		
CHAPTER 2.2.1.6: OCEANIC WHITETIP SHARKS		
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2.2.1.6 Description of Oceanic Whitetip Shark (OCS)

1. Names

1.a. Classification and taxonomy

Species name: *Carcharhinus longimanus* (Poey, 1861)

Etymology: According to Castro (2011), *Carcharhinus* is derived from the Greek *karchahros* (sharp, pointed or irregular), from *karcharias*, a species of tope shark with irregular teeth, and from *rhine* “lime” or “rasp”, in reference to the roughness of its skin. For its part, *longimanus* is derived from the latin *longus* “long” and *manus* “hand” and refers to the length of its pectoral fins.

Synonyms: *Carcharias maou* (Lesson, 1830), *Squalus maou* (Lesson, 1830), *Carcharhinus maou* (Lesson, 1831), *Pterolamiops longimanus* (Poey, 1861), *Squalus longimanus* (Poey, 1861), *Carcharias obtusus* (Garman, 1881), *Carcharias insularum* (Snyder, 1904), *Pterolamia longimanus* (Springer, 1950), *Pterolamiops magnipinnis* (Smith, 1958), *Pterolamiops budkeri* (Fourmanoir, 1961).

ICCAT species code: OCS

ICCAT names: Oceanic whitetip shark (English), Requin océanique (French), Tiburón oceánico (Spanish).

According to the ITIS (Integrated Taxonomy Information System), the oceanic whitetip shark is classified as follows:

- Phylum: Chordata
- Subphylum: Vertebrata
- Superclass: Gnathostomata
- Class: Chondrichthyes
- Sub-class: Elasmobranchii
- Superorder: Euselachii
- Order: Carcharhiniformes
- Family: Carcharhinidae
- Genus: *Carcharhinus*

1.b. Common names

List of vernacular names used according to ICCAT, FAO, Fishbase (www.fishbase.org), Compagno (1984) and other sources. The list of countries is not exhaustive and some local names might not be included.

Australia: Oceanic white-tipped whaler, Oceanic whitetip shark, Whitetip whaler

Azores: Marracho, Oceanic whitetip shark

Brazil: Tubarão Galha-branca, Tubarão galha-branca-oceânico, Tubarão-estrangeiro

Cabo Verde: Marracho-de-pontas-brancas

Canada: Oceanic Whitetip Shark

China: 大沙, 长鳍真鲨, 长鳍真鲨, 污斑白眼鲛, 长鳍翼真鲨, 长鳍翼真鲨

Chinese Taipei: 污斑白眼鲛

Comoros: Magi, Ntrandjou

Cuba: Galano, Oceanic Whitetip Shark, Whitetip shark

Denmark: Hvidtippet haj

Ecuador: Cazón, Tiburón punta blanca

Finland: Valkopilkkahai
France: Aileron blanc du large, Requin océanique, Rameur, Requin longimane
French Polynesia: Requin océanique, Ma'o parata, Mako, Moko, Mono, Parata, Peata
Germany: Hochsee-Weißspitzenhai, Weißspitzen-Hochseehai, Weißspitzenhai
Hawaii: Mano
India: Oceanic white tip shark
Indonesia: Yee gulok, Cucut koboy, Hiu koboy, Silvertip shark, Whitetip whaler
Italy: Squalo alalunga
Japan: Yogore
Madagascar: Meso
Malaysia: Yu sirip bulat putih, Oceanic whitetip shark, Yu
Mauritius: Requin à aileron blanc
Mexico: Tiburón oceánico
Micronesia: Yeshalifes, Oceanic whitetip shark
Mozambique: Marracho oceánico
Netherlands: Oceanische witpunthai
New Caledonia: Kâârré, Requin à nageoires rondes, Requin à pointes, Requin océan
New Zealand: Oceanic white tip shark
Nicaragua: Tiburon oceanico
Pakistan: Kanati, Ham, Aam
Panama: Tiburón aliblanco, Tiburón punta blanca oceánico
Papua New Guinea: Oceanic white-tip shark
Peru: Cazón, Tiburón
Philippines: Pating
Poland: Zarlacz bialopletwy
Portugal: Tubarão-de-pontas-brancas
Puerto Rico: Whitetip shark
Samoa: Apoapo
Seychelles: Requin canal
South Africa: Opesee-wittiphaai, Oceanic whitetip shark
Spain: Tiburón pardo, tiburón oceánico, Cazón, Jaquetón
Sri Lanka: Polkola mora
Sweden: Årfenhaj
Tahiti: Parata
Türkiye: Köpek balığı
United Kingdom: Brown Milbert's sand bar shark, Brown shark, Oceanic whitetip shark, White-tip shark
United States: Oceanic whitetip shark, Whitetip shark
Uruguay: Tiburón oceánico, Tiburón loco
Venezuela: Tiburón avioneto

2. Identification (Mainly based on Bakus *et al.*, 1956 and Compagno, 1984)

Characteristics of *Carcharhinus longimanus* (see Figure 1).



Figure 1. Oceanic whitetip shark (*Carcharhinus longimanus*) (Poey, 1861). Image taken from Domingo *et al.*, 2010. Photo: Jimmy Martínez, Ecuador.

Lengths

References to size throughout this document consistently relate to total length (TL), unless otherwise specified (e.g. fork length: FL, and precaudal length: PCL).

While Bigelow and Schroeder (1948) indicated an observed maximum length of 350 cm and suggested that the species possibly reaches even longer lengths, several authors state that most of the individuals observed do not exceed 300 cm (Compagno, 1984). In the Atlantic, the maximum sizes reported are 255 cm in the Northwest Atlantic (Backus *et al.*, 1956), 227 cm (males) and 265 cm (females) in waters close to the northern coast of Cuba (Ruiz-Abierno *et al.*, 2021b), and 320 cm - 311 cm (for males and females, respectively) in the equatorial and tropical western Atlantic Ocean (Tolotti *et al.*, 2013). For the Pacific, the maximum lengths observed do not exceed 270 cm (Stevens, 1984; Seki *et al.*, 1998; Joung *et al.*, 2016), similar to the value reported for the Indian Ocean (Bass *et al.*, 1973; White, 2007). García-Cortés *et al.*, 2012 reported a female of 260 cm FL caught in the Indian Ocean (approximately 308 cm TL based on the conversion equation proposed by Ariz *et al.*, 2007).

Colour

The back and sides are typically brown, but in some cases they may be greyish. The belly is always lighter than the back and could have a yellow tinge in some individuals. The tips of the pectoral fins and the first dorsal fin have white markings, although this characteristic is not always present (Backus *et al.*, 1956). Black markings have occasionally been observed on the second dorsal fin, pelvic fins, anal fins and the lower lobe of the caudal fin in juveniles (Backus *et al.*, 1956).

