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

Sixteenth meeting of the Conference of the Parties
Bangkok (Thailand), 3-14 March 2013

CONSIDERATION OF PROPOSALS FOR AMENDMENT OF APPENDICES I AND II

A. Proposal

Inclusion of *Carcharhinus longimanus* (Poey, 1861) in Appendix II in accordance with Article II paragraph 2 (a) of the Convention and satisfying Criterion A in Annex 2a of Resolution Conf. 9.24 (Rev. CoP14)[1].

Inclusion in Appendix II, with the following annotation:

The entry into effect of the inclusion of *Carcharhinus longimanus* in Appendix II of CITES will be delayed by 18 months to enable Parties to resolve the related technical and administrative issues.

Annex 2a, Criterion A. *It is known, or can be inferred or projected, that the regulation of trade in the species is necessary to avoid it becoming eligible for inclusion in Appendix I in the near future.*

The species qualifies for inclusion in Appendix II under this criterion because it is over-exploited for its fins, which are large and highly valued in international trade. This low-productivity species is harvested as bycatch in global pelagic fisheries. The greatest threats to this species worldwide are harvest for the international fin trade and bycatch, which have led to significant declines. For example, there has been a decline of 60-70% in the northwest and central Atlantic Ocean and up to a 10-fold decline in abundance from the baseline in the central Pacific Ocean. Based upon rates of exploitation, this species may become threatened with extinction unless international trade regulation provides an incentive to introduce or improve monitoring and management measures to provide a basis for non-detriment and legal acquisition findings.

B. Proponent

Brazil, Colombia and United States of America[2]

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[1] *CITES listing criteria and definitions must be applied with flexibility and in context. This is consistent with the "Note" at the beginning of Annex 5 in Resolution Conf. 9.24 (Rev. CoP15): "Where numerical guidelines are cited in this Annex, they are presented only as examples, since it is impossible to give them numerical values that are applicable to all taxa because of differences in their biology." The definition of "decline" in Annex 5 is relevant to the determination of whether a species meets either criterion in Annex 2a of the resolution. Nonetheless, it is possible for a species to meet the criteria and qualify for listing in Appendix