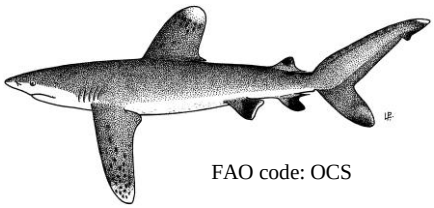
Indian Ocean Tuna Commission
Commission des Thons de l'Océan Indien
iotc ctoi



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STATUS OF THE INDIAN OCEAN OCEANIC WHITETIP SHARK (*CARCHARHINUS LONGIMANUS*) RESOURCE

TABLE 1. Status of oceanic whitetip shark (*Carcharhinus longimanus*) in the Indian Ocean – IUCN threat status

Common name	Scientific name	IUCN threat status		
		Global status	WIO	EIO
Oceanic whitetip shark	*Carcharhinus*	Vulnerable	–	–

IUCN = International Union for Conservation of Nature; WIO = Western Indian Ocean; EIO = Eastern Indian Ocean
SOURCES: IUCN (2007, 2011)

The WPEB **RECOMMENDED** the following management advice for oceanic whitetip sharks in the Indian Ocean, for the consideration of the Scientific Committee:

INDIAN OCEAN STOCK – MANAGEMENT ADVICE

The WPEB **RECOMMENDED** the following management advice for oceanic whitetip sharks in the Indian Ocean, for the consideration of the Scientific Committee, noting that there remains considerable uncertainty about the relationship between abundance and the standardized CPUE series from the Japanese longline fleet, and about the total catches over the past decade.

Stock status. The current IUCN threat status of 'Vulnerable' applies to oceanic whitetip sharks globally (Table 1). There is a paucity of information available on this species and this situation is not expected to improve in the short to medium term. There is no quantitative stock assessment and limited basic fishery indicators currently available for oceanic whitetip sharks in the Indian Ocean therefore the stock status is highly uncertain. Oceanic whitetip sharks are commonly taken by a range of fisheries in the Indian Ocean. Because of their life history characteristics – they are relatively long lived, mature at 4–5 years, and have relativity few offspring (<20 pups every two years), the oceanic whitetip shark is vulnerable to overfishing. Despite the lack of data, it is apparent from the information that is available that oceanic whitetip shark abundance has declined significantly over recent decades.

Outlook. Maintaining or increasing effort will probably result in further declines in biomass, productivity and CPUE. The impact of piracy in the western Indian Ocean has resulted in the displacement and subsequent concentration of a substantial portion of longline fishing effort into certain areas in the southern and eastern Indian Ocean. It is therefore unlikely that catch and effort on oceanic whitetip sharks will decline in these areas in the near future, and may result in localised depletion.

The Scientific Committee considered the following:

- The available evidence indicates considerable risk to the stock status at current effort levels.
- The two primary sources of data that drive the assessment, total catches and CPUE are highly uncertain and should be investigated further as a priority.
- Noting that current catches (probably largely underestimated) are estimated at an average ~265 t over the last five years, ~450 t in 2010, maintaining or increasing effort will probably result in further declines in biomass, productivity and CPUE.
- The SC recommended that mechanisms are developed by the Commission to encourage CPCs to comply with their reporting requirement on sharks.
- The SC agreed that three options should be considered for amendment of Resolution 08/04 concerning the recording of the catch by longline fishing vessels in the IOTC area in order to improve data collection and statistics on sharks that would allow the development of stock status indicators.

SUPPORTING INFORMATION

(Information collated from reports of the Working Party on Ecosystems and Bycatch and other sources as cited)

CONSERVATION AND MANAGEMENT MEASURES

Oceanic whitetip sharks in the Indian Ocean are currently subject to a number of conservation and management measures adopted by the Commission:

- Resolution 05/05 *Concerning the conservation of sharks caught in association with fisheries managed by IOTC* includes minimum reporting requirements for sharks, calls for full utilisation of sharks and includes a ratio of fin-to-body weight for shark fins retained onboard a vessel.
- Resolution 08/04 *Concerning the recording of catch by longline fishing vessels in the IOTC area* sets out the minimum logbook requirements for longline fishing vessels over 24 metres length and under 24 metres if they fish outside the EEZ of their flag State. As per this resolution, catch of all sharks must be recorded.
- Resolution 10/03 *Concerning the recording of catch by fishing vessels in the IOTC area* sets out minimum logbook requirements for all purse-seine vessels 24 metres length overall or greater and those under 24 metres if they fish outside the EEZs of their flag States. As per this resolution, catch and discard of all shark species should be recorded.
- Resolution 11/04 *on a Regional Observer Scheme* requires data on blue shark interactions to be recorded by observers and reported to the IOTC within 150 days. The Regional Observer Scheme (ROS) started on 1st July 2010.