External characteristics

Depressed and flattened head. Short and broad snout. Very large pectoral fins and first dorsal fins, with rounded tips that have a whitish colour. Interdorsal ridge present in juveniles and adults, although this is difficult to observe in preserved specimens (Backus *et al.*, 1956). Based on 16 specimens, Strasburg (1958) observed morphometric differences between individuals from the Pacific and the Atlantic. According to the author, specimens from the Pacific have a longer distance between the snout and all the fins (except the anal fin), while the second dorsal fin, anal fin and dorsal lobe of the caudal fin are smaller compared to individuals from the Atlantic. Furthermore, the ventral lobe of the caudal fin and several pectoral fin measurements are relatively larger in individuals from the Pacific compared to the Atlantic. In the Southwest Atlantic, Lessa *et al.* (1999a) detected differences in several morphometric measurements between males and females, both in juvenile and adult specimens.

Internal characteristics

Serrated, triangular teeth with a wide base in the upper jaw, and more pointy teeth that are only serrated near the cusps in the lower jaw. No secondary cusps on the teeth. Between 26 and 30 teeth in the upper jaw and 26 to 30 in the lower jaw, not including symphyseal teeth (Compagno, 1984; Castro, 2011). Spinal column composed of 228 to 244 vertebrae, of which between 123 and 131 are located in the precaudal region (Compagno, 1984).

3. Distribution and population ecology

3.a. Geographic distribution

The oceanic whitetip shark is an epipelagic oceanic species with circumtropical distribution (**Figure 2**). It lives in all of the world's oceans, mainly in zones with depths of over 180 m and temperatures above 21°C. In the Atlantic Ocean it has been recorded between approximately 41°N (Backus *et al.*, 1956) and 40°S (Chiaromonte, 1998). This species is most abundant in tropical zones between 20°N and 20°S, but sometimes follows warm bodies of water to higher latitudes (Compagno, 1984; García-Cortés *et al.*, 2012). Consequently, its presence is less frequent in subtropical zones, and it is rarely caught by pelagic longline fisheries operating south of 30°S (Domingo *et al.*, 2007; Petersen *et al.*, 2008; Mas 2012). Although some researchers have suggested that *C. longimanus* is present in the Mediterranean Sea (Compagno, 1984; Compagno *et al.*, 2005; Baum *et al.*, 2006), there does not appear to be any evidence to confirm this (Bauchot 1987; Serena 2005; Cavanagh and Gibson, 2007; Young *et al.*, 2017). Megalofonou *et al.* (2005a) studied incidental catch of sharks in an extensive region of the Mediterranean Sea in several longline and drift net fisheries between 1998-2000. The sampling carried out by these researchers included both on-board observations (n = 702) and landing observations (n = 5,124), and a total of 8,733 sharks were recorded. Overall, the fisheries caught a total of 12 shark species, but no

C. longimanus individuals (Megalofonou *et al.*, 2005a). Megalofonou *et al.* (2005b) also studied the composition of the shark catch of longline fleets operating in the eastern Mediterranean between 1998 and 2001. Based on 571 landing observations and 123 on-board observations, the authors reported that 8 shark species were caught, but no record of *C. longimanus*. Other studies that monitor shark catch in various fisheries operating in the Mediterranean do not mention the presence of this species either (e.g. Barrull *et al.*, 1999; Valeiras *et al.*, 2003; Storai *et al.*, 2006). In an exhaustive review of shark and ray diversity on the islands of Malta, Schembri *et al.* (2003) confirmed the presence of 24 and 14 species of sharks and rays, respectively, and did not mention the presence of *C. longimanus*. In light of the lack of studies referring to this species, its presence in Mediterranean waters cannot be confirmed to date.

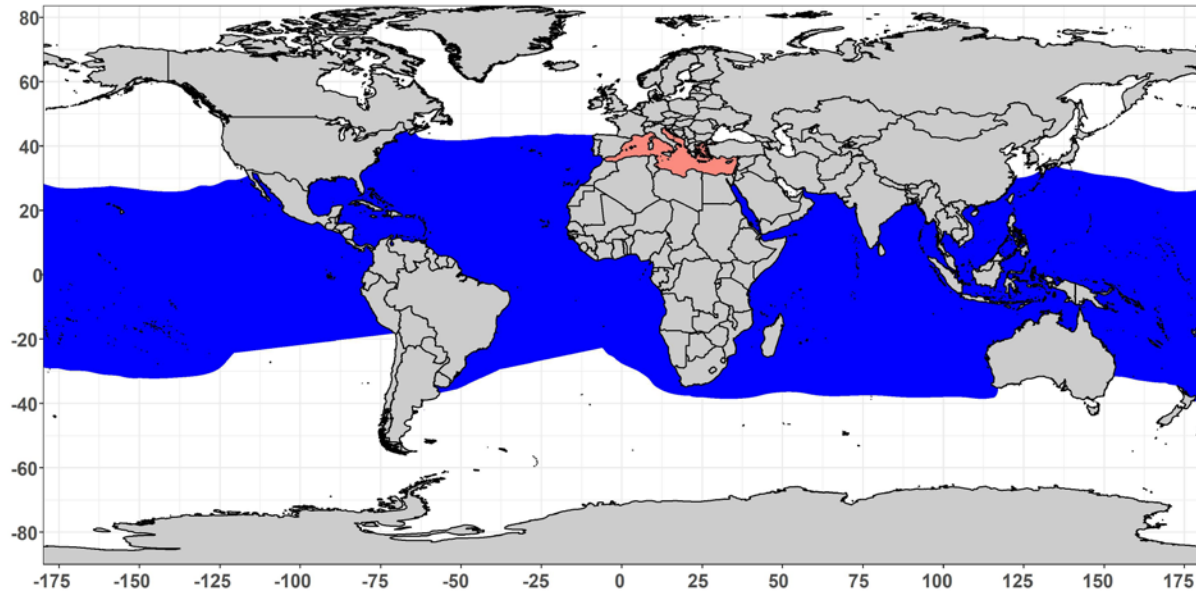


Figure 2. Geographical distribution of oceanic whitetip shark (*Carcharhinus longimanus*). Taken and modified from the International Union for Conservation of Nature (IUCN) (IUCN SSC Shark Specialist Group, 2018). *Carcharhinus longimanus*. The IUCN Red List of Threatened Species. Version 2021-1). The Mediterranean is not indicated in orange since, while the presence of *C. longimanus* has been indicated for this basin, there is no evidence to confirm this.

