlantic Ocean	Stable	1992-2014	(Young et al. 2016)
INDO-PACIFIC				
All species	Central Pacific Ocean	83% decline	1951-1958 and 1999-2002	(Ward & Myers 2005)
All species	Central Pacific Ocean	9.5% decline in deep sets 43% decline in shallow sets	1995–2000 and 2004–2006	(Walsh et al. 2009)
<i>A. superciliosus</i>	Central Pacific Ocean	Stable	1995-2014	Young et al. (2016).
<i>A. vulpinus</i>	Eastern Pacific Ocean	Increasing, population is at 94% of its unexploited level	1969-2014	(Teo et al. 2016)
All species	Central Pacific	No clear trend	1995-2006	(Clarke et al. 2011)
All species	Western Central Pacific	No clear trend	1996-2010	(Clarke et al. 2011)
<i>A. pelagicus</i> <i>A. superciliosus</i>	Arabian Sea and adjacent waters	Over 50% decline	1961-2017	(Jabado et al. 2017)

5. THREATS

- **Fisheries:** *Alopias* spp. are commonly taken on longlines, in fixed bottom and pelagic gillnets, in midwater and pelagic trawls, and purse seine (Maguire 2006), with many coastal and oceanic pelagic fisheries supplying domestic markets with meat. Despite this, catch and effort data are incomplete, especially for those species taken in both shelf seas and oceanic habitats Thresher sharks are also taken in recreational fisheries in some areas.
- **International trade:** The underlying driver of the targeting, retention of bycatch, and international trade in thresher sharks consists of the demand for their fins and meat. Thresher sharks have been found to account for approximately for 2–6% of sharks in the Hong Kong market (Clarke et al. 2006a; Clarke et al. 2006b). However, the fin market has changed since then and the current situation is unclear.

² See the IUCN website for further details on the population assessments: <http://www.iucnredlist.org/details/161696/0>, <http://www.iucnredlist.org/details/39339/0>, and <http://www.iucnredlist.org/details/161597/0>.

6. KEY KNOWLEDGE GAPS

- Data on population size, distribution, connectivity and trends are widely lacking for all three species. Especially limited knowledge exists on the pelagic thresher throughout its range (Reardon et al. 2009). Reliable information about harvest and demand levels are scarce;
- Little is known about the characteristics and locations of important habitats (which may include parturition and nursery areas, overwintering grounds, feeding grounds, mating grounds and migration routes).

7. KEY MANAGEMENT AND CONSERVATION GAPS

- Target fisheries on *Alopias* spp. are prohibited in EU waters and in ICCAT and WCPFC fisheries, whereby there is no-retention agreed under ICCAT for bigeye thresher and under IOTC for all species;
- Stock assessments have been conducted only for common thresher in the East Pacific (Teo et al. 2016);
- National fishery or conservation measures are limited;
- Critical sites have not been identified and delineated;
- Fishery data (landings, discards, size frequency, catch and effort) are lacking in most areas and is rarely provided at a species-specific level.

8. RECOMMENDATIONS FOR CONSERVATION AND MANAGEMENT ACTION

A multifaceted approach is required to address the management and conservation gaps for white sharks. Sharks MOU Signatories and other Range States are encouraged:

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

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

b) Improve the understanding of thresher sharks through strategic research, monitoring and information exchange

- Identify critical sites of thresher sharks' abundance and seasonality;
- Address data gaps in biological knowledge (life-history parameters) of all thresher sharks;
- Further investigate post-release survivorship of threshers 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);
- Develop stock assessment in cooperation with RFMOs for all three species;
- Conduct long-term monitoring of thresher shark populations.

c) Improve multilateral cooperation among regions & RFBs

- Support the introduction of appropriate management and conservation measures for thresher 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 process³);

³ <http://www.tuna-org.org>

- Support development and implementation of appropriate management plans for thresher sharks;
- Identify synergies with other Range States/stakeholders to support coordinated and resource-effective research & conservation programs.