Extracts from Resolutions 09/06 and 11/04

RESOLUTION 05/05 CONCERNING THE CONSERVATION OF SHARKS CAUGHT IN ASSOCIATION WITH FISHERIES MANAGED BY IOTC

3. CPCs shall take the necessary measures to require that their fishermen fully utilise their entire catches of sharks. Full utilisation is defined as retention by the fishing vessel of all parts of the shark excepting head, guts and skins, to the point of first landing.

RESOLUTION 08/04 CONCERNING THE RECORDING OF CATCH BY LONGLINE FISHING VESSELS IN THE IOTC AREA

1. Each flag CPC shall ensure that all long line fishing vessels flying its flag and authorized to fish species managed by IOTC be subject to a data recording system. ….

RESOLUTION 11/04 ON A REGIONAL OBSERVER SCHEME

10. Observers shall:

b) Observe and estimate catches as far as possible with a view to identifying catch composition and monitoring discards, by-catches and size frequency

FISHERIES INDICATORS

General

Oceanic whitetip shark (*Carcharhinus longimanus*) is one of the most common large sharks in warm oceanic waters. It is typically found in the open ocean but also close to reefs and near oceanic islands (Fig. 1). Table 2 outlines some of the key life history traits of oceanic whitetip shark in the Indian Ocean.

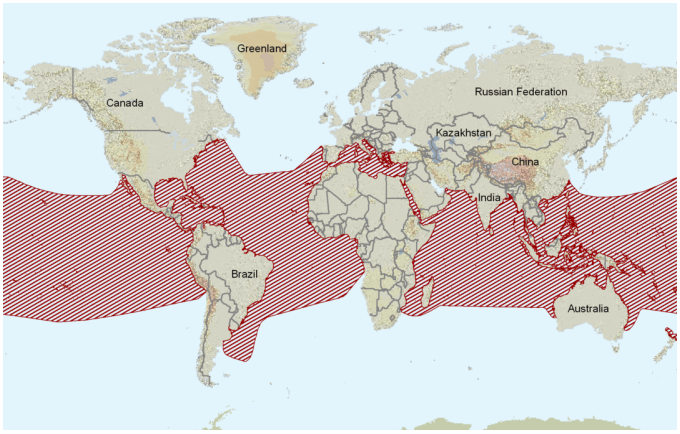

Fig. 1. The worldwide distribution of the oceanic whitetip shark (source: www.iucnredlist.org)

TABLE 2. Biology of Indian Ocean oceanic whitetip shark (*Carcharhinus longimanus*)

Parameter	Description
Range and stock structure	The population dynamics and stock structure of the oceanic whitetip shark in the Indian Ocean are not known. Area of overlap with IOTC management area = high.
Longevity	Maximum age observed was 11 years for the Central and Western Pacific and, 14 years for males and 17 years for females years for the South-Western Atlantic Ocean.
Maturity (50%)	Both males and females mature at around 6 to 7 years old or about 180–109 cm TL in the western South Atlantic Ocean and 4--5 years or 170–190 cm TL in the Central and western Pacific Ocean.
Reproduction	Oceanic whitetip sharks are viviparous. Litter sizes range from 1-15 pups (mean=6.2) in the Pacific Ocean, with larger sharks producing more offspring. Each pup is approximately 60-65 cm at birth. In the south western Indian Ocean, oceanic whitetip sharks appear to mate and give birth in the early summer, with a gestation period which lasts about one year. The reproductive cycle is believed to be biennial. The locations of the nursery grounds are not well known but they are thought to be in oceanic areas. • Fecundity: medium (<20 pups) • Gestation Period: 12 months • Generation time: 11 years • Reproductive cycle is biennial
Size (length and weight)	Oceanic whitetip sharks are relatively large sharks and grow to up to 350 cm FL. Females grow larger than males. The maximum weight reported for this species is 167.4 kg. Length–weight relationship for both sexes combined in the Indian Ocean is TW=0.386*10-4 * FL2.75586