3.b. Habitat preferences

The oceanic whitetip shark is mainly present in oceanic waters, and occasionally approaches the coast of oceanic islands or very narrow continental shelves (Backus *et al.*, 1956; Strasburg, 1958). There is some evidence that *C. longimanus* competes for food with other species of the same genus in the intermediate zone between the neritic and oceanic environments (close to the continental slope) (Backus *et al.*, 1956; Strasburg, 1958). According to Bonfil *et al.* (2008), *C. longimanus* and the blue shark (*Prionace glauca*) are the only strictly oceanic shark species and appear to have evolved contrasting environmental preferences, with the former being more common in tropical waters and at low latitudes, and the latter in temperate waters and at higher latitudes.

The waters where it normally lives have temperatures of between 15 and 28°C, and it prefers those over 20°C (Compagno, 1984; Bonfil *et al.*, 2008; García-Cortés *et al.*, 2012). Different studies have determined that catch rates with surface pelagic longline are greater than those of deep pelagic longline. Williams (1999) observed that in the central and western Pacific catch rates with surface pelagic longline are almost 3 times higher than with deep pelagic longline. In the equatorial and tropical West Atlantic, Tolotti *et al.* (2013) found that catches of *C. longimanus* were higher for vessels operating with Spanish-type surface longline compared to vessels that operate with hooks submerged at greater depths (Japanese longlines). The implementation of satellite monitoring tools in the past two years has allowed for considerable progress regarding knowledge of this species' thermal preferences as well as its horizontal and vertical movements (Musyl *et al.*, 2011; Carlson and Gulak, 2012; Filmalter *et al.*, 2012; Howey-Jordan *et al.*, 2013; Tolotti *et al.*, 2015; Howey *et al.*, 2016; Tolotti *et al.*, 2017, Andrzejczek *et al.*, 2018; Papastamatiou *et al.*, 2018).

In the Gulf of Mexico, Carlson and Gulak (2012) tagged two individuals with satellite archival transmitting tags and reported that they remained at a depth of under 50 m for 75% of the time and at a temperature of above 18°C for more than 98.4% of the time. Another study that used similar technology to monitor 11 individuals (161-233 cm FL) in the Bahamas found the average depth to be 49.3 m and the average temperature to be 26.3°C (Howey-Jordan *et al.*, 2013). According to these authors, overall, the individuals spent 99.7% of the time they were monitored between the surface and 200 m. No apparent differences were discovered between the temperature and depth ranges frequented during the day and at night, although extensive vertical migrations (>200 m) were much more frequent at night and are possibly related to feeding activity. The deepest dive reached 1,082 m and the lowest temperature recorded was 7.8°C (Howey-Jordan *et al.*, 2013). Subsequently, Howey *et al.* (2016) had the opportunity to study time series of depth and temperature data with high temporal resolution, corresponding to several individuals monitored by Howey-Jordan *et al.* (2013). In this investigation, which was focused on the deepest dives in the meso and bathypelagic environments, the authors found a maximum depth of 1,190 metres and a minimum temperature of 6.79°C. Mesopelagic excursions lasted for an average of 21.01 ± 8.42 min and the majority (~80%) did not reach the dissolved oxygen minimum concentration zone. These excursions occurred throughout the entire year and appeared to be randomly distributed spatially. The authors suggested that these mesopelagic excursions are related to navigation or feeding behaviour, although they were unable to confirm this.

A study carried out by Andrzejczek *et al.* (2018) – also carried out on individuals in the Bahamas – found that both the surface temperature and the degree of stratification of the water column influenced the vertical distribution of *C. longimanus*. The authors confirmed that the monitored individuals spent the majority of their time at depths of less than 50 m during winter when the water is colder and there is a higher degree of mixing. As the water temperature rises in summer, individuals appeared to avoid the upper 50 m and spent most of their time at lower depths, and/or performed longer and deeper oscillatory cycles between the surface and colder, deeper waters. On average, the monitored individuals spent 38.21% of their time at depths of less than 50 m when the surface temperature was above 27.8°C. This average reached 71.15% in the same surface layer with lower surface temperatures.

Tolotti *et al.* (2015) used electronic archival tags to monitor eight individuals caught in the equatorial western Atlantic (NE of Brazil) and found that all individuals showed a strong preference for warm and shallow waters in the mixed layer, staying above the thermocline for an average of over 70% of the time and at depths of less than 120 m for 95% of the time. These individuals remained in waters at temperatures of between 24 for 30°C for 96% of the monitoring period. During this period, all individuals spent a similar amount of time in the mixed layer regardless of their size, varying between 70% and 83%. The minimum temperatures recorded during the study were 8.2°C at a depth of 368 m and 8.8°C at 448 m for another individual, which was also the deepest dive recorded during this study.

Subsequently, and with the aim of characterising the vertical movements of individuals caught in equatorial waters to the north of Brazil, Tolotti *et al.* (2017) reanalysed the data regarding some individuals considered by Tolotti *et al.* (2015) and found three different types of daytime and nighttime behaviour patterns. The first is characterised by a preference for surface waters during the day and deeper waters at night, while the second shows the opposite pattern, in which sharks spend the day in deeper waters and move to shallower waters at night. As per the third type of vertical behaviour, there are no difference between individuals' daytime and nighttime bathymetric preferences. The results of this study indicate that all individuals exhibited all three behaviour patterns during the monitoring period, albeit with varying frequency. Behaviour type 2 (deeper waters during the day) was the least frequent, and the individual that most commonly exhibited this behaviour did so for merely 23.7% of its time monitored.

Based on data obtained from 4 individuals monitored with speed and acceleration recorders in the Bahamas, Papastamatiou *et al.* (2018) found that *C. longimanus* travels at average speeds of between 0.6 and 0.7 m/s while diving to depths of under 250 m. They also determined that it was occasionally capable of reaching speeds of 4.6 m/s for short periods.

Madigan *et al.* (2021) monitored the diving behaviour of two immature individuals caught in the EEZ of Ascension Island, and found that, overall, both individuals remained for 68% of the time at depths less than 50 m, 89% on the thermocline, and that the maximum depth was 436 metres. In addition, it was found that the individuals were highly associated with more superficial strata at dusk and dawn.

Based on the data obtained from 19 individuals monitored in different regions, Andrzejczek *et al.* (2022) found that the average depth was 32.5 metres, and the maximum was 659 metres. In addition, they indicated that 6 of the 19 individuals monitored (31.6%) exhibited reverse diel vertical migrations (deeper depths were used at night than during the day), the non-filtering elasmobranch exhibiting this behaviour to the largest extent in terms of proportion of individuals, in comparison with several other species.

