NOTIFICATION TO THE PARTIES

No. 2024/118 Geneva, 28 October 2024

CONCERNING:

MALDIVES

Consultation with range States on a proposal to transfer
the whale shark (*Rhincodon typus*) from Appendix II to Appendix I

1. This Notification is being published at the request of the Republic of Maldives.

2. The Republic of Maldives has submitted a proposal for consideration of the 20th meeting of the Conference of the Parties to transfer the whale shark (*Rhincodon typus*) from Appendix II to Appendix I, based on the criteria adopted in Resolution Conf. 9.24 (Rev. CoP17) Annex 1, Criterion C.

3. As such, in accordance with Resolution Conf. 8.21 (Rev. CoP16) on *Consultation with range States on proposals to amend Appendices I and II*, the Republic of Maldives wishes to consult range States.

4. Accordingly, the Republic of Maldives requests range States to provide any available information on the conservation status (distribution, population size, structure, and trends), and on legal domestic and international trade of specimens, parts, and derivatives, as well as information on illegal trade (seizures and confiscations).

5. All range States are invited to submit their responses to this Notification by **30 November 2024**, directly to Maldives CITES Management Authority (not to the Secretariat), by email to:

biodiversity@environment.gov.mv

Postal address:
CITES Secretariat
Palais des Nations
Avenue de la Paix 8-14
1211 Geneva 10, Switzerland

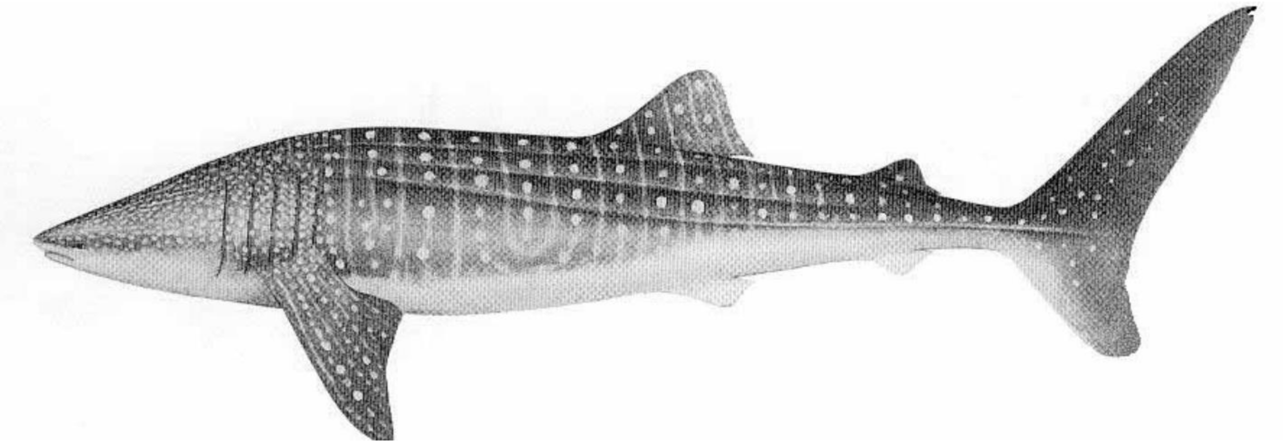
cites.org

Original language: English CoP20 Prop. XX

CONVENTION ON INTERNATIONAL TRADE IN ENDANGERED SPECIES
OF WILD FAUNA AND FLORA

Twentieth meeting of the Conference of the Parties

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II



A. Proposal

Transfer of the whale shark (*Rhincodon typus)* from Appendix II to Appendix I in accordance with Resolution Conf. 9.24 (Rev. CoP17), Annex 1: Criteria C

Qualifying criteria (Res. Conf. 9.24 (Rev. CoP17) Annex 1: Criteria C

Annex 1, Criterion C: *A marked decline in the population size in the wild, which has been either: i) observed as ongoing or as having occurred in the past (but with a potential to resume); or ii) inferred or projected on the basis of any one of the following: – a decrease in area of habitat; – a decrease in quality of habitat; – levels or patterns of exploitation; – a high vulnerability to either intrinsic or extrinsic factors; or – a decreasing recruitment.*

B. Proponent

Republic of Maldives*

* *The geographical designations employed in this document do not imply the expression of any opinion whatsoever on the part of the CITES Secretariat (or the United Nations Environment Programme) concerning the legal status of any country, territory, or area, or concerning the delimitation of its frontiers or boundaries. The responsibility for the contents of the document rests exclusively with its author.*

C. Supporting statement

The whale shark, *R. typus*, is the world's largest fish and one of the least biologically productive sharks, with individuals not reaching sexual maturity until 25 years of age and experiencing very low natural mortality (Pierce et al. 2021).

An estimated global decline of 40-92% in the past 3 generations prompted the International Union for the Conservation of Nature (IUCN) to assess this species as 'Endangered' with a declining population trend in 2016 (Pierce and Norman, 2016), a heightened degree of concern compared to its designation as 'Vulnerable' when listed on CITES Appendix II at CoP12 in 2002 (CoP12 prop 12.35). This status aligns with the Appendix I listing criteria (criteria C) points i and ii.

Sources of mortality underpinning this decline include fishing (via targeted and incidental catches), illegal trade, ship strikes, and habitat degradation (Rowat et al. 2021). Whale sharks were listed on CITES App II in 2002, and legal commercial trade is almost non-existent post listing (https://trade.cites.org/; accessed August 4, 2024). This is likely due to the fact that the species is widely protected in national jurisdictions and is listed on CMS Appendix I, preventing the issuance of CITES export permits. However, these national level protections are potentially undermined by the wide-ranging nature of whale sharks, which means individuals are likely to spend some time in jurisdictions where they may be legally caught or exposed to other stressors (Reynolds et al. 2022).

Growing threats to the species are reflected in a recent publication that documents the increasing threats whale sharks face from the removal of core habitat due to climate change. The study notes that whale sharks will suffer core habitat area losses of >50% within some national waters by 2100, with geographic shifts of over 1,000 km (~12 km yr^{-1}). Greater habitat suitability is predicted in current range-edge areas, increasing the co-occurrence of sharks with large ships (Womersley et al 2024).This climate-induced global species redistribution removes core habitat and will increase exposure to direct sources of mortality from ship strikes, demonstrating how the whale shark meets the Appendix I listing criteria under Annex 1, Criterion C point ii.

Whale sharks were officially protected in the Maldives in 1995 given its significance to the country's marine biodiversity and tourism, and were designated as a protected species when the Fisheries Act of the Maldives (Act No. 14/2019) was ratified. More recently the species has been moved under the mandate of the Ministry of Climate Change, Environment and Energy and it is now listed as a protected species under the Environmental Protection and Preservation Act of Maldives (Act No. 4/93) since July 2016. It is prohibited to hunt, harm, take or kill the whale sharks and guidelines for sustainable tourism practices have been established to ensure their conservation. The South Ari Marine Protected Area (SAMPA), Maldives was established in 2009 to protect the habitat of the whale sharks that frequent these waters. It is one of the largest marine protected areas in the country with an area covering 42 square kilometres in South Ari Atoll.

Despite these CITES Appendix II and national protections such as those afforded to the species in the Maldives, there remain export markets for valuable whale shark fins, gill rakers, liver oil, and meat, which may incentivize targeted catch and retention of incidental catch that would otherwise be released alive (Rowat et al. 2021). Illegal international trade has been documented in the Atlantic and Pacific (Rowat et al. 2021), and the current Appendix II listing could allow for ongoing trade that is highly unlikely to be sustainable or legal.

A CITES Appendix I listing for the whale shark best aligns with widespread national protections afforded this species, is appropriate given ongoing decline and increasing extinction risk, and is necessary to reduce trade-driven fishing mortality by removing incentives for legal or illegal trade and sale of the species products.

1. Taxonomy

1.1 Class: Chondrichthyes, subclass Elasmobranchii

1.2 Order: Orectolobiformes

1.3 Family: Rhincodontidae

1.4 Genus, species or subspecies, including author and year: *Rhincodon typus,* Smith, 1828

1.5 Scientific synonyms: No current synonyms

1.6 Common names:

Maldives:	Fehurihi
English:	Whale Shark
French:	Requin Baleine
Spanish:	Tiburón Ballena

1.7 Code numbers: Not applicable.

2. Overview

The whale shark, *R. typus,* is one of the most charismatic ocean animals, but it is also one of the least understood. Research is mainly focused on a small number of feeding aggregations composed almost entirely of subadult males. Next to nothing is known about small juveniles and adults, especially the adult females that sustain populations. Only one gravid female has ever been examined by scientists (Joung et al. 1996, Schmidt et al. 2010). A recent review of their reproductive biology concluded that this species has among lowest biological productivity of any shark species, making them extremely vulnerable to decline with excessive human-induced mortality (Rowat et al. 2021).

The IUCN Red List categorized the whale shark as Indeterminate in 1990 and 1994, and Data Deficient in 1996. When enough data was available to make an assessment in 2000 and 2005, the species was listed as 'Vulnerable' to extinction. CITES Parties acknowledged that this threatened status along with the abundant evidence of declines worldwide indicated that the species needed global trade management and adopted the whale shark Appendix II proposal in 2002. Unfortunately, the most recent expert assessment by the IUCN in 2016 lists whale sharks as Endangered, indicating a decline in their population of 40-92% worldwide in the past 3 generations, warranting listing in Appendix I in accordance with Resolution Conf. 9.24 (Rev. CoP17), Annex 1: Criteria C, meeting multiple indicators within Criteria C.

Threats include catch, whether as targeted or bycatch, as well as vessel strikes, habitat decline and consequences of rising tourism for whale sharks (Section 5). The high value of export products such as fins, liver oil, and meat potentially encourages retention of bycatch or targeting of whale sharks, sometimes circumventing national legislation protecting them (section 6.4) (Reynolds et al. 2022, Rowat et al. 2021).

An Appendix I listing would complement and reinforce management actions taken via other international bodies (Section 7). The whale shark was listed in Appendix II of CMS in 2002 and uplisted to Appendix I in 2017, prohibiting take of the species for those nations that are parties to CMS. Many Parties of CMS are also Parties to CITES, and matching Appendices would assist in the enforcement of the obligations of both Conventions. Such a listing would also complement efforts within tuna RFMOs to prevent the setting of purse seines on whale sharks and improve reporting via these bodies, especially since the available data on whale sharks caught is likely to underestimate total catch and mortality (Clarke 2015).

CITES Trade records (https://trade.cites.org/; accessed August 3, 2024) of whale sharks are almost exclusively composed of small (a few grams) tissue samples for scientific research or exports of a small number of live animals for display in public aquaria. The lack of reported commercial trade almost certainly reflects that many parties cannot make non-detriment findings to support export permits for an Endangered and nationally protected species, supporting the need for an uplisting of the species to Appendix I. There is evidence of illegal trade (section 6.4), and an Appendix I listing would improve efforts in identifying and ending any ongoing illegal trade.