d) Identify the effective approaches to reduce bycatch and improve survivorship of thresher 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 thresher 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 III: Species whose exploitation is regulated; Parties shall ensure the favourable state of conservation of these species by taking all appropriate measures, in cooperation with competent international organizations.	<i>A. vulpinus</i>
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>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
CITES Convention on International Trade in Endangered Species of Wild Fauna and Flora	Appendix II: Species not necessarily threatened with extinction, but in which trade must be controlled in order to avoid utilization incompatible with their survival.	<i>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
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>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
EU European Union	Council Regulation (EC) No 1185/2003: establishes a general prohibition of the practice of 'shark finning', whereby a shark's fins are removed and the remainder of the shark is discarded at sea. Council Regulation (EU) 2018/120: prohibits for Union vessels in the ICCAT region to retain on board, tranship or land any part or whole carcass of bigeye thresher sharks (<i>Alopias superciliosus</i>) in any fishery and to undertake a directed fishery for species of thresher sharks of the <i>Alopias</i> genus.	<i>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>

Instrument	Description	Species
FAO Food and Agriculture Organization	IPOA Sharks: International Plan of Action for Conservation and Management of Sharks	<i>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
GFCM General Fisheries Commission for the Mediterranean	Rec. GFCM/36/2012/3: 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.	<i>A. vulpinus</i>
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 Res. C-16-05: Resolution on the management of shark species	<i>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
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 shark 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. 09-07: Recommendation by ICCAT on the conservation of thresher sharks caught in association with fisheries in the ICCAT Convention Area 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	<i>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
IOTC Indian Ocean Tuna Commission	Res. 12/09: On the conservation of Thresher Sharks (Family <i>Alopiidae</i>) caught in association with fisheries in the IOTC Area of Competence Res. 13/06: On a scientific and management framework on the conservation of shark 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>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
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>A. vulpinus</i> <i>A. pelagicus</i> <i>A. superciliosus</i>
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 shall cooperate directly or through appropriate international organizations to ensure the conservation and optimum utilization of such species	<i>A. vulpinus</i> <i>A. pelagicus</i>

Instrument	Description	Species
	throughout the region, both within and beyond the exclusive economic zone.	<i>A. superciliosus</i>
WCPFC Western & Central Pacific Fisheries Commission	<p>CMM 2008-04: Conservation and management measures to prohibit the use of large scale driftnets on the high seas in the Convention Area</p> <p>CMM 2009-02: Conservation and management measures on the application of high seas FAD closure and catch retention</p> <p>CMM 2010-07: Conservation and management measures for sharks</p> <p>CMM 2014-05: Conservation and management measures for sharks</p>	<p><i>A. vulpinus</i></p> <p><i>A. pelagicus</i></p> <p><i>A. superciliosus</i></p>

10. KNOWN CRITICAL SITES

Country	Location	Site characteristics	Species	Reference
Pelagic areas	Northeastern Atlantic		<i>A. superciliosus</i> , <i>A. vulpinus</i>	(Manday 1975; Moreno et al. 1989; Fernandez-Carvalho et al. 2015)
	Southwest Atlantic		<i>A. superciliosus</i>	(Gilmore 1993; Fernandez-Carvalho et al. 2015)
	Southern North Sea	Potential nursery	<i>Alopias vulpinus</i>	(Ellis 2004)
	Western Mediterranean		<i>A. vulpinus</i>	(Moreno et al. 1989; Fernandez-Carvalho et al. 2015)
	Adriatic Sea	Potential nursery	<i>A. vulpinus</i>	(Ferretti et al. 2008; Fernandez-Carvalho et al. 2015)
	Alboran Sea		<i>A. superciliosus</i> , <i>A. vulpinus</i>	(Moreno et al. 1989; Moreno & Morón 1992; Tudela et al. 2005)
	Gibraltar Strait region	Potential nursery	<i>A. vulpinus</i> , <i>A. vulpinus</i>	(Ferretti et al. 2008; ICES 2009)
	South western Iberian Peninsula	Potential nursery	<i>A. superciliosus</i>	(Moreno & Morón 1992; Tudela et al. 2005; ICES 2009)
INDIAN OCEAN				
India	Andaman Sea	Potential Nursery	<i>A. pelagicus</i> , <i>A. superciliosus</i>	(Benjamin et al. 2015; Das et al. 2016)
Oman	Arabian Sea	Aggregation site	<i>A. pelagicus</i> , <i>A. superciliosus</i>	(Jabado et al. 2015)
PACIFIC OCEAN				
Mexico	Southern California Bight	Potential Nursery	<i>A. vulpinus</i>	(Cartamil et al. 2010)
USA	Southern California Bight	Nursery	<i>A. vulpinus</i>	(Cartamil et al. 2010)
	10–15°N and 150–180°W	Potential nursery	<i>A. superciliosus</i>	(Cartamil et al. 2010; Matsunaga & Yokawa 2013)

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