In the Pacific, Musyl *et al.* (2011) tagged 13 individuals with satellite archival transmitting tags and reported that they remained at temperatures of within 2°C of the surface temperature for 95% of the time. These authors also pointed out that the vertical behaviour of *C. longimanus* was similar to *C. falciformis* and that both species showed a correlation between nighttime depth and lunar illumination (Musyl *et al.*, 2011). The average depth and temperature experienced by 12 individuals was 28 m (0-260 m) and 26°C (12-31°C) during the day and 32 m (0-317 m) and 26°C (13-30°C) at night. The large difference between the maximum depth reached by this species in the latter study (317 m) and the value reported in the Bahamas (1,082 m) is of note. Howey-Jordan *et al.* (2013) suggested that this could be due to the relative depth of the oxygen minimum layer between regions and the resulting compression of the ecological niche (Prince *et al.*, 2010; Stramma *et al.*, 2012).

Filmalter *et al.* (2012) analysed the vertical movements of the two individuals monitored with archival tags in the West Indian Ocean, and found that they remained for most of the time (approximately 60%) between depths of 50 and 150 m, and that the proportion of time during which they remained in the first 20 m of the water column was less than 20%. The maximum depth recorded in this study was between 400 and 500 m.

3.c. Migrations

There is relatively little information available on the migrations of *C. longimanus*. As part of the *Cooperative Shark Tagging Program* carried out by the US National Marine and Fisheries Service, 643 *C. longimanus* individuals were tagged between 1962 and 2013, of which only 8 were recaptured. The maximum distance travelled was 2,270 km and the maximum time at liberty was 3.3 years (Kohler and Turner, 2019). Backus *et al.* (1956) noted that *C. longimanus* moves out of the Gulf of Mexico in winter and individuals located to the north of Cape Hatteras (North Carolina, United States) may travel south and east of this area when the water temperature drops. Mejuto *et al.* (2005) analysed tagging-recapture data, reporting the recapture of 7 of a total of 228 individuals tagged in the Atlantic (172) and Indian (56) Oceans. While the study does not report exact distances, 3 of the individuals were recaptured several thousand kilometres of distance from the location where they were tagged.

In a recent study carried out in the Bahamas that tagged 11 individuals with satellite archival transmitting tags, Howey-Jordan *et al.* (2013) reported horizontal movements of over 1,500 km. The specimens were tagged within the EEZ of the Bahamas and tracked over 31-245 days, having remained in this region between 24 and 100% of the time (68.2% on average), attesting to a high degree of philopatry. In a subsequent study performed in the same area, Madigan *et al.* (2015) also found that *C. longimanus* exhibited seasonal fidelity to the waters near Cat Island (the Bahamas), and determined that some individuals were found in almost the same location for up to three years in a row. In the same study, the authors stated that they had found no evidence of copulation or parturition taking place in this location.

Similarly, Tolotti *et al.* (2015) found that individuals monitored off NE Brazil also exhibited a certain degree of philopatry, where they remained and, in some cases, returned relatively near to the monitoring start point even after travelling several thousand kilometres. The same study reported that three juvenile individuals travelled between 11,000 and 19,000 km over a 3- to 4-month period, but were within 500 km of the initial location at the end of monitoring. Of the eight individuals monitored, the maximum distance that any individual moved away from the initial site was approximately 2,500 km. The second largest distance was under 1,700 km, and almost three months later at the end of monitoring the individual was just 145 km from the initial site.

Madigan *et al.* (2021) attached archival tags to two immature individuals in the EEZ of Ascension Island, which at the end of the monitoring, were found at approximately 1,000 and 2,000 km west and northeast of the initial site.

Filmalter *et al.* (2012) monitored the movements of two individuals (170-183 cm) in waters of the West Indian Ocean, and found that one of them travelled extensively covering a total distance of approximately 6,500 km during the time of monitoring i.e. 100 days. The individual departed from near the West coast of Madagascar (in the Mozambique Channel), and travelled North transequatorially, heading towards the East coast of Somalia.

The second individual was monitored for just 19 days, during which travel in the Mozambique Channel was estimated at 1,100 km.

4. Biology

4.a. Growth

Available information on age and growth of *C. longimanus* has increased in recent years (**Table 1**). Seki *et al.* (1998) reported the absence of ring formation in the vertebrae of embryos, but observed rings forming or already formed in neonates, and therefore concluded that the first vertebral ring is associated with birth of individuals. Subsequently, some studies were carried out that helped validate the periodicity of growth ring formation in vertebrae. Joung *et al.* (2016), based on the analysis of monthly changes in marginal increment rate of the vertebral radius and the last two opaque bands, determined that band formation is annual, indicating that these are possibly formed between June and September. Passerotti *et al.* (2020) evaluated growth rings using bomb radiocarbon in relation to reference curves of other species. The results obtained suggest that age estimates based on annual growth ring deposition are accurate, at least up to the age of 13.

The growth (k) rates reported for *C. longimanus* differ considerably across the different studies that have been carried out, varying between 0.045 and 0.103 (**Table 1**). Most of the studies have found that there are no significant differences in the growth rate between sexes (Seki *et al.*, 1998, Lessa *et al.*, 1999b, Joung *et al.*, 2016, D'Alberto *et al.*, 2017, Young and Carlson, 2020).

The first study to consider this species was carried out in the western Pacific by Saika and Yoshimura (1985), who estimated the growth coefficient (k) based on 13 vertebrae and obtained values between 0.04 and 0.09. In a study carried out in Northeast Brazil, Lessa *et al.* (1999b) obtained a very similar k value to the one reported by Saika and Yoshimura (1985) (**Table 1**). Lessa *et al.* (1999b) estimated a growth of 13.6 cm per year in the first 4 years of life, 9.7 cm per year in years 5 to 7, and 9.1 cm per year after having reached maturity. According to these authors, males and females of this species reach sexual maturity at around 6-7 years of age. The most long-lived male reached 14 years of age (235.5 cm), while the most long-lived female was 13 years old (230 cm). Based on the growth curve obtained by Lessa *et al.* (1999b) and the size of a female (250 cm) that was not used in this analysis, these researchers estimated that the species could even reach 17 years of age. Subsequently, Rodrigues *et al.* (2015) analysed samples of 298 individuals captured between 2006-2009 in the South Atlantic, determining a maximum lifespan of 19 years.

In the Pacific Ocean, Seki *et al.* (1998), as well as Joung *et al.* (2016) and D'Alberto *et al.* (2017) did not find significant differences in the growth of males and females. The maximum ages determined from counting vertebral bands varied considerably between different areas, reaching 11 years in the Central North Pacific (Seki *et al.*, 1998), 12 years in the NW Pacific (Joung *et al.*, 2016) and 18 years in the West Central Pacific (D'Alberto *et al.*, 2017). The growth estimates are also dissimilar across the different studies carried out on individuals in the Pacific; the growth rate (k) reported varies between 0.045 and 0.103. The growth rate estimated by D'Alberto *et al.* (2017) for individuals analysed from the West Central Pacific was less than half the rates estimated both for the individuals from the North Pacific (Seki *et al.*, 1998) and the individuals from the Atlantic (Lessa *et al.*, 1999b).