While the benefits that an Appendix I listing would provide to whale sharks are high, the consequences to fishers and fisheries on a global scale would be negligible because this species is a miniscule component of capture production and plays no role in food or livelihood security for coastal communities (Section 6). If anything, the extinction of whale sharks would have a much larger impact on livelihood security in locations where they act as high value ecotourism attractions.

Given the endangered status and declining trend in whale sharks that fully meets the Appendix I listing criteria, increased threats to the species such as ship strikes and climate change an Appendix I listing for this unique species is both justified and timely.

3. Species characteristics

3.1 Distribution

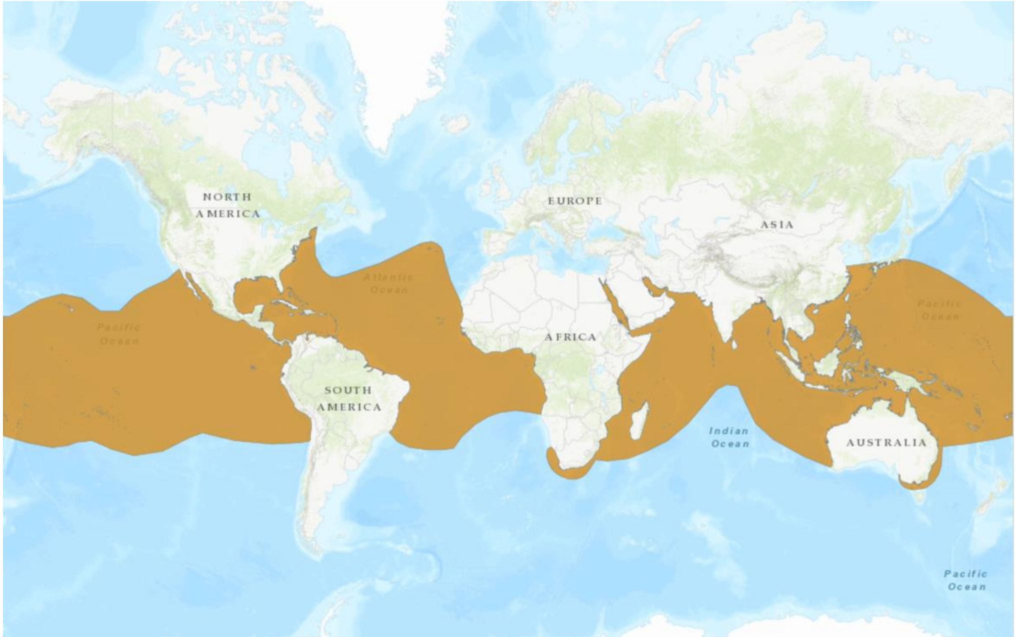


Figure 1. Range map of the whale shark, *R. typus (source: IUCN Red List 2024)*

R. typus is a pantropical species, found in the waters of the Atlantic, Pacific, and Indian Oceans (Figure 1). The species is often found from 30 N and 35 S, but is sometimes sighted slightly north and south of this (FAO, 1999; Colman 1997, Rowat and Brooks 2012, Sequeira et al. 2014a). Whale sharks are rarely sighted in surface temperatures of less than 21°C, which is likely the limiting factor in their range (Colman 1997, Duffy 2002, Afonso et al. 2014, Tomita et al. 2014).

Whale sharks are highly migratory species, thought to migrate on a relatively predictable basis (Rowat and Brooks, 2012). While most whale shark sightings are of solitary animals (Rowat and Brooks, 2012), whale sharks are known to be found in large numbers, up to 500 or more, in several places around the globe: Arabian Gulf and Gulf of Oman, Ningaloo Reef in Western Australia, Quintana Roo in Mexico, Inhambane province in Mozambique, the Philippines, Mahé, Seychelles, and the Galapagos are currently known for large aggregations of whale sharks (Robinson et al. 2016; Meekan et al. 2006; de la Parra Venegas et al. 2011; Ramírez-Macías et al. 2012b; Schleimer et al. 2015; Rowat et al. 2009, 2011; Brooks et al. 2010; Acuña-Marrero et al. 2014).

3.2 Habitat

Whale sharks are found in both coastal and oceanic habitats (Rowat and Brooks, 2012).

Oceanic sightings are strongly correlated with temperature in the Indian and Atlantic oceans (Sequeira et al., 2014b), with most occurring between 26.5° and 30°C in the Indian Ocean (Sequeira et al., 2012). Depth was an important predictor in the Atlantic and Pacific Oceans, but was not significant in the Indian Ocean (Sequeira et al., 2014b). Whale sharks have been recorded diving to depths of 1,928m, but spend most of their time above 200m (Rowat and Gore, 2007; Wilson et al., 2006; Tyminsky et al. 2015). In the Gulf of Mexico, whale sharks primarily reside along the continental shelf edge in the summer, moving south during winter months (Hoffmayer et al., 2005, 2021; Burks et al., 2006).

3.3 Biological characteristics

Data on whale shark life history and biology are limited, especially with regards to reproductive biology. While the generation length is estimated to be 25 years (Pierce and Norman, 2016), so little is known about whale shark reproduction, gestation periods, and frequency of reproduction that precaution must be taken when analyzing the productivity of the species. Nevertheless, the most recent review of whale shark reproduction concluded that the species slow growth, late maturity (~25 years), and longevity (likely > 40 years) together makes it highly vulnerable to overfishing and rapid population depletion (Pierce et al. 2022, Figure 2). Maximum rate of intrinsic population increase (r_{max}) had median estimates ranging from 0.083-0.122 per year, which places it among the lowest of any shark or ray species (Pierce et al. 2022).

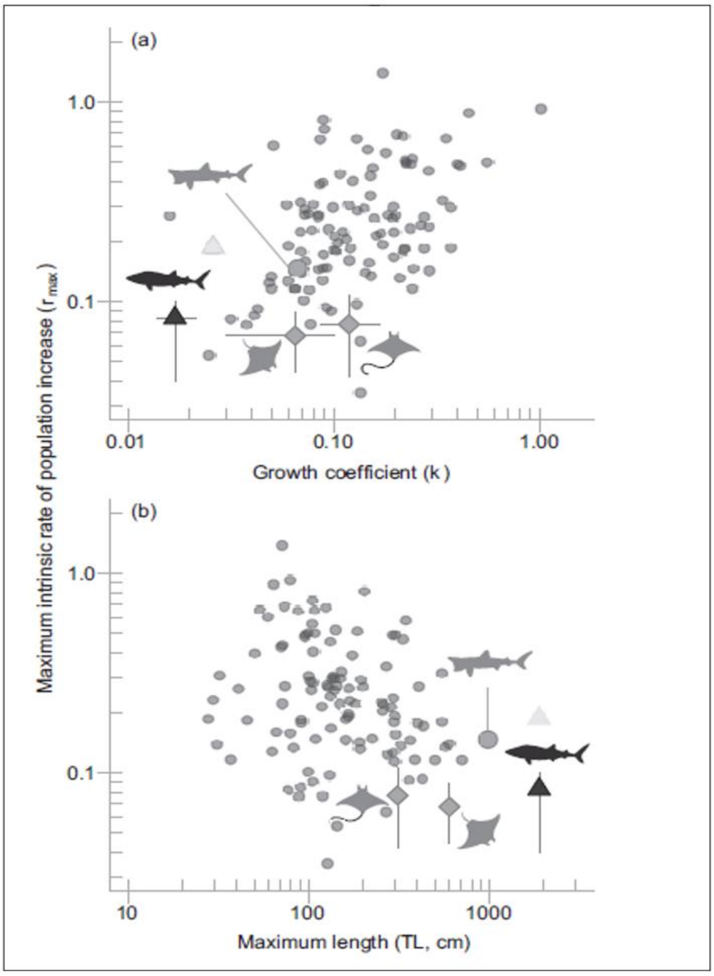


Figure 2. Whale shark productivity – marked as the dark triangle (Pierce et al 2022)

Whale shark pups are born around 50-60cm in length but sightings of individuals smaller than 3 m are extremely rare. The large size of whale sharks implies very slow growth and long lives (Speakman, 2005). When studied, male whale sharks were found to have growth coefficients of K = 0.088 year^{-1} and K = 0.035 year^{-1} for females (Meekan et al., 2020).

An aplacental viviparous species, only a single pregnant female has been officially documented. The number of documented pups from this single iteration is the highest of any shark species, at 304 (Joung et al. 1996, Schmidt et al. 2010). However, their very small size and occurrence in open ocean habitat where predators are common indicates they likely experience extremely low early survivorship. Most likely, their high fecundity coupled with fast early growth is a strategy to compensate for very high early juvenile mortality (*sensu* Branstetter 1991).

Reproduction frequency is unknown.

3.4 Morphological characteristics

Whale sharks are the largest fish in the ocean and have very distinct morphology. Whale sharks have a broad, flat head with a moderately stout, fusiform body with three prominent longitudinal ridges on its upper flanks, extending from near the gill region to the caudal peduncle (Norman, 2002). They also have an extremely wide mouth that extends almost eye to eye (Ebert et al., 2013). Their color ranges from blue-grey to grey-brown, and have a pattern of yellow or white lines and spots on dorsal and lateral surfaces that can be best described as “checkerboard” (Ebert et al., 2013).

Due to their size and shape and pattern, whale sharks are unmistakable for other shark species. Whale shark fins, dressed carcasses, meat with skin attached, and gill rakers are all easily visually identified. The meat is also distinctive, as it has a unique soft spongy texture and the myomeres are of very large size.

3.5 Role of the species in its ecosystem

Whale sharks are filter feeders, feeding primarily on planktonic crustaceans, coral and fish spawn, and small schooling fishes (Rowat and Brooks 2012; Ebert et al., 2013). Whale sharks consume large quantities of biomass (Motta et al. 2010, Rohner et al. 2015, Tyminski et al. 2015). In Mexico, researchers estimated that they can eat up to 142.5 kg tuna eggs per day - equating to around 43,000 Kcal (Tyminski et al. 2015). Mass consumption of biomass on this scale may itself impact on trophic dynamics (Estes et al. 2016), especially if part of a mass aggregation.

The size differentiation between male and female whale sharks could also affect their feeding habits. In the Gulf of California, juvenile sharks, comprising 60% males, were found feeding in shallower waters while larger sharks, composed of 84% females, fed in oceanic waters on patches of euphasiid shrimp (Ketchum et al. 2012).

The previously mentioned vertical movements, from the surface to at least 1, 928 m depth (Tyminski et al. 2015), and wide-ranging migrations suggest that whale sharks could also serve as important vectors of energy transport, carbon, and nutrients between ocean ecosystems (Estes et al. 2016). Studies from Mozambique (Rohner et al. 2013) and Western Australia (Marcus et al. 2016) indicate that deep water zooplankton are a significant prey item for whale sharks. Diving for such prey, whale sharks likely play a role in opposing the downward flux of carbon to the deep ocean, while transferring energy and materials (including key limiting nutrients, such as nitrogen) from the mesopelagic into the euphotic zone. As a result, in areas that are resource-limited, phytoplankton growth is encouraged, perpetuating up trophic levels to create a positive feedback system and enhancing biodiversity (Estes et al. 2016).