SOURCES: Mejuto et al (2005); Romanov & Romanova (2009)

Fisheries

Oceanic whitetip sharks are targeted by some semi-industrial and artisanal fisheries and are a bycatch of industrial fisheries (pelagic longline tuna and swordfish fisheries and purse seine fishery).

There is little information on the fisheries prior to the early 1970's, and some countries continue not to collect shark data while others do collect it but do not report it to IOTC. It appears that significant catches of sharks have gone unrecorded in several countries. Furthermore, many catch records probably under-represent the actual catches of sharks because they do not account for discards (*i.e.* do not record catches of sharks for which only the fins are kept or of sharks usually discarded because of their size or condition) or they reflect dressed weights instead of live weights. FAO also compiles landings data on elasmobranchs, but the statistics are limited by the lack of species-specific data and data from the major fleets.

The practice of shark finning is considered to be regularly occurring for this species (Clarke 2008; Clarke et al. 2006) and the bycatch/release injury rate is unknown but probably high.

TABLE 3. Estimated frequency of occurrence and bycatch mortality in the Indian Ocean pelagic fisheries.

Gears	PS	LL		BB/TROL/HAND	GILL	UNCL
		SWO	TUNA			
Frequency	common	common		common	common	unknown
Fishing Mortality	Study in progress	58%		unknown	unknown	unknown
Post release mortality	Study in progress			unknown	unknown	unknown

SOURCES: Romanov (2002, 2008); Ariz et al. (2006); Peterson et al. (2008); Romanov et al. (2008); Poisson et al. (2010)

Catch trends

The catch estimates for oceanic whitetip shark are highly uncertain as is their utility in terms of minimum catch estimates. Four CPCs have reported detailed data on sharks (i.e. Australia, EU (Spain, Portugal and United Kingdom), South Africa, and Sri-Lanka) while nine CPCs have reported partial data or data aggregated for all species (i.e. Belize, China, Japan, Korea, Malaysia, Oman, Seychelles, Mauritius, UK-territories). For CPCs reporting longline data by species (i.e. Australia, Spain, Portugal, United Kingdom and South Africa), 0.6% of the catch of sharks by longliners, all targeting swordfish, were oceanic whitetip sharks, and for CPCs reporting gillnet data by species (i.e. Sri Lanka), 7% of the catches of shark were oceanic whitetip sharks.

TABLE 4. Catch estimates for oceanic whitetip shark in the Indian Ocean for 2009 and 2010.

Catch		2009	2010
Most recent catch	Oceanic white tip shark	245 t	450 t
	nei-sharks	62,229 t	61,966 t
Mean catch over the last 5 years (2006–2010)	Oceanic white tip shark		265 t
	nei-sharks		64,838 t

Note that the catches recorded for sharks are thought incomplete. The catches of sharks are usually not reported and when they are they might not represent the total catches of this species but simply those retained on board. It is also likely that the

amounts recorded refer to weights of processed specimens, not to live weights. In 2010, seven countries reported catches of oceanic whitetip sharks in the IOTC region.

Nominal and standardised CPUE Trends

Data not available at the IOTC Secretariat. Historical research data shows overall decline in CPUE and mean weight of oceanic whitetip shark (Romanov et al 2008). Trends in the Japanese CPUE series for the last decade suggest that the longline vulnerable biomass has declined to about 63% of the level observed in 2003 (Semba and Yokama 2011). Anecdotal reports suggest that oceanic white tips have become rare throughout much of the Indian Ocean during the past 20 years. Indian longline research surveys reported zero catches from the Arabia Sea during 2004–09 (John and Varghese 2009).

Average weight in the catch by fisheries

Data not available.

Number of squares fished

Catch and effort data not available.

STOCK ASSESSMENT

No quantitative stock assessment for blue shark has been undertaken by the IOTC Working Party on Ecosystems and Bycatch.

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