Table 1. Growth parameters for *Carcharhinus longimanus* according to the Von-Bertalanffy growth model. (L_{∞} : asymptotic maximum length (cm), k: growth rate (years^{-1}), t_0 : theoretical age at length 0 (years).

Growth Parameter			Area	Reference	Sex	Method
L_{∞}	k	t_0				
284.9 (TL)	0.099	-3.391	Northeast Brazil	Lessa <i>et al.</i> (1999b)	Both	Vertebrae
245 (PCL)	0.103	-2.698	North Pacific	Seki <i>et al.</i> (1998)	Both	Vertebrae
309.4 (TL)	0.085	64 (TL) ^a	NW Pacific	Joung <i>et al.</i> (2016)	Both	Vertebrae
347.3 (TL)	0.065	-3.645	NW Pacific	Joung <i>et al.</i> (2016)	Both	Vertebrae
342.5 (TL)	0.045	99.9 (TL)	Central W Pacific	D'Alberto <i>et al.</i> (2017)	Both	Vertebrae
315.6 (TL)	0.059	75.11 (TL) ^c	Central W Pacific	D'Alberto <i>et al.</i> (2017)	Males	Vertebrae
316.7 (TL)	0.057	74.68 (TL) ^c	Central W Pacific	D'Alberto <i>et al.</i> (2017)	Females	Vertebrae

TL: total length; PCL: precaudal length ^a A modified version of Von-Bertalanffy was used with a fixed size at birth of 64 cm FL. ^b According to the authors, the Von-Bertalanffy model with a fixed size at birth exhibited slightly greater adjustment than the traditional Von-Bertalanffy model, but the latter is presented in the table for the purpose of comparison against other published models. ^c Size at birth was determined using retro-calculated data.

4.b. Length-weight relationship

There are few length-weight relationships in the literature for this species. Those found in this literature review are presented in **Table 2**.

Table 2. Published length-weight relationships for *C. longimanus* (TW: total weight (kg); GW: gutted weight (gutted, head and fins off; kg); TL: total length (cm); FL: fork length (cm); PCL: precaudal length (cm)).

Equation	N	Length range (cm)	R ²	Area	Reference
$TW = 0.7272 \times 10^{-4} TL^{2.678}$	12	95-210*	-	Northeast Cuba	Guitart Manday (1975)
$GW = 4.27517 \times 10^{-4} FL^{2.14138}$	31	80-200	0.85	Tropical East Atlantic	García-Cortés & Mejuto (2002)
$GW = 4.46974 \times 10^{-5} FL^{2.693}$	39	80-200	0.86	Central Tropical Atlantic	García-Cortés & Mejuto (2002)
$GW = 4.13531 \times 10^{-5} FL^{2.60579}$	61	75-185	0.82	Tropical Western Atlantic	García-Cortés & Mejuto (2002)
$GW = 3.0 \times 10^{-5} \times TL^{2.6907}$	101	75-250*	0.91	Northeast Brazil	Lessa <i>et al.</i> (1999a)
$GW = 1.4976 \times 10^{-5} FL^{2.76957}$	35	85-175	0.92	North Pacific	García-Cortés & Mejuto (2002)
$GW = 2.98446 \times 10^{-5} FL^{3.15417}$	567	65-215	0.96	Western Indian Ocean	García-Cortés & Mejuto (2002)
$GW = 2.4036 \times 10^{-5} TL^{2.5861}$	131	115-275	0.91	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$GW = 8.0431 \times 10^{-5} FL^{2.4478}$	131	94-243	0.90	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$TW = 4.9111 \times 10^{-6} TL^{3.0737}$	93	68-259	0.97	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$TW = 1.8428 \times 10^{-5} FL^{2.9245}$	92	57-219	0.97	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$TW = 3.077 \times 10^{-5} PCL^{2.860}$	133	-	0.88	Pacific Ocean	Seki <i>et al.</i> (1998) ¹
$TW = 5.076 \times 10^{-5} PCL^{2.761}$	128	-	0.89	Pacific Ocean	Seki <i>et al.</i> (1998) ²

* Approximate lengths based on study figures. ¹ and ² conversion equations for males and females, respectively.

4.c. Conversion factors

There are few length conversion factors for *C. longimanus* in the Atlantic. **Table 3** details the length conversions found during the literature review.

Table 3. Published length-length relationships for *Carcharhinus longimanus* TL: total length (cm); FL: fork length (cm); PCL: precaudal length (cm); IL: interdorsal length.

Equation	N	Length range (cm)	R ²	Area	Reference
$TL = 3.42207 \times (IL) + 27.39642$	898	-	0.8064	W Equatorial and SW Tropical Atlantic	Tolotti <i>et al.</i> (2013)
$TL = 1.13477 \times (FL) + 12.53738$	374	-	0.9067	W Equatorial and SW Tropical Atlantic	Tolotti <i>et al.</i> (2013)
$FL = 0.8602 \times (TL) - 7.2885$	193	68 - 275	0.98	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$TL = 1.1339 \times (FL) + 12.8071$	193	57 - 243	0.98	Western Indian Ocean	Ariz <i>et al.</i> (2007)
$FL = 0.7847 \times (TL) + 1.211$	26	93 - 186	0.99	Central Indian Ocean	Anderson <i>et al.</i> (2011)
$FL = 0.817 \times (TL) - 1.875$	188	88 - 268	0.97	NW Pacific	Joung <i>et al.</i> (2016)
$PCL = 0.755 \times (TL) - 6.019$	188	88 - 268	0.97	NW Pacific	Joung <i>et al.</i> (2016)

4.d. Reproduction

Gestation and pupping

Like the majority of Carcharhinidae, *C. longimanus* is a placental viviparous species (Lutton *et al.*, 2005) and the gestation period is estimated to last for approximately 9-12 months (Backus *et al.*, 1956; Bass *et al.*, 1973; Compagno, 1984; Amorim *et al.*, 1998; Seki *et al.*, 1998; Coelho *et al.*, 2009; Tambourgi, 2010).

Estimated size at birth varied according to different authors, 50-66 cm (White, 2007), 60-65 cm (Bass *et al.*, 1973; Compagno, 1984), 45-55 cm PCL (62.8-76.8 cm TL, Seki *et al.*, 1998), 65-75 cm (Backus *et al.*, 1965) and 70 cm (Lessa *et al.*, 1999a). Lessa *et al.* (1999a) reported the capture of a 71 cm neonate with an unhealed umbilical scar, which strongly demonstrates that the size at birth could be approximately 70 cm, at least in the Southwest Atlantic. Ruiz-Abierno *et al.* (2021b) reported the capture of a neonate of 56 cm PCL. The maximum size reported for embryos is 69.7 cm in the Atlantic (Amorim *et al.*, 1998), 61 cm FL in the Indian Ocean (García-Cortés *et al.*, 2012) and 55 cm PCL (76.8 cm TL, Seki *et al.*, 1998).