While few whale shark “falls” have been reported (Higgs et al., 2014), it is a safe assumption that whale shark carcasses sink to the seafloor after death and their ecosystem effects are similar to those of whale “falls.” Due to their large size and nutrient content, they provide food and habitat for deep-sea organisms that can last for decades could be integral to the dynamics of deep sea communities (Estes et al., 2016). In this role and via defecation whale sharks also likely help sequester atmospheric carbon into the deep ocean (Mariani et al. 2020).

4. Status and trends

4.1 Habitat trends

Given that whale shark habitats are both coastal and pelagic, the overall deterioration of ocean health should be of concern when discussing any marine species. Climate change and ocean warming is likely to affect whale shark distribution as well as their prey, especially as it has been tied to temperature in several ocean basins (see Section 3). Their reliance on coral and fish spawning as a major food source may also be affected by rising sea temperatures, climate change and increased coral bleaching events across their range.

Human activity, such as increasing tourism for whale shark aggregation sites, as well as the use of FADs where whale sharks may become entangled are additional threats across their range. Pacoureau et al (2021) found an 18 fold increase in fishing pressure across the high seas since

1970, and whether or not caught as target species or bycatch, this increased activity increases their mortality risk across their range.

These habitat threats align with Appendix I listing Criteria C ii (habitat area and quality) in document 9.24 (Rev CoP17).

4.2 Population size

Although no full stock assessments have been conducted, whale sharks are individually identifiable based on their characteristic spot patterns (Taylor 1994, Arzoumanian et al. 2005). A global database of whale shark sightings, comprising submitted photographs from both researchers and the public, is hosted online at Wildbook for whale sharks (www.whaleshark.org).

As of January 2021, there were 12,355 individual sharks on this database, identified from images submitted between 1964 and 2020, with 90% of individuals identified over the last 15 years. However, this number is not representative of whale shark populations globally and can only reflect the minimum size of the population. Two studies have attempted to estimate global genetic effective population size: Castro et al. (2007) used mitochondrial DNA (mtDNA) to estimate genetic effective population size to be 119,000 – 238,000 sharks and Schmidt et al. (2009) estimated genetic effective population size to be approximately 103,572, based on microsatellite analysis. Genetic effective population size is not equivalent to total population size and may also reflect a historical rather than current population

4.3 Population structure

Mitochondrial and microsatellite DNA analyses indicate that the whale shark populations in the Atlantic and Indo-Pacific are functionally separate (Vignaud et al. 2014). Based on counts, modelled population estimates and habitat availability, it is likely that approximately 75% of the global whale shark population occurs in the Indo-Pacific, and 25% in the Atlantic (Pierce and Norman, 2016). Within ocean basin connectivity of whale shark subpopulations is high, which is concordant with long range movements of individuals (Sequeira et al. 2013b, Guzman et al., 2018).

4.4 Population trends

Whale shark populations have been steadily decreasing for the past 75 years, and the species is now considered Endangered by the IUCN (Pierce and Normal 2016). Given that no RFMO or other fisheries body has undergone a stock assessment for this species, population declines must be calculated via other methods, including standardized surveys taken at eco-tourism sites, manned and unmanned aerial surveys, fisheries landings and citizen-science initiatives using photo-identification.

While long-term studies have found reductions of 30-92% over three generation lengths, more recent analyses have shown that whale shark declines have potentially accelerated in recent years. In the Atlantic, sightings of whale sharks have declined upwards of 50% from the 1990s to 2000s period (Sequiera et al., 2014), and there has been a 79% decrease in sightings in the Indo-Pacific over a 7-year period (Rohner et al., 2013).

The continued decline in whale shark populations spurred Parties to CMS to increase the protection for whale sharks under their Convention. First listed in Appendix II in 1999, it was added to Appendix I as well in 2017, noting that globally prohibiting take of the species was warranted in order to prevent continued population reductions across their range.

Table 1. Population declines of *R. typus* by ocean area demonstrating alignment with Resolution Conf. 9.24 (Rev. CoP17), Annex 1: Criteria C:

Region/Ocean Basin	**Population decline**	**Sources**

Indo-Pacific	63% decline in 75 years or 3 generation lengths 58% decrease in catch from 1997-2002 79% decrease in sightings between 2005-2011 79% decline in sightings in the Seychelles 2005-2013 40% decline in sighting rate 1995-2004 92% decrease from baseline	Pierce, S.J. & Norman, B. 2016 Chen and Phipps, 2002 Rohner et al., 2013 Rohner et al, 2013 D. Rowat., Pers comm Mau and Wilson 2007, Holmberg et al. 2009 Dearden 2006
Atlantic	>30% in 75 years, or 3 generation lengths 50% decrease in sightings from 1990s to 2000s Broad-scale ~70% overall decrease in SPUE from tuna fleet in Western Africa (1980 - 2010)	Pierce, S.J. & Norman, B. 2016 Sequiera et al. 2014 Sequeira et al. 2014

Indo-Pacific population trends

In the Indo-Pacific, a population reduction of 63% is inferred over the last three generations, or 75 years (Pierce and Norman, 2016). This was derived from relevant indices of abundance from Mozambique, the broader Western Indian Ocean, the Philippines, Taiwan POC, Thailand and the Western and Central Pacific, and actual levels of exploitation in mainland China, the Maldives, India, the Philippines and Taiwan POC.

A commercial fishery for whale shark existed in Taiwan, POC until 2007 (Hsu et al. 2012). Information provided by fishers operating from Hongchun harbour in southern Taiwan indicated that 50– 60 sharks were caught each season in the mid-1980s, declining to less than 10 per year in each of 1994 and 1995 (Chen and Phipps 2002). Although definitive catch trends are not available, there was a significant (58%) decrease in the estimated annual catch in 1997 of 272 sharks (Chen and Phipps 2002) to a reported catch of 113 sharks over 15 months in 2001– 2002 (Chen and Phipps 2002). A decline in the mean total length of landed sharks is an indicator of demographic changes and a population being overfished (Stevens et al. 1999). Declines in the mean total length of landed whale sharks was noted between 2002 and 2007 (Hsu et al. 2012). A decline in the mean size of landed sharks was also noted in southern Chinese waters, from 8.27 m prior to 2004 to 6.3 m in 2008–2011 (Li et al. 2012). Data from observers aboard the tuna purse-seine fleet in the Western and Central Pacific noted 1,073 whale shark sightings between 2003 and 2012, with most from the Bismark and Solomon Seas (Harley et al. 2013). The occurrence of whale sharks in free school sets decreased by approximately 50% between 2003 (1%) and 2012 (0.5%), potentially representing a fall in abundance (Harley et al. 2013), although a weak linear increase in occurrence probability was modelled by Sequeira et al. (2014) between 2000 and 2010. However, model performance for this latter dataset was poor (Sequeira et al. 2014b).

In the northern Mozambique Channel and broader western Indian Ocean, a slight increase in whale shark sightings was noted between 1991 and 2000 based on tuna purse seine vessel data, then a decrease from 2000 to 2007 (Sequeira et al. 2013a). In absolute terms, 600 sightings were reported from the 1990s decreasing to ~200 across 2000–2007 (Sequeira et al. 2014b). Peak monthly sightings decreased by around 50% over the study period (Sequeira et al. 2014b). In Inhambane, Mozambique, in the southern Mozambique Channel, sightings declined 79% between 2005 and 2011 (Rohner et al. 2013). This decreased rate of sightings has persisted to 2017 (S. Pierce, pers. comm.).

Prior to the species being protected in the Maldives in 1995, catches of whale shark declined from around 30 each year from one of the significant fishing locations up until the early 1980s to a catch of 20 or less whale sharks from the entire archipelago by 1993 (Anderson and Ahmed 1993). Individual whale sharks identified by photo-identification in the Seychelles remained relatively constant from 2005 to 2010 (148 individuals were recorded in 2010), but fell to only 32 in 2011 with a continuing decline through to the present day. Similarly, aerial surveys conducted over the same period recorded a decline in the number of sharks sighted per hour of survey time from 6.0 h^{-1} in 2010 down to 0.9 h^{-1} in 2011 and continued to decline until surveys stopped in 2013 (D. Rowat pers. comm.). Two hundred and fifty-three whale shark sightings were recorded by a local dive charter company in the Andaman Sea, Thailand, between 1991 and 2001 (Theberge and Dearden 2006). Sightings per unit effort showed a significant decline over this period, with an overall decrease from 1.58 whale sharks per trip in 1992–1993 to 0.13 sharks per trip in 2000–2001 (Theberge and Dearden 2006). A low absolute number of sightings persisted until at least the 2002–2003 season, although effort data were not recorded (Theberge and Dearden 2006). Following the conclusion of data collection for that study, shark sightings have likely increased in frequency according to reports from dive operators. However, sharks are perceived to be smaller than those sighted in the 1990s (P. Dearden, pers. comm). Bradshaw et al. (2008) analysed tourism sightings at Ningaloo Reef, Australia, between 1995 and 2004, corrected for search effort and environmental fluctuation, and identified a 40% decline in sighting rate and a decline in mean shark length of 1.6 m over this period. It was speculated that seasonal shifts in peak abundance to outside observation months may also have contributed to this observed decline (Mau and Wilson 2007, Holmberg et al. 2009). However, a genetic study on Ningaloo sharks indicated declining genetic diversity over five consecutive years for mtDNA (2007–2012) and two (2010–2012) for microsatellites (Vignaud et al. 2014).

Whale sharks were intentionally fished in the Philippines prior to protection in 1998, with whale shark catch per unit effort (i.e., per boat) declining from 4.44 to 1.7 in Pamilacan and 10 to 3.8 in Guiwanon between two surveys conducted in 1993 and 1997 (Alava et al. 2002).

Atlantic Population Trends

The Atlantic subpopulation of whale sharks comprises approximately 25% of the global population (Pierce and Norman, 2016). This subpopulation was assessed as Vulnerable on the 2016 IUCN Red List of Threatened Species with an inferred a decline of ≥30% over the last three generations (75 years). Between 1980 and 2010 there was a decline in sightings per unit effort (SPUE) off western Africa, with sighting per unit effort (SPUE) peaking in 1995 and declining thereafter (Sequeira et al. 2014b). In absolute terms, sightings decreased from about 500 sharks over the 1990s to around 150 during the 2000s. Peak-month sightings also declined by approximately 50% over this time (Sequeira et al. 2014b). At Gladden Spit in Belize, whale shark sightings declined from a mean of 4 to 6 sharks per day between 1998 and 2001 to less than 2 per day in 2003 (Graham and Roberts 2007), with reports from diving guides indicating that numbers have remained low until 2016 (R. Graham, pers. comm.). In the Azores, there was a significant increase in sightings in 2008 and afterwards compared to the decade before (Afonso et al. 2014). This was strongly correlated with the location of the 22°C isotherm, indicating that this increasing sighting trend is due to environmental conditions, rather than population health (Afonso et al. 2014)

4.5 Geographic trends

See 4. 4.