In the Northwest Atlantic, Backus *et al.* (1956) reported that both mating and pupping take place at the end of spring and the beginning of summer. Two studies that analysed individuals captured off Northeast Brazil (Coelho *et al.*, 2009; Tambourgi, 2010) concur with the results of Backus *et al.* (1956), suggesting that the reproductive cycle of *C. longimanus* could have a similar seasonality in both hemispheres (Coelho *et al.*, 2009). In the Southwest Atlantic, Amorim *et al.* (1998) reported average embryo sizes of 63.1 cm in July, 58.8 cm in August, 69.2 cm in October and 69.7 cm in November. Based on the size at birth of 60-65 cm reported by Compagno (1984), authors estimated that parturition takes place between winter and spring. Nonetheless, considering the size at birth proposed by Lessa *et al.* (1999a), parturition would probably take place in spring.

García-Cortés *et al.* (2012) suggested that parturition takes place during the last months of the year in the Indian Ocean, particularly in the Northwest region. Furthermore, and in contrast to authors' reports for the Atlantic and Indian Oceans, in the Pacific *C. longimanus*'s reproductive cycle appears to be less defined in time (Compagno, 1984). Based on the size of embryos in different months, Seki *et al.* (1998) reported that the pupping period was not very defined in the Pacific but suggested that mating could possibly occur between June and July, and parturition at least between February and July. The pupping period could occur between January and March in the Southwest Pacific (Stevens, 1984).

To date, several nursing and pupping areas have been suggested in different regions. In the Atlantic, the capture of an individual with an unhealed umbilical scar (Lessa *et al.*, 1999a) and the presence of gravid females with embryos in the late stages of development (Coelho *et al.*, 2009; Tambourgi, 2010; Tambourgi *et al.*, 2013) suggest that the equatorial South Atlantic could be a pupping and nursing ground. More specifically, in an area located above the Vitoria-Trindade seamount chain (tropical West Atlantic), Domingo *et al.* (2007) found that all 25 individuals caught were small juveniles (average size of 95 cm FL). In the Northern Hemisphere, certain regions in the West Atlantic have also been suggested as possible nursery areas (Backus *et al.*, 1956; Compagno 1984; Bonfil *et al.*, 2008). Samples taken in small scale fisheries operating with drift longline in waters just off the North coast of Cuba show that most of the individuals landed are immature, with records of a large proportion of small juveniles including neonates (Aguilar *et al.*, 2014, Ruiz-Abierno *et al.*, 2021a, b). In a recent study, Young and Carlson (2020) mentioned that small juveniles were predominant in the catch of artisanal fishers in the waters of Haiti. In the Pacific, several studies mention the presence of gravid females and neonates near the equator (Strasburg, 1958; Seki *et al.*, 1998; Bonfil *et al.*, 2008). Bonfil *et al.* (2008) suggested a possible nursery site between the latitudes 10°N and 20°N and 150°W and 180°W, based on the presence of neonates and high concentrations of gravid females. Of the 105 gravid females registered by García-Cortés *et al.* (2012) in the Indian Ocean, 104 were captured in the western region.

Maturity

The sizes at maturity for both sexes have been estimated by various studies in several regions, and although there is certain regional variability, males and females reach maturity between 170 and 226 cm (Bass *et al.*, 1973; Compagno, 1984; Stevens, 1984; Seki *et al.*, 1998; Lessa *et al.*, 1999a; Coelho *et al.*, 2009; Tambourgi, 2010; Tambourgi *et al.*, 2013, Joung *et al.*, 2016; D'Alberto *et al.*, 2017; Ruiz-Abierno *et al.*, 2021a).

In the equatorial South Atlantic, Lessa *et al.* (1999a) reported that males and females reach sexual maturity at approximately 180-190 cm (corresponding to 6-7 years), although more recent work carried out in practically the same area indicates slight differences between the size at maturity of both sexes (Coelho *et al.*, 2009; Tambourgi 2010). According to Coelho *et al.* (2009) males and females mature at approximately 160-196 cm and 181-203 cm, respectively, while Tambourgi *et al.* (2013) reported a size at maturity of 170 cm for females and 170-190 cm for males.

Based on a sample of 84 landed individuals that were caught by a small-scale longline fleet operating in waters off NW Cuba, Ruiz-Abierno *et al.* (2021a) estimated sizes at first maturity ($L_{50\%}$) of 203 and 199 cm for males and females, respectively.

Bass *et al.* (1973) reported differences between the size at maturity of both sexes in the Indian Ocean (194 cm and 170-180 cm for males and females, respectively). Different studies have been carried out in the Pacific, obtaining different results. According to Seki *et al.* (1998), both sexes mature at approximately 125-135 cm PCL (175–189 cm TL). In eastern Australia, Stevens (1984) estimated a size at maturity of 200 cm for females. Joung *et al.* (2016) analysed individuals caught in the NW Pacific close to Chinese Taipei, and determined a L_{50} of 194.4 ± 6.57 cm for males and 193.4 ± 0.97 cm for females, corresponding to ages of 8.9 and 8.8 years, respectively. In a subsequent study which analysed individuals landed in Papua New Guinea, D'Alberto *et al.* (2017) estimated that the lengths at which 50% and 95% of females are mature are 224 ± 15 cm and 258 ± 29 cm respectively, corresponding to ages of 15.8 ± 2.3 and 21.3 ± 4.3 years. For males, this study reports L_{50} and L_{95} of 193 ± 3 cm and 212 ± 8 cm respectively, corresponding to ages of maturity of 10.0 ± 0.5 and 12.5 ± 1.2 years, these ages being later than those determined for other regions.

As regards the age and growth studies performed in the Atlantic (Lessa *et al.* 1999b) and in the Pacific (Seki *et al.*, 1998; Joung *et al.*, 2016; D'Alberto *et al.*, 2017), there are significant differences in estimated ages of maturity, with individuals in the Atlantic reaching maturity at an earlier age (6–7 years of age) compared with recent reports for different areas of the Pacific (8.8-15.8 years). However, earlier estimates by Seki *et al.* (1998) represent considerably younger ages of maturity comparatively (4-5 years).

Sex ratio

More comprehensive studies in terms of the number of gravid females examined have been carried out in the Pacific (Seki *et al.*, 1998, $n = 97$) and in the Indian Ocean (García-Cortés *et al.*, 2012, $n=105$). Based on these studies, no significant deviations from the sex ratio 1:1 were detected in any litter, not even considering the total number of embryos examined in each study. Among the studies carried out in the Atlantic, only Tambourgi (2010) presented information related to the sex ratio of litters. Based on the information obtained from 4 gravid females, Tambourgi *et al.* (2013) found a ratio that was significantly in favour of females. Nonetheless, these results should be considered with caution due to the small sample size.