5. <u>Threats</u>

Major threats are detailed in this section that align with multiple points within the Appendix I listing criteria (Resolution Conf. 9.24 (Rev. CoP17), Annex 1: Criteria C), for whale sharks include: fisheries catches, bycatch in nets, vessel strikes, habitat loss and climate change. Other threats affect whale sharks on local or regional scales, such as the emergence of unsustainable tourism practices, which several countries are taking efforts to reduce.

Whale sharks are presently fished in several locations, although not often targeted. In southern China, commercial take of whale sharks appeared to be increasing in the early 2010s (Li et al. 2012). Although whale sharks are not necessarily targeted, they are routinely captured and retained when sighted (Li et al. 2012). A small-scale opportunistic fishery for whale sharks is also present in Oman (D. Robinson, pers. comm.). More recent investigative studies indicate that trade driven fisheries for the species persist: https://www.nationalgeographic.com/animals/article/140129-whale-shark-endangered-cites-ocean-animals-conservation

Directed catch or bycatch of whale sharks has been documented from many of their range states, particularly where large-mesh gillnets are in common use (Rowat and Brooks 2012). In the Caribbean, in areas where deep water sits in close proximity to the coastline whale sharks can be taken by unregulated artisanal nets fisheries. In Haiti, at least 3 whale sharks have been captured and killed in this manner since 2019, (*Pers comm* Haiti Ocean Project). Tuna are often associated with whale sharks, and tuna purse-seine fisheries often use whale sharks as an indicator of tuna presence, even setting nets around the sharks (Capietto et al. 2014). Direct mortality in purse-seine fisheries appears to generally be low, recorded as 0.91% (one of 107) and 2.56% (one of 38) of sharks where fate was reported by observers in the Atlantic and Indian Oceans, respectively (Capietto et al. 2014). However, estimated mortality rates in the Western Central Pacific purse-seine fishery were higher: 12% for 2007–2009 and 5% in 2010. This extrapolated to a total mortality of 56 sharks in 2009 and 19 in 2010 (Harley et al. 2013). Observer reports on release condition from this region from 2010–2014 were generally consistent, with 50–60% of encircled sharks released alive, 5–10% dying and 30– 40% of status unknown (Clarke 2015). Assuming a poor outcome for the latter category, potential mortalities in 2014 range from a minimum of 11 to 42, with a higher number possible depending on longer-term survival of the sharks released alive (Clarke 2015). Available data on the number of whale sharks caught are likely to underestimate total catch (Clarke 2015). The long-term survivorship of whale sharks released from nets has not been examined at this stage. Common release practices, such as being lifted or towed by the caudal peduncle, are likely to cause stress, injury and possibly death to the sharks.

Shipping lanes, when located close to whale shark feeding areas, can create a serious risk of vessel strikes (Womersley et al., 2024). Whale sharks routinely feed at the surface (Motta et al. 2010, Gleiss et al. 2013), and propeller injuries are commonly recorded during monitoring programs (Rowat et al. 2006, Speed et al. 2008, Fox et al. 2013, Harvey-Carroll et al., 2021. Figure 3)

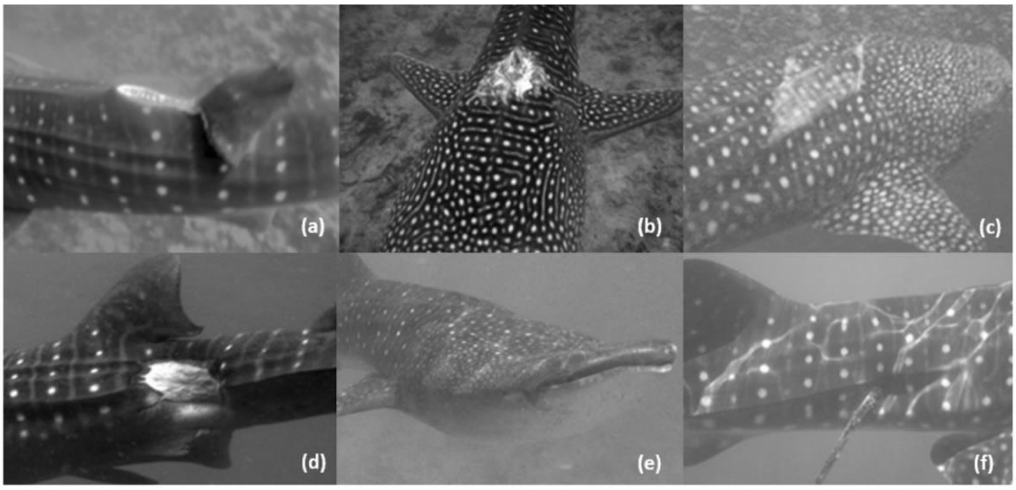


Figure 3. Major injuries frequently seen in Maldivian Whale Sharks documented by Maldives Whale Shark Research: (a) amputation, (b) laceration, (c) abrasion, (d) bites, (e) blunt trauma, (f) impalement. Entanglement not shown. Images taken by MWSRP.

While mortality events are seldom reported in the contemporary scientific literature, they were often noted from slower-moving vessels in the past (Gudger 1941). It is likely that fast-moving, large ships do not register or report impacts, and as whale sharks will typically sink upon death, these are unlikely to be documented (Speed et al. 2008). Areas where whale sharks appear to be at risk include the Mesoamerican reef countries in the Western Caribbean (Graham 2007, R. de la Parra-Venegas pers.

comm.) and Gulf states (D. Robinson pers. comm.), where a high frequency of serious propeller injuries are observed during monitoring. Inappropriate tourism may be an indirect threat to whale shark in some circumstances (for example from interference, crowding or provisioning). Marine pollution events occurring in whale shark hotspots, such as the Deepwater Horizon oil spill in the Gulf of Mexico in 2010 (Hoffmayer et al. 2005, McKinney et al. 2012), may result in mortality or displacement from preferred habitats. These more local threats, as well as future concerns such as climate change impacts (Sequiera et al. 2014, Womersley et al 2024), should be closely monitored.

Growing threats to the species are reflected in a recent publication that documents the increasing threats whale sharks face from the removal of core habitat due to Climate change. The study notes that whale sharks will suffer core habitat area losses of >50% within some national waters by 2100, with geographic shifts of over 1,000 km (~12 km yr^{-1}). Greater habitat suitability is predicted in current range-edge areas, increasing the co-occurrence of sharks with large ships (Womersley et al 2024). This climate-induced global species redistribution removes core habitat and will increase exposure to direct sources of mortality from ship strikes, demonstrating how the whale shark meets the Appendix I listing criteria under Annex 1, Criterion C point ii.

From illegal trade seizures and presence in Hong Kong SAR and Chinese markets (section 6), whale sharks are also being utilized in the international trade, likely from some of the sources identified in this section. However, given the lack of recorded trade and NDFs made publicly available, it is likely this trade is illegal and contributing to further population declines.

6. Utilization and trade

6.1. National utilization

Whale sharks are subject to large-and small-scale bycatch in fisheries, with some national and international trade in products. They are also a focal species for marine tourism industries. The only known targeted fishery for whale sharks to have existed in the Atlantic Ocean was in Santa Cruz, Cuba, where 8–9 sharks were caught each year until the fishery was banned in 1991 (Graham 2007).

While the whale shark is not thought to be targeted off mainland China, there has historically been a large bycatch in other fisheries, estimated to be more than 1,000 individuals per annum (Li et al. 2012). The whale shark is considered a high value catch in this fishery, so they may be actively targeted in the future (Li et al. 2012). Although the species is technically protected, catches are unmonitored, and enforcement is minimal (Li et al. 2012)

A traditional small-scale seasonal harpoon fishery in India took whale shark for their liver oil, which was used to waterproof boats. In the mid 1990s, fishery effort increased along the Gujarat coast to meet demand for oil, meat and fins from countries in Europe and Southeast Asia. From 1990 until 2001, when whale sharks became legally protected in territorial waters, there was a targeted commercial fishery in Gujarat. Between 1889 and 1998, 1,974 sharks were recorded as landed through India. Some bycatch still occurs following the closure of this fishery, with 79 landings from 2001 to 2011 (Akhilesh et al. 2013). In March 2023 ten fishermen poaching for whale shark were arrested off the Gujarat coast by the Gujarat's Forest and the Indian Coast Guard (https://www.indiatoday.in/india-today-insight/story/why-whale-shark-poaching-off-the-gujarat-coast-has-authorities-worried-2350589-2023-03-23).

A small opportunistic fishery is active in Oman (D. Robinson, pers. comm). Small-scale harpoon and entanglement fisheries for whale sharks have taken place in several other countries such as Iran and Pakistan (Rowat and Brooks 2012). Recent landings in these areas are unknown. Fishers in the Maldives used to take 20–30 individuals per year for their oil, but reported declining catches during the 1980s to early 1990s (Anderson and Ahmed 1993), and the fishery was banned in 1995.

Information collected in Bangladesh during a contemporary citizen science program monitoring shark and ray landings between December 2016 and December 2023 indicates continued retention and trade in bycaught whale sharks. During 12,000 visits to 11 landing sites, five whale shark landings were recorded (E. F. Mansur, pers. comm.). Four of these landings were recorded from Cox's Bazar and one on Saint Martin's Island. Based on their total length of 292 – 513 cm all of the landed specimens were immature. The total weight of the specimens was 3150 kg and the selling price was about 166,800 BDT (1,668 USD as per 100 BDT conversion rate), thus the average price per kg meat being 53 BDT or 0.53 USD, with fins retained for export.

In Java, Indonesia in a popular tourist area called Pangandaran, whale sharks have been recorded to be landed and butchered on the beach (https://www.mdpi.com/2076-2615/13/16/2656). Thirty-eight landings of whale sharks were documented between 2019 and 2022 in this location.

In Sri Lanka the Coast Guard apprehended four fishermen who had illegally fished a 170kg whale shark on the 11th of October 2017 (https://coastguard.gov.lk/news/2017/10/13/201710130909/). The fish was discovered during a routine inspection of fishing boats at Valachchenai Fishery Harbour.

Tourism industries based on viewing whale sharks have now developed in several countries or locations, including Australia, Belize, Cuba, Djibouti, Ecuador, Honduras, Indonesia, the Maldives, Mexico, Mozambique, Oman, Panama, the Philippines, St Helena, Saudi Arabia, the Seychelles, Tanzania and Thailand. These range in size between a maximum of 24 tourists at a time in Cuba (Graham 2007), to over 250 licensed tour operators off Quintana Roo in Mexico (Ziegler et al. 2012). Direct expenditure for whale shark-focused tourism at South Ari Atoll in the Maldives was estimated at US$9.4 million in 2013 (Cagua et al. 2014), while payments for tours alone off Quintana Roo in Mexico were estimated to be US$7 million in 2013 (R. de la Parra Venegas, pers. comm.). In Western Australia, whale shark tourists spent an estimated US$4.5 million in the Ningaloo region in 2006 (Catlin and Jones 2010). Tourist numbers have since doubled, from approximately 10,000 to 20,000 per year, so expenditure will also have substantially increased (B. Norman, pers. comm.). Graham (2007) projected that, globally, whale shark tourism was likely to be worth over US$42 million annually. Rapid increases in the numbers of tour participants in some key locations, such as in Mexico (R. de la Parra Venegas, pers. comm.), Australia (D. Robb, pers. comm.) and the Philippines, where over USD$5 million in ticket sales alone in 2015 at Oslob, Cebu (Araujo et al. Accepted), indicate that the industry is steadily growing in economic importance.

6.1.1. Protection status and species management

The species is now protected in much of its range (see section 8) but unsustainable and illegal trade continues (see section 6.3 and 6.4).

6.2 Legal trade

The whale shark is currently listed in Appendix II of CITES, meaning that for any trade to occur, it must be shown to have been legally and sustainably sourced. However given the unknown reproduction rate, late age of maturation and slow growth, coupled to its CMS Appendix I listing and national protections make sustainably exploiting this species challenging. This is reflected in documented trade listed in the CITES trade database being relatively low (Annex II) in its 20 years of listing, with less than 55 instances of international trade recorded.

Following the introduction of specific export codes for whale shark meat in 2001, 2 tonnes of exports (to Spain, valued at US$1.15/kg) and no imports were recorded over the following year from Taiwan POC (Chen and Phipps 2002). A total of 693 sharks were caught in Taiwan POC between 2001 and 2008 (Hsu et al. 2012). Total allowable catch quotas steadily reduced through to zero sharks from 2001 to 2007 (Hsu et al. 2012). A small international trade in live whale shark was also noted in Taiwan POC (Chen and Phipps 2002), and is also present in mainland China (Li et al. 2012). Prior to the protection of whale sharks in India (2001) and the Philippines (1998), whale shark meat was exported from both countries to Taiwan POC (Chen and Phipps 2002). From 1990 to 1997, 624–627 whale sharks were caught from four of the primary fishing sites in the Philippines (Alava et al. 2002). Whale shark meat from mainland China was also thought to be illegally exported to supply the Taiwanese market (Chen and Phipps 2002).

The whale shark is also listed under Appendices I and II of CMS, meaning that any take of the species is prohibited by the 131 member Parties of that Convention. Setting of purse seines on a school of tuna associated with whale sharks is also prohibited in the Western and Central Pacific Fisheries Commission (WCPFC, 2012), the Indian Ocean Tuna Commission (IOTC, 2013) and the Inter-American Tropical Tuna Commission (IATTC, 2013, rev. 2019).

6.3 Parts and derivatives in trade

Whale shark fins in trade are often easily identifiable by size alone, but their characteristic markings further aid species identification, and the meat is usually consumed locally so does not enter the international trade. What is traded (Annex II) is most often whale shark specimens, using codes for scientific purposes. There has only been one documented trade in meat, and zero for fins. However, we the literature indicates meat has been traded (see 6.2) and whale shark fins are still found in the international shark fin trade, both from fins found on display in Hong Kong SAR retail outlets, as well as seizures of undocumented trade in fins (see section 6.4).

6.4 Illegal trade

In many nations whale sharks have little value for food and there is no incentive to catch them or keep incidentally caught whale sharks for local consumption. However, whale sharks can have high value in international markets, with records of whole specimens being sold for $USD 14,000 (small 2 ton animal) to USD$ 70,000 (larger 10 ton animal) in Taiwan POC during the late 1990s (Chen et al. 1997).

Large whale shark fins can fetch high prices and are used by dried seafood retail vendors in Hong Kong, where they remain prominently displayed with red ribbons to attract customers and decorate the premises (Chen and Phipps 2002, Li et al. 2012, Shea pers. comm. 2024) with sources of these fins likely illegal given the lack of CITES trade database records and the length of the Appendix II listing making it unlikely they are pre convention specimens. Their gill rakers are also being used in Traditional Chinese Medicine (O'Malley et al. 2017). Their livers provide huge volumes of oil, which can be used in cosmetics and health supplements sold in North America and the EU. The ability to export these products and access lucrative markets may incentivize the retention of incidentally caught whale sharks or even promote targeted capture.

There is evidence of illegal trade occurring in whale sharks from China, Taiwan POC, Hong Kong SAR, Singapore, Ecaudor, Bangladesh, Indonesia, and Venezuela. As recently as 2014, extensive illegal trade in China was widely reported in the media after a multi-year investigation of a shark processing facilities in Pu Qi, southeastern China (https://wildliferisk.org/china-whale-sharks/; summarized in Rowat et al. 2022). The investigation suggested that ~ 600 whale sharks were being processed per year at that time, mainly for their liver oil and fins. The whale sharks came mainly from Chinese waters, while some came from the Philippines, Sri Lanka, and Indonesia (https://www.rfa.org/english/news/china/sharks-01282014105933.html) Informal interviews with traders revealed the liver oil was being exported to cosmetics and health supplement companies in the U.S., Italy, and Canada, even though no trade of this nature has ever been reported to CITES. Catches were thought to be occurring in the South China Sea but it is also possible that some catches were from the distant water fleet and should have been subject to Introduction From the Sea (IFS) provisions.

In August 2017, the Chinese-flagged industrial longline vessel Fu Yuan Yu Leng 99 was detained while illegally transiting the Galápagos Marine Reserve, Ecaudor. Inspection revealed 7,639 shark carcasses, including a single whale shark. The vessel owners and crew were successfully prosecuted under Ecuadorian law that prohibits the unauthorized possession and transport of protected species and trespassing into the Galápagos Marine Reserve without authorization. Although this only represents a single instance, it highlights how whale sharks are likely being retained in industrial, distant water fleets and illegally traded when these vessels return to their home nation. The size of the fleets suggests this could be a major issue: Li et al. (2012) reported incidental Chinese catches of ~ 1,000 whale sharks per year, mainly from their industrial fleet. More recent investigations suggest that the shark processing in Pu Qi has scaled back (Wu 2016), but Rowat et al. (2022) suggest this may reflect a decline in whale sharks rather than a lack of activity and noted recent occurrence of whale shark products in Chinese trade surveys (O'Malley et al. 2017, Steneke et al. 2017). Numerous seizures of illegally exported whale shark fins have taken place since the CITES Appendix II listing in 2002—most recently over 980kg of whale shark fins exported from Singapore were confiscated by Hong Kong, SAR authorities in May 2018 (Reuters Staff 2018). Additionally, after a two year investigation into illegal trade and wildlife crime, another seizure was made in 2016 of two live whale sharks, destined for the international wildlife trade (https://www.theguardian.com/environment/gallery/2016/jun/06/rescued-whale-sharks-released-back-into-the-ocean-in-pictures).

Whale shark fins have been reported in trade in Indonesia (White and Cavanaugh 2007), yet no CITES records document exports from Indonesia. Reports of illegal trade from the Atlantic are less common than in the Indo-Pacific, perhaps because this region is further away from major whale shark export markets. However, Sanchez et al. (2020) reported 21 whale shark catches in Venezuela between 2014-17 in which fins were taken, likely for export.

6.5 Actual or potential trade impacts

Given that whale sharks are currently not documented to be traded in high numbers, impacts on commercial and local fisheries would likely be low. However, the potential for protection of whale sharks from opportunistic catch and trade would be significantly higher if Appendix I protection was afforded to the species. Given the general lack of knowledge about this species' reproductive biology and concerning population declines, even the extremely low trade levels occurring should not continue, and any illegal trade increases species extinction risk.

An effectively implemented Appendix I listing would eliminate commercial international trade of this species and thus reduce human induced mortality driven by the retention of this species for the export market. Targeted capture of this species would cease, and incidental capture would typically lead to live release and probable survival of the animal. Appendix I listing would also better align with the international (CMS App I & II and RFMO setting prohibitions) and/or national legal protections afforded to this species that virtually all range states are obligated to follow (see Section 7).

7. Legal instruments

7.1 National

The whale shark is protected sporadically throughout its range, but enforcement issues remain. See section 8 for additional details.

7.2 International

Regional Fisheries Management Organizations have largely banned the intentional setting of purse seine nets around whale sharks across their range. The Western and Central Pacific Fisheries Commission (WCPFC), the Inter-American Tropical Tuna Commission (IATTC) and the Indian Ocean Tuna Commission (IOTC) have all adopted these management measures. However, in the Atlantic Ocean, the International Commission for the Conservation of Atlantic Tunas (ICCAT) has not yet put such a measure in place to manage and prevent whale shark bycatch. However, in the WCPFC convention area, 73% of entangled whale sharks are not sighted prior to nets being deployed (SPC-OFP 2012).

The Convention on the Conservation of Migratory Species of Wild Animals (CMS) adopted the whale shark into Appendix I in 2017, prohibiting take in the species globally. All Parties to CMS are legally bound to this decision. A CITES Appendix I listing would act as a complementary management measure, to assist in the enforcement of CMS, as the vast majority of CITES Parties are Parties to CMS as well.

8. Species management

8.1 Management measures

National-or territory-level protection measures for whale sharks, via shark fishing bans or specific species protection, are in place in American Samoa, Australia, Bahamas, Belize, Cambodia, Chagos Archipelago (UK), China, Republic of the Congo (Congo-Brazzaville), Cook Islands, Costa Rica, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, French Polynesia, Guatemala, Guadeloupe, Guyana, Honduras, Hong Kong SAR, Indonesia, India, Kuwait, Maldives, Malaysia, Marshall Islands, Mexico, Myanmar, New Caledonia, New Zealand, Nicaragua, Palau, Panama, Philippines, Reunion, Samoa, Saudi Arabia, Seychelles, South Africa, St Helena Island (UK), Taiwan POC, Thailand, Tokelau, United Arab Emirates and USA. In Israel, all elasmobranchs are fully protected in Israel's territorial waters in both the Mediterranean and Red Sea. The Philippines passed a Fisheries

Administrative Order (FAO 193, Department of Agriculture) in 1998 protecting the species following the start of ecotourism activities in Donsol, Sorsogon

Other countries have marine protected areas where no shark fishing is allowed, including Cocos Island in Pacific Costa Rica, Malpelo Island in Pacific Colombia, the Galapagos Islands in Ecuador, the Banc d'Arguin National Park in Mauritania, and the Marine Protected Areas in Guinea-Bissau.

National regulations to ensure whale sharks are not harassed by tourism exist in Australia, Belize, Ecuador (Galapagos Islands area), Mexico and St Helena Island (UK). In the Philippines, local ordinances exist regulating tourism activities, namely at Donsol, Pintuyan and Oslob.

An Appendix I listing will help this wide range of countries reinforce their domestic protections for whale sharks by adding extra monitoring for illegal trade in this species, via the CITES process.

8.2 Population monitoring

Whale shark populations are loosely monitored opportunistically across their range, from fisheries observers as part of RFMOs to tourism sightings, to local shark watching groups. However, reporting is not necessarily consistent and an Appendix I listing would help prioritize more active population monitoring for these species.