Segregation by sex and/or size has been reported in the Northeast Atlantic (Backus *et al.*, 1956) and in the equatorial South Atlantic (Lessa *et al.*, 1999a, b; Coelho *et al.*, 2009). When they analysed 84 individuals landed in NW Cuba, Ruiz-Abierno *et al.* (2021a) found that the sex ratio did not differ significantly from 1:1, indicating that females accounted for 54% of the catch.

In the Pacific, Seki *et al.* (1998) and Bonfil *et al.* (2008) observed a significant abundance of gravid females and neonates between 10°N and 20°N. In the Indian Ocean, García-Cortés *et al.* (2012) reported notable segregations both by sex and size, and suggested that this could be related to the reproductive and life cycle as individuals migrate sequentially between zones throughout their development to occupy the most suitable habitat for various biological processes that take place over their lifetime.

Fecundity

Several studies make reference to the litter size of *C. longimanus*, which shows considerable variability between both individuals and regions (**Table 4**).

Several studies have observed a positive correlation between the size of the litter and the size of the female, which suggests that larger females are more fecund (Backus *et al.*, 1956; Bass *et al.*, 1973; Seki *et al.*, 1998, García-Cortés *et al.*, 2012).

Although the gestation period is estimated to last for between 9 and 12 months, some researchers mention that females are unable to copulate and subsequently be fertilised immediately after parturition (Seki *et al.*, 1998; Tambourgi, 2010), which suggests the possibility that females give birth in alternate years (Backus *et al.*, 1956; Tambourgi, 2010).

Table 4. Litter sizes reported for *C. longimanus*.

Region	Litter size			Reference
	n	Range	Average	
Atlantic Ocean	15	2-9	6	Backus <i>et al.</i> (1996)
	2	3-4	-	Lessa <i>et al.</i> (1999a)
	3	1-14	-	Coelho <i>et al.</i> (2009)
	6	1-10	6	Tambourgi <i>et al.</i> (2013)
Pacific Ocean	3	5-7	-	Strasburg (1958)
	5	4-8	6.8	Stevens (1984)
	97	1-14	6.2	Seki <i>et al.</i> (1998)
Indian Ocean	-	5-8	-	Gubanov (1978)
	1	12	-	White (2007)
	105	2-20	8.9	García-Cortés <i>et al.</i> (2012)
Red Sea	-	10-15	-	Gohar and Mazhar (1964)

4.e. Diet

The diet of *C. longimanus* mainly consists of cephalopods and bony fish, although the consumption of seabirds, crustaceans, sea turtles, marine mammal remains, chondrichthyans, molluscs and marine plants has also been occasionally reported (Backus *et al.*, 1956; Compagno, 1984; Stevens, 1984; Strasburg, 1958; Cortés, 1999). Some of these researchers observed this species feeding on tunas caught with pelagic longline seconds after they were taken on board during gear retrieval. This species is also blamed for a large part of the damage caused to tunas caught by longline fisheries in the equatorial Pacific Ocean (Strasburg, 1958).

In a study performed in the Bahamas, Madigan *et al.* (2015) analysed stabilised isotopes in muscle and blood samples taken from *C. longimanus*. They found that their diet included a higher proportion of high-trophic-level teleosts (tuna, dolphinfish and wahoo) when they were in the Bahamas, while the same individuals ate more squid and small fish when in oceanic environments. Considering its deep dive behaviour, the known association and isotopic similarity with cephalopod-feeding marine cetaceans, and previous studies that report squid in this species' diet, the authors conclude that *C. longimanus* is primarily a squid predator that opportunistically feeds on large teleosts when available.

Based on the analysis of stable isotopes in vertebrae of 25 individuals captured in the central equatorial Pacific, Shen *et al.* (2022) found that the trophic position is similar during ontogeny, there not being any differences when comparing different ages. The estimated trophic position for males and females was also similar in each growth stage. In addition, the trophic niche of males was much broader than that of females, except in some immature individuals.

Based on swimming speeds, Papastamatiou *et al.* (2018) estimated an average metabolic rate that is 2.5 times greater than the standard rate, which was assessed to be 15 kcal/hour for a shark of 100 kg at 26°C. The cumulative calculation over the entire daily cycle gives an energy consumption of approximately 900 kcal per day. Assuming that energy consumption for excretion and digestion is 30%, a shark must consume approximately 1,300 kcal per day, which is equivalent to approximately 1.5 kg of prey (squid) or 1.5% of its body weight per day.

4.f. Physiology

There is no information on the physiology of this species.

5. Fisheries biology

5.a. Populations/Stock structure

In a study based on mitochondrial DNA control region sequencing of 215 individuals caught in different regions of the Atlantic and Indian Ocean, Camargo *et al.* (2016) found low haplotype diversity, reporting 12 distinct haplotypes, two of which were found in all the sampled regions and represented 75.8% of the individuals analysed. The authors indicate moderate levels of population structure with restricted gene flow between the western and eastern Atlantic Ocean, and a strong relationship between the latter region and the Indian Ocean. The results demonstrate the existence of two *C. longimanus* populations in the Atlantic Ocean (East and West), which are genetically and demographically distinct. A subsequent study which focused on individuals caught in the North Indian Ocean (landed at different sites in India) showed that there was no genetic differentiation in the 150 individuals sampled (Sreelekshmi *et al.*, 2020). After comparing them with data regarding individuals from the East Atlantic, the authors corroborated what was reported by Camargo *et al.* (2016), indicating that there was gene flow and connectivity between individuals from the two regions. Ruck (2016) performed a genetic assessment of the population globally, based on analysis of two regions of the mitochondrial genome and of nuclear markers, and reported that while it was not identified that there was population structuring within the West Atlantic, a highly significant structure was detected between that region and the Indo-Pacific in all the markers. Even though this structuring was evident, Ruck (2016) indicated that it is associated with a mix of mitochondrial haplotypes and that there is evidence of contemporary migration between the West Atlantic and Indo-Pacific. Subsequently, Young *et al.* (2017) and Young and Carlson (2020) both indicate that the work of Camargo (2016) and Ruck (2016) do not provide unequivocal evidence on the existence of a genetic discontinuance or a marked separation between the subpopulations of the Atlantic and Indo-Pacific.

The abundance of this species is presumed to have severely decreased in the Gulf of Mexico and the North Atlantic (Baum *et al.*, 2003; Baum and Myers, 2004). However, part of the data and methods used to reach this conclusion have been seriously questioned (Burgess *et al.*, 2005a, b) and, therefore, the real situation of the population(s) is uncertain.