9. Information on similar species

Whale shark fins, because of their very large size and coloring, are easily visually identifiable from other species of sharks. The meat is also distinctive, as it has a unique soft spongy texture and the myomeres are of very large size. Meat and fins from very small whale sharks could be similar with those of other species. However, rapid in-port DNA testing, and visual training to distinguish between small whale shark fins and other species—already exist to assist Governments in their implementation of the Appendix II listing, therefore uplisting the species to Appendix I would require no new tools to be developed.

10. Consultations

See annex 1.

11. Additional remarks

The following sections and annexes are not for translation.

12. References

Aca, E.Q. and Schmidt, J.V. 2011. Revised size limit for viability in the wild: Neonatal and young of the year whale sharks identified in the Philippines. Asia Life Sciences 20: 361-367

Acuña-Marrero. D., Jiménez, J., Smith, F., Doherty, P.F., Jr., Hearn, A., Green, J.R., Parades-Jarrin, J. and

Salinas-de-Leon, P. 2014. Whale shark (Rhincodon typus) seasonal presence, residence time and habitat use at Darwin Island, Galapagos Marine Reserve. PLoS ONE 9: e102060. Web link. Afonso, P., McGinty, N. and Machete, M. 2014. Dynamics of whale shark occurrence at their fringe oceanic habitat. PloS ONE 9: e102060

Afonso, P., McGinty, N. and Machete, M. 2014. Dynamics of whale shark occurrence at their fringe oceanic habitat. PloS ONE 9: e102060.

Akhilesh, K.V., Shanis, C.P.R., White, W.T., Manjebrayakath, H., Bineesh, K.K., Ganga, U., Abdussamad, E.M., Gopalakrishnan, A. and Pillai, N.G.K. 2012. Landings of whale sharks Rhincodon typus Smith, 1828 in Indian waters since protection in 2001 through the Indian Wildlife (Protection) Act, 1972. Environmental Biology of Fishes 96: 713-722.

Alava, M.N.R., Dolumbaló, E.R.Z., Yaptinchay, A.A. and Trono, R.B. 2002. Fishery and trade of whale sharks and manta rays in the Bohol Sea, Philippines. Pp. 132-148. In: S.L. Fowler, T.M. Reed and F.A. Dipper (eds), Elasmobranch Biodiversity, Conservation and Management: Proceedings of the International Seminar and Workshop. Sabah, Malaysia, July 1997. Occasional paper of the IUCN Species Survival Commission No. 25.

Anderson, R.C. and Ahmed, H. 1993. The shark fisheries in the Maldives. FAO, Rome, and Ministry of Fisheries, Male, Maldives.

Arzoumanian, Z., Holmberg, J. and Norman, B. 2005. An astronomical pattern-matching algorithm for computer-aided identification of whale sharks Rhincodon typus. Journal of Applied Ecology 42: 999- 1011.

Bonaccorso E, Ordóñez-Garza N, Pazmiño DA, Hearn A, Páez-Rosas D, Cruz S, Muñoz-Pérez JP,

Espinoza E, Suárez J, Muñoz-Rosado LD, Vizuete A (2021) International fisheries threaten globally endangered sharks in the Eastern Tropical Pacific Ocean: the case of the Fu Yuan Yu Leng 999 vessel seized within the Galápagos Marine Reserve. Scientific Reports 11(1):14959.

Borrell, A., Aguilar, A., Gazo, M., Kumarran, R.P. and Cardona, L. 2011. Stable isotope profiles in whale shark (Rhincodon typus) suggest segregation and dissimilarities in the diet depending on sex and size. Environmental Biology of Fishes 92: 559-567.

Bradshaw, C.J., Fitzpatrick, B.M., Steinberg, C.C., Brook, B.W. and Meekan, M.G. 2008. Decline in whale shark size and abundance at Ningaloo Reef over the past decade: the world's largest fish is getting smaller. Biological Conservation 141: 1894-1905.

Branstetter, S., 1991. Shark life history: one reason sharks are vulnerable to overfishing. Discovering Sharks. American Littoral Society, special publication, 14, pp. 29-34.

Brooks, K., Rowat, D., Pierce, S.J., Jouannet, D. and Vely, M. 2010. Seeing spots: photo-identification as a regional tool for whale shark identification. Western Indian Ocean Journal of Marine Science 2: 185-194

Burks, C. M., Driggers, W. B. I. I. I., and Mullin, K. D. 2006. Abundance and distribution of whale sharks (Rhincodon typus) in the northern Gulf of Mexico. Fish. Bull. 104, 579–584.

Capietto, A., Escalle, L., Chavance, P., Dubroca, L., Delgado de Molina, A., Murua, H., Floch, L., Damiano, A., Rowat, D and Merigot, B. 2014. Mortality of marine megafauna induced by fisheries: Insights from the whale shark, the world's largest fish. Biological Conservation 174: 147-151.

Castro, A.L.F., Stewart, B.S., Wilson, S.G., Hueter, R.E., Meekan, M.G., Motta, P.J., Bowen, B.W. and Karl, S.A. 2007. Population genetic structure of Earth's largest fish, the whale shark (Rhincodon typus). Molecular Ecology 16: 5183-5192.

Chen, C.T., Liu, K.M. and Joung, S.J. 1997. Preliminary report on Taiwan's whale shark fishery. TRAFFIC Bulletin 17(1): 53-57.

Chen, V.Y. and Phipps, M.J. 2002. Management and trade of whale sharks in Taiwan. TRAFFIC East Asia, Taipei, Taiwan.

Clarke, S. 2015. Understanding and mitigating impacts to whale sharks in purse seine fisheries of the

Western and Central Pacific Ocean. Western and Central Pacific Fisheries Commission, WCPFCSC11-2015/EB-WP-03 Rev. 1. Pohnpei, Federated States of Micronesia.

Colman, J. 1997. A review of the biology and ecology of the whale shark. Journal of Fish Biology 51: 1219-1234.

de la Parra Venegas, R., Hueter, R., González Cano, J., Tyminski, J., Gregorio Remolina, J., Maslanka, M. 2011. An unprecedented aggregation of whale sharks, Rhincodon typus, in Mexican coastal waters of the Caribbean Sea. PLoS One 6:e18994. doi: 10.1371/journal.pone.0018994

Duffy, C.A.J. 2002. Distribution, seasonality, lengths, and feeding behaviour of whale sharks (Rhincodon typus) observed in New Zealand waters. New Zealand Journal of Marine and Freshwater Research 36: 565-570.

Ebert, D.A., Fowler, S., and Compagno, L. 2013. Sharks of the World. Wild Nature Press.

Estes, J.A., Heithaus, M., McCauley, D.J., Rasher, D.B. and Worm, B. 2016. Megafaunal impacts on structure and function of ocean ecosystems. Annual Review of Environment and Resources 41: 83- 116.

FAO. 1999. Rhincodon typus Smith 1928. Website:
www.fao.org/waicent/faoinfo/fishery/sidp/htmls/sharks/rh_ty_ht.htm

Fischer J., Erikstein K., D´Offay B., Barone M. and S. Guggisberg. 2012 : Review of the implementation of the International Plan of Action for the conservation and management of sharks. Rep. No. C1076. FAO.2012; 125.

Fox, S., Foisy, I., De La Parra Venegas, R., Galván Pastoriza, B.E., Graham, R.T., Hoffmayer, E.R., Holmberg, J. and Pierce, S.J. 2013. Population structure and residency of whale sharks Rhincodon typus at Utila, Bay Islands, Honduras. Journal of Fish Biology 83: 574-587.

Gaines, J. 2016. A criminal organization kidnapped two whale sharks. This international team freed them. Upworthy. https://www.upworthy.com/a-criminal-organization-kidnapped-2-whale-sharks-this-international-team-freed-them.

Gifford, A., Compagno, L.J.V. and Levine, M. 2001. Aerial surveys of whale sharks (Rhincodon typus) off the east coast of southern Africa from 1993 to 1998. Report to the Shark Research Institute, Princeton.

Gleiss, A.C., Wright, S., Liebsch, N., Wilson, R.P. and Norman, B. 2013. Contrasting diel patterns in vertical movement and locomotor activity of whale sharks at Ningaloo Reef. Marine Biology 160: 2981-2992.

Graham, R.T. 2007. Whale sharks of the Western Caribbean: an overview of current research and conservation efforts and future needs for effective management of the species. Gulf and Caribbean Research 19: 149-159.

Gudger, E.W. 1941. The whale shark unafraid: The greatest of the sharks, Rhineodon typus, fears not shark, man nor ship. The American Naturalist 75: 550-568

Guzman, H.M., Gomez, C.G., Hearn, A. et al. Longest recorded trans-Pacific migration of a whale shark (Rhincodon typus). Mar Biodivers Rec 11, 8 (2018). https://doi.org/10.1186/s41200-018-0143-4.

Harley, S., Williams, P. and Rice, J. 2013. Spatial and temporal distribution of whale sharks in the western and central Pacific Ocean based on observer data and other data sources. Western and Central Pacific Fisheries Commission, Pohnpei.

Harvey-Carroll, J., Stewart, J.D., Carroll, D., Mohamed, B., Shameel, I., Zareer, I.H., Araujo, G. and Rees, R., 2021. The impact of injury on apparent survival of whale sharks (Rhincodon typus) in South Ari Atoll Marine Protected Area, Maldives. *Scientific Reports*, *11*(1), p.937.

Hearn, A.R., Green, J., Román, M.H., Acuña-Marrero, D., Espinoza, E. and Klimley, A.P. 2016. Adult female whale sharks make long-distance movements past Darwin Island (Galapagos, Ecuador) in the Eastern Tropical Pacific. Marine Biology 163: 214.

Heyman, W., Graham, R., Kjerfve, B., and Johannes, R. E. 2001. Whale sharks Rhincodon typus aggregate to feed on fish spawn in Belize. *Mar. Ecol. Prog. Ser.* 251, 275–282. doi: 10.3354/meps215275

Higgs, N.D., Gates, A.R. and Jones, D.O.B. 2014. Fish food in the deep sea: revisiting the role of large food-falls. PLoS ONE 9: e96016

Hoffmayer, E.R., Franks, J.S. and Shelley, J.P. 2005. Recent observations of the whale shark (Rhincodon typus) in the northcentral Gulf of Mexico. Gulf and Caribbean Research 17: 117-120

Hoffmayer ER, McKinney JA, Franks JS, Hendon JM, Driggers WB III, Falterman BJ, Galuardi B and Byrne ME (2021) Seasonal Occurrence, Horizontal Movements, and Habitat Use Patterns of Whale Sharks (*Rhincodon typus*) in the Gulf of Mexico. *Front. Mar. Sci.* 7:598515. doi: 10.3389/fmars.2020.598515

Holmberg, J., Norman, B. and Arzoumanian, Z. 2009. Estimating population size, structure, and residency time for whale sharks *Rhincodon typus* through collaborative photo-identification. *Endangered Species Research* 7: 39-53

Hsu, H.H., Joung, S.J. and Liu, K. 2012. Fisheries, management and conservation of the whale shark Rhincodon typusin Taiwan. Journal of Fish Biology 80: 1595-1607

Hsu, H.H., Joung, S.J., Hueter, R.E. and Liu, K.M. 2014. Age and growth of the whale shark (Rhincodon typus) in the north-western Pacific. Marine and Freshwater Research 65: 1145-115

Hueter, R.E., Tyminski, J.P. and de la Parra, R. 2013. Horizontal movements, migration patterns, and population structure of whale sharks in the Gulf of Mexico and northwestern Caribbean Sea. PloS ONE 8: e71883

Joung, S.J., Chen, C.T., Clark, E., Uchida, S. and Huang, W.Y.P. 1996. The whale shark, Rhincodon typus, is a livebearer: 300 embryos found in one 'megamamma' supreme. Environmental Biology of Fishes 46: 219-223

Kennish, M. (1994). Pollution in Estuaries and Coastal Marine Waters. *Journal of Coastal Research,* 27-49. Retrieved March 3, 2021, from http://www.jstor.org/stable/2573558

Ketchum, J.T., Galván-Magaña, F. and Klimley, A.P. 2012. Segregation and foraging ecology of whale sharks, Rhincodon typus, in the southwestern Gulf of California. Environmental Biology of Fishes 96: 779-795.