Based on an ecological risk assessment, the oceanic whitetip shark was classified as high-medium vulnerability to fleets operating with pelagic longline in the Atlantic Ocean (Cortés *et al.*, 2015), due to its high susceptibility to these fisheries and low productivity. Recently, the estimates of life history parameters and productivity have been updated using different methods (Cortés, 2016), as input for development by NOAA of a recovery strategy for the species. In this respect, the maximum intrinsic rate of population growth (r_{MAX}) reaches an average value of 0.126 year⁻¹ in the Atlantic, and 0.135 year⁻¹ in the Pacific, therefore the species can be considered of average growth as compared with another 65 shark species (Young and Carlson, 2020).

Rice and Harley (2012) recently carried out the first stock assessment for this species in the central East Pacific. According to the results of this assessment, there was a consistent decrease in total biomass throughout the study period (1995-2009), fishing mortality levels were above sustainable levels, and the biomass of the reproductive group fell to below sustainable levels. From a management viewpoint, it is assumed that *C. longimanus* represents a single stock in this region and, based on these results, the authors concluded that the stock is overexploited.

5.b. Description of the fisheries

Several authors indicate that the oceanic whitetip shark is one of the three most abundant large shark species, along with *P. glauca* and *C. falciformis* (Strasburg, 1958; Fowler *et al.*, 2005; Bonfil *et al.*, 2008). However, some studies call this proposal into doubt based on the low catch rates recorded recently, and suggest the possibility of a significant decrease in abundance of this species or simply that this species has never been very abundant in the Atlantic (Domingo, 2004; Domingo *et al.*, 2007). Based on results obtained via satellite monitoring, Howey-Jordan *et al.* (2013) suggest that the significant decrease in catches of this species by longline fleets compared to the reference years (1950s) could be partly related to the fact that *C. longimanus* mainly uses surface waters and fishing gear has been set at greater depths since the 1990s (from 53-91 m to 82-138 m), in a similar way to the questions previously raised by Burgess *et al.* (2005a, b).

There are no fisheries targeting this species in the Atlantic; however, it is taken as bycatch, mainly by pelagic longline fleets targeting tunas and billfishes, and also by tuna purse seine fisheries and others that use gillnets and pelagic trawl nets (Baum *et al.*, 2006; Bonfil *et al.*, 2008).

Its fins are highly valued on some Asian markets and, via monitoring during commercial operations, it has been determined that this species represents a share of approximately 1.8% on the Hong Kong market (Clarke *et al.*, 2006). This species has also been traded for its skin and oil (Camhi *et al.*, 2008).

C. longimanus is typically taken as bycatch, particularly in pelagic longline fisheries. Although Amorim *et al.* (1998) reported that *C. longimanus* was the second most frequently caught species of its genus by the Santos longline fleet operating in South Brazil between 1974-1997 (>5% of total shark catch), it is generally infrequent in the catches of the various fleets operating in different regions of the Atlantic (Arocha *et al.*, 2002; Beerkircher *et al.*, 2002; Cortés, 2002; Domingo *et al.*, 2007; Petersen *et al.*, 2008; Tavares and Arocha, 2008; Mas, 2012; Tolotti *et al.*, 2013; Amorim *et al.*, 2015). Recent works indicate that *C. longimanus* is among the main species landed by the small-scale fishery that operates with pelagic longline waters just off the North coast of Cuba, from the Port of Cojimar (Ruiz-Abierno *et al.*, 2021a, b). The authors indicated that there was a greater abundance in the summer and autumn months, and that landings mainly comprised immature individuals (including neonates), in line with what had been previously reported by Aguilar *et al.* (2014).

In pelagic longline fisheries targeting tunas and billfishes, it was reported that the majority of *C. longimanus* are generally alive at haulback. On the East coast of the United States, Beerkircher *et al.* (2002) reported that 27.5% (n=131) of specimens caught were dead at haulback, while in a more extensive area of the Atlantic Coelho *et al.* (2012) reported a slightly higher percentage (34.2%, n=281). Nunes *et al.* (2019) found a mortality of 53.3% in a total of 15 individuals captured during four fishing trips with pelagic longline in the western equatorial Atlantic. In the Pacific Ocean, Williams (1999) reported mortality rates of 14% (n=527). Nonetheless, seeing as these estimations directly depend on the characteristics of the fishing gear and manoeuvres, the differences mentioned between the various studies must be considered with caution.

The purse seine fleets targeting tropical tunas in the East Atlantic and western Indian Ocean bycatch several species of elasmobranchs, including *C. longimanus*, being one of the most abundant (Clavareau *et al.*, 2018; Lezama-Ochoa *et al.*, 2018; Escalle *et al.*, 2019; Clavareau *et al.*, 2020; Lopetegui-Eguren *et al.*, 2022). Between 2005-2017, the catch of a total of 78 individuals (0.5% of the total of elasmobranchs) was recorded by observers onboard the French fleet in the East Atlantic (Clavareau *et al.*, 2018). In this study, the authors determined that 59.3% were juvenile individuals, and that the mortality rate reached 38.4%. Lezama-Ochoa *et al.* (2018) reported that between 2003-2011 the catch was observed of 14 individuals in a total of 1,591 sets made by the Spanish and French fleets operating in the eastern tropical Atlantic. Escalle *et al.* (2019) reported the catch of 1,038 individuals in 348 sets carried out in the eastern Atlantic and the western Indian Ocean, of a total of 22,873 sets made from 2003-2015. Subsequently, Clavareau *et al.* (2020) reported that between 2005 and 2017, 119 and 706 individuals were caught in the eastern Atlantic and western Indian Ocean, in a total of 11,612 and 9,538 sets, respectively. In both oceans, it was recorded that the majority of the individuals were juveniles, and the mortality was estimated at 41.2% and 27.2% for the individuals caught in the Atlantic and Indian Oceans, respectively. Lopetegui-Eguren *et al.* (2022) analysed the catches of 26,523 sets made between 2010-2020 in the western Indian Ocean and reported that the frequency of occurrence reached 4.5% of the total of sets observed, and the average sizes per set varied between 48-350 cm, the majority being juveniles.

Globally, *C. longimanus* is classified as “Critically Endangered” in the IUCN’s red list (IUCN; Rigby *et al.*, 2019). This species was recently included in Appendix II of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). As part of the International Plan of Action (IPOA) for the conservation and management of sharks, it is recommended that regional organizations carry out stock assessments for the various species. However, to date this has only recently been performed in the central West Pacific Ocean (Rice and Harley, 2012). In the Atlantic, and in accordance with ICCAT Recommendation 10-07, it is prohibited to retain onboard, transship, land, store, sell, or offer for sale any part or whole carcass of oceanic whitetip sharks taken in any fishery.

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