Li, W., Wang, Y. and Norman, B. 2012. A preliminary survey of whale shark *Rhincodon typus* catch and trade in China: an emerging crisis. Journal of Fish Biology 80: 1608-1618

Marcus, L., Virtue, P., Pethybridge, H.R., Meekan, M.G., Thums, M. and Nichols, P.D. 2016. Intraspecific variability in diet and implied foraging ranges of whale sharks at Ningaloo Reef, Western Australia, from signature fatty acid analysis. Marine Ecology Progress Series 554: 115-128.

Mariani G, Cheung WW, Lyet A, Sala E, Mayorga J, Velez L, Gaines SD, Dejean T, Troussellier M, Mouillot D (2020) Let more big fish sink: Fisheries prevent blue carbon sequestration—half in unprofitable areas. Science Advances 28, 6(44): eabb4848.

McKinney, J., Hoffmayer, E., Wu, W., Fulford, R. and Hendon, J. 2012. Feeding habitat of the whale shark Rhincodon typus in the northern Gulf of Mexico determined using species distribution modelling. Marine Ecology Progress Series 458: 199-211.

Meekan, M.G., Bradshaw, C.J.A., Press, M., Mclean, C., Richards, A., Quasnichka, S. and Taylor, J.G. 2006. Population size and structure of whale sharks *Rhincodon typus* at Ningaloo Reef, Western Australia. Marine Ecology Progress Series 319: 275-285.

Meekan MG, Taylor BM, Lester E, Ferreira LC, Sequeira AMM, Dove ADM, Birt MJ, Aspinall A, Brooks K and Thums M 2020 Asymptotic Growth of Whale Sharks Suggests Sex-Specific Life-History Strategies. *Front. Mar. Sci.* 7:575683. doi: 10.3389/fmars.2020.57568

Motta, P.J., Maslanka, M., Hueter, R.E., Davis, R.L., de la Parra, R., Mulvany, S.L., Habegger, M.L., Strother, J.A., Mara, K.R., Gardiner, J.M., Tyminski, J.P. and Zeigler, L.D. 2010. Feeding anatomy, filter-feeding rate, and diet of whale sharks Rhincodon typus during surface ram filter feeding off the Yucatan Peninsula, Mexico. Zoology 113: 199-212

Norman, B. (Shark Specialist Group). 2000. *Rhincodon typus*. *The IUCN Red List of Threatened Species* 2000: e.T19488A8912689.

Norman, B. 2002. Review of Current and Historical Research on the Ecology of Whale Sharks (Rhincodon typus), and Applications to Conservation Through Management of the Species. Freemantle: Western Australian Department of Conservation and Land Management.

Norman, B.M. and Stevens, J.D. 2007. Size and maturity status of the whale shark (Rhincodon typus) at Ningaloo Reef in Western Australia. Fisheries Research 84: 81-86

Pacoureau N, Rigby CL, Kyne PM, Sherley RB, Winker H, Carlson JK, Fordham S v., Barreto R, Fernando D, Francis MP, et al. (2021). Half a century of global decline in oceanic sharks and rays. Half a century of global decline in oceanic sharks and rays. *Nature*, 589(7843), 567–571. https://doi.org/10.1038/s41586-020-03173-9

Perry CT, Clingham E, Webb DH, de la Parra R, Pierce SJ, Beard A, Henry L, Taylor B, Andrews K, Hobbs R, Araujo G and Dove ADM (2020) St. Helena: An Important Reproductive Habitat for Whale Sharks (*Rhincodon typus*) in the Central South Atlantic. *Front. Mar. Sci.* 7:576343. doi: 10.3389/fmars.2020.576343

Perry, C. T., Figueiredo, J., Vaudo, J. J., Hancock, J., Rees, R., and Shivji, M. (2018). Comparing length-measurement methods and estimating growth parameters of free-swimming whale sharks (*Rhincodon typus*) near the South Ari Atoll, Maldives. *Mar. Freshw. Res.* 69, 1487–1495. doi: 10.1071/mf1739

Pierce, S.J. & Norman, B. 2016. *Rhincodon typus*. *The IUCN Red List of Threatened Species* 2016: e.T19488A2365291. https://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T19488A2365291.en

Pierce, S.J., Pardo, S.A., Rohner, C.A., Matsumoto, R., Murakumo, K., Nozu, R., Dove, A.D., Perry, C. and Meekan, M.G., 2021. Whale shark reproduction, growth, and demography. Whale sharks: Biology, ecology, and conservation, pp.13-45.

Ramírez-Macías, D., Vázquez-Haikin, A. and Vázquez-Juárez, R. 2012a. Whale shark Rhincodon typus populations along the west coast of the Gulf of California and implications for management. Endangered Species Research 18: 115-128

Ramírez-Macías, D., Meekan, M., de la Parra-Venegas, R., Remolina-Suárez, F., Trigo-Mendoza, M. and Vázquez-Juárez, R. 2012b. Patterns in composition, abundance and scarring of whale sharks Rhincodon typus near Holbox Island, Mexico. Journal of Fish Biology 80: 1401-1416

Reuters Staff. 2018. Endangered whale shark fins found in Singapore Airlines shipment to Hong Kong. https://www.reuters.com/article/us-hongkong-environment/endangered-whale-shark-fins-found-in-singapore-airlines-shipment-to-hk-idUSKCN1IV08H

Reynolds, S.D., Norman, B.M., Franklin, C.E., Bach, S.S., Comezzi, F.G., Diamant, S., Jaidah, M.Y., Pierce, S.J., Richardson, A.J., Robinson, D.P. and Rohner, C.A. 2022. Regional variation in anthropogenic threats to Indian Ocean whale sharks. Global Ecology and Conservation, 33, p.e01961.

Robinson, D.P., Jaidah, M.Y., Bach, S., Lee, K., Jabado, R.W., Rohner, R.A., March, A., Caprodossi, S., Henderson, A.C., Mair, J.M., Ormond, R. and Pierce, S.J. 2016. Population structure, abundance and movement of whale sharks in the Arabian Gulf and Gulf of Oman. PloS ONE.

Robinson, D.P., Jaidah, M.Y., Bach, S., Rohner, R.A., Jabado, R.W., Ormond, R. and Pierce, S.J. 2017. Some like it hot: repeat migration and residency of whale sharks within an extreme natural environment. PLoS ONE

Rohner, C. A., Richardson, A. J., Jaine, F. R. A., Bennett, M. B., Weeks, S. J., Cliff, G., et al. 2018. Satellite tagging highlights the importance of productive Mozambican coastal waters to the ecology and conservation of whale sharks. *Peer J.* 6:e4161. doi: 10.7717/peerj.4161

Rohner, C.A., Richardson, A.J., Prebble, C.E.M., Marshall, A.D., Bennett, M.B., Weeks, S.J., Cliff, G., Wintner, S.P. and Pierce, S.J. 2015. Laser photogrammetry improves size and demographic estimates for whale sharks. PeerJ 3: e886.

Rohner, C.A., Pierce, S.J., Marshall, A.D., Weeks, S.J., Bennett, M.B. and Richardson, A.J. 2013. Trends in sightings and environmental influences on a coastal aggregation of manta rays and whale sharks. Marine Ecology Progress Series 482: 153-168

Rowat, D. and Gore, M. 2007. Regional scale horizontal and local scale vertical movements of whale sharks in the Indian Ocean off Seychelles. Fisheries Research. 84. 32-40. 10.1016/j.fishres.2006.11.009.

Rowat, D. and Brooks, K.S. 2012. A review of the biology, fisheries and conservation of the whale shark Rhincodon typus. Journal of Fish Biology 80: 1019-1056.

Rowat, D., Brooks, K., March, A., McCarten, C., Jouannet, D., Riley, L., Jeffreys, G., Perri, M., Vely, M. and Pardigon, B. 2011. Long-term membership of whale sharks (Rhincodon typus) in coastal aggregations in Seychelles and Djibouti. Marine and Freshwater Research 62: 621-627.

Rowat, D., Meekan, M.G., Engelhardt, U., Pardigon, B. and Vely, M. 2006. Aggregations of juvenile whale sharks (Rhincodon typus) in the Gulf of Tadjoura, Djibouti. Environmental Biology of Fishes 80: 465-472

Rowat, D., Womersley, F.C., Norman, B.M. and Pierce, S.J., 2021. Global threats to whale sharks. Whale Shark Biology, Ecology, and Conservation, pp.239-265.

Sánchez, L., Briceño, Y., Tavares, R., Ramírez-Macías, D. and Rodríguez, J.P., 2020. Decline of whale shark deaths documented by citizen scientist network along the Venezuelan Caribbean coast. Oryx, 54(5), pp.600-601.

Sequeira, A.M.M., Mellin, C., Delean, S., Meekan, M.G. and Bradshaw, C.J A. 2013a. Spatial and temporal predictions of inter-decadal trends in Indian Ocean whale sharks. Marine Ecology Progress Series 478: 185-195.

Sequeira, A.M.M., Mellin, C., Meekan, M.G., Sims, D.W. and Bradshaw, C.J.A. 2013b. Inferred global connectivity of whale shark Rhincodon typus populations. Journal of Fish Biology 82: 367-389.

Sequeira, A.M.M., Mellin, C., Fordham, D.A., Meekan, M.G. and Bradshaw, C.J.A. 2014a. Predicting current and future global distributions of whale sharks. Global Change Biology 20: 778-789.

Sequeira, A.M.M., Mellin, C. and Floch, L. 2014b. Inter-ocean asynchrony in whale shark occurrence patterns. Journal of Experimental Marine Biology and Ecology 450: 21-29. DOI: 10.1016/j/jembe.2013.10.019.

Sequeira, A., Mellin, C., Rowat, D., Meekan, M.G. and Bradshaw, C.J.A. 2012. Ocean-scale prediction of whale shark distribution. Diversity and Distributions 18: 504-51

Schleimer, A., Araujo, G., Penketh, L., Heath, A., McCoy, E., Labaja, J., Lucey, A. and Ponzo, A. 2015. Learning from a provisioning site: code of conduct compliance and behaviour of whale sharks in Oslob, Cebu, Philippines. PeerJ 3: e1452

Schmidt, J.V., Chen, C.C., Sheikh, S.I., Meekan, M.G., Norman, B.M. and Joung, S.J. 2010. Paternity analysis in a litter of whale shark embryos. Endangered Species Research 12: 117-124

Speakman, J. R. (2005). Body size, energy metabolism and lifespan. *J. Exp. Biol.* 208, 1717–1730. doi: 10.1242/jeb.01556

Speed, C.W., Meekan, M.G., Rowat, D., Pierce, S.J., Marshall, A.D. and Bradshaw, C.J.A. 2008. Scarring patterns and relative mortality rates of Indian Ocean whale sharks. Journal of Fish Biology 72: 1488-1503

Taylor, J.G. 1994. Whale sharks, the giants of Ningaloo Reef. Harper Collins, Australia.

Theberge, M.M. and Dearden, P. 2006. Detecting a decline in whale shark Rhincodon typus sightings in the Andaman Sea, Thailand, using ecotourist operator-collected data. Oryx 40: 337-342.

Tomita, T., Kawai, T., Matsubara, H. and Kobayashi, M. 2014. Northernmost record of a whale

shark Rhincodon typus from the Sea of Okhotsk. Journal of Fish Biology 84: 243-246.

Tyminski, J.P., de la Parra-Venegas, R., González Cano, J. and Hueter, R.E. 2015. Vertical movements and behavior of whale sharks as revealed by pop-up satellite tags in the eastern Gulfof Mexico. PLoS ONE 10: e0142156.

Vignaud, T.M., Maynard, J.A, Leblois, R., Meekan, M.G., Vázquez-Juárez, R., Ramírez-Macías, D., Pierce, S.J., Rowat, D., Berumen, M.L., Beeravolu, C., Baksay, S. and Planes, S. 2014. Genetic structure of populations of whale sharks among ocean basins and evidence for their historic rise and recent decline. Molecular Ecology 23: 2590-2601

White, E.R., Myers, M.C., Flemming, J.M. and Baum, J.K. 2015. Shifting elasmobranch community assemblage at Cocos Island—an isolated marine protected area. Conservation Biology, 29: 1186- 1197

Wilson, S.G., Taylor, J.G. and Pearce, A.F. 2001. The seasonal aggregation of whale sharks at Ningaloo Reef, Western Australia: currents, migrations and the El Niño/Southern Oscillation. Environmental iology of Fishes 61: 1-1

Wilson, S. G., Polovina, J. J., and Stewart, B. S. 2006. Movement of whale sharks (Rhincodon typus) tagged at Ningaloo Reef, Western Australia. *Mar. Biol.* 128, 1157–1166. doi: 10.1007/s00227-005-0153-8

Womersley, F.C., Rohner, C.A., Abrantes, K., Afonso, P., Arunrugstichai, S., Bach, S.S., Bar, S., Barash, A., Barnes, P., Barnett, A. and Boldrocchi, G., 2024. Identifying priority sites for whale shark ship collision management globally. *Science of The Total Environment*, *934*, p.172776.

Womersley, F.C., Sousa, L.L., Humphries, N.E. *et al.* Climate-driven global redistribution of an ocean giant predicts increased threat from shipping. *Nat. Clim. Chang.* (2024). https://doi.org/10.1038/s41558-024-02129-5

Ziegler, J., Dearden, P. and Rollins, R. 2012. But are tourists satisfied? Importance-performance analysis of the whale shark tourism industry on Isla Holbox, Mexico. Tourism Management 33: 692- 701

Annex I. Range states for *R. typus – to be completed post range state consultation*

CITES Party	Range state?	Support Indicated (Yes/No/Undecided/No objection)	Summary of Information Provided
Angola	**Y**		
Antigua and Barbuda	**Y**		
Argentina	**Y**		
Australia	**Y**		
Bahamas			
Bahrain			
Bangladesh	**Y**		
Barbados			
Belize			
Benin	**Y**		
Brazil	**Y**		
Brunei			
Cabo Verde	**Y**		
Cambodia			
Cameroon	**Y**		
Canada			
Chile	**Y**		
People's Republic of China			
Colombia			
Comoros			
Congo (Brazzaville)	**Y**		
Cook Islands	**Y**		

Costa Rica	**Y**		
Cuba	**Y**		
Côte d'Ivoire	**Y**		
DPR Korea			
Democratic Republic of the Congo	**Y**		
Djibouti	**Y**		
Dominica			
Dominican Republic	**Y**		
Ecuador	**Y**		
Egypt	**Y**		
El Salvacor			
Equatorial Guinea	**Y**		
Eritrea	**Y**		
Fiji	**Y**		
France	**Y**		
French Polynesia			
Gabon	**Y**		
Gambia	**Y**		
Ghana	**Y**		
Grenada			
Guatemala			
Guinea	**Y**		
Guinea-Bissau	**Y**		
Guyana			
Honduras	**Y**		
India	**Y**		

Indonesia			
Iraq	**Y**		
Iran	**Y**		
Israel	**Y**		
Jamaica			
Japan			
Jordan	**Y**		
Kenya	**Y**		
Kiribati			
Kuwait			
Liberia	**Y**		
Madagascar	**Y**		
Malaysia			
Maldives	**Y**		
Marshall Islands			
Mauritania	**Y**		
Mauritius	**Y**		
Mexico			
Federated States of Micronesia			
Morocco	**Y**		
Mozambique	**Y**		
Myanmar			
Namibia			
Netherlands	**Y**		
New Zealand	**Y**		
Nicaragua			

Nigeria			
Oman			
Pakistan	**Y**		
Palau	**Y**		
Panama	**Y**		
Papua New Guinea			
Peru	**Y**		
Philippines	**Y**		
Portugal	**Y**		
Qatar			
Republic of Korea			
Saint Kitts and Nevis			
Saint Lucia			
Saint Vincent and the Grenadines			
Samoa	**Y**		
Saudi Arabia	**Y**		
Senegal	**Y**		
Seychelles	**Y**		
Sierra Leone			
Singapore			
Solomon Islands			
Somalia	**Y**		
South Africa	**Y**		
Sudan			
Sri Lanka	**Y**		
Suriname			

Thailand			
Togo	**Y**		
Tonga			
Trinidad and Tobago	**Y**		
United Arab Emirates	**Y**		
United Kingdom	**Y**		
Spain	**Y**		
United Republic of Tanzania	**Y**		
United States of America			
Uruguay	**Y**		
Vanuatu			
Venezuela			
Viet Nam			
Yemen	**Y**		

Annex II. CITES Trade Database summary of *R. typus* from 2000-2020

Yr	App.	Taxon	Import	Export	Origin	Importer reported quantity	Exporter reported quantity	Term	Unit	Purpose	Source
2004	II	*Rhincodon typus*	US	MY		6		soup		T	I
2005	II	*Rhincodon typus*	US	TW		2		live		Z	W
2006	II	*Rhincodon typus*	US	TW		2		live		Z	W
2007	II	*Rhincodon typus*	MX	PH		23		specimens		S	W
2007	II	*Rhincodon typus*	MX	ZA		28	28	specimens		S	W
2007	II	*Rhincodon typus*	US	TW		2		live		Z	W
2008	II	*Rhincodon typus*	SC	ZA			1	fins		S	W
2009	II	*Rhincodon typus*	BE	ZA		0.05		bones	kg	S	W
2009	II	*Rhincodon typus*	BE	ZA			2	teeth		S	W
2009	II	*Rhincodon typus*	DE	RU	XX		2	derivatives		Q	O
2009	II	*Rhincodon typus*	RU	DE	XX		2	skin pieces		Q	O
2009	II	*Rhincodon typus*	TW	MX			40	specimens		S	W
2009	II	*Rhincodon typus*	US	CA	TW	2		bones		S	I
2009	II	*Rhincodon typus*	US	ZA			16	specimens		S	W
2010	II	*Rhincodon typus*	AU	SC			86	specimens		S	W
2010	II	*Rhincodon typus*	CA	ZA			8	specimens		S	W
2010	II	*Rhincodon typus*	DE	RU	XX	2		skin pieces		Q	O
2010	II	*Rhincodon typus*	US	CN		6		derivatives		P	I
2010	II	*Rhincodon typus*	US	PH		4		specimens		S	W
2010	II	*Rhincodon typus*	US	ZA		32		bone pieces		S	W
2011	II	*Rhincodon typus*	FR	MX			115	specimens		S	O
2011	II	*Rhincodon typus*	FR	MX		115		specimens		S	W
2012	II	*Rhincodon typus*	CA	PK			1	specimens		S	W

2012	II	*Rhincodon typus*	US	CN			3	bodies		Q	W
2012	II	*Rhincodon typus*	US	EC			20	specimens		S	W
2012	II	*Rhincodon typus*	US	PH		11		specimens		S	W
2012	II	*Rhincodon typus*	US	PK			1	specimens		S	W
2013	II	*Rhincodon typus*	AU	SC			61	specimens		S	W
2013	II	*Rhincodon typus*	IT	MX			30	specimens		S	W
2013	II	*Rhincodon typus*	US	CN		1		specimens		Q	W
2013	II	*Rhincodon typus*	US	MX		30	60	specimens		S	W
2015	II	*Rhincodon typus*	DE	CN			1	specimens		T	W
2015	II	*Rhincodon typus*	US	SH		12		specimens		S	W
2016	II	*Rhincodon typus*	CN	KR	CN		1	bodies		E	W
2016	II	*Rhincodon typus*	KR	CN		1		bodies		E	W
2016	II	*Rhincodon typus*	KR	CN			1	specimens		E	W
2016	II	*Rhincodon typus*	US	SH		6	6	specimens		S	W
2017	II	*Rhincodon typus*	AU	MV			2	specimens	kg	S	W
2017	II	*Rhincodon typus*	CN	KR	CN	1		specimens		E	W
2017	II	*Rhincodon typus*	GB	MV			500	specimens	g	S	W
2017	II	*Rhincodon typus*	GB	MV			2	specimens		S	W
2017	II	*Rhincodon typus*	SA	MV			300	specimens	g	S	W
2017	II	*Rhincodon typus*	US	MV		1		specimens		S	W
2017	II	*Rhincodon typus*	US	MX		9		meat	kg	T	I
2018	II	*Rhincodon typus*	AU	ZA			17	specimens		S	W
2018	II	*Rhincodon typus*	CN	GB	CN		1	skeletons		E	W
2018	II	*Rhincodon typus*	GB	AU		66		skin pieces		S	W
2018	II	*Rhincodon typus*	GB	CN			3	specimens		E	W
2018	II	*Rhincodon typus*	GB	EC		5		specimens		S	W

2018	II	*Rhincodon typus*	GB	PH		40		specimens		S	W
2018	II	*Rhincodon typus*	GB	SH			130	specimens		S	W
2019	II	*Rhincodon typus*	DK	MX		2		specimens		S	W
2019	II	*Rhincodon typus*	GB	SH		23		specimens		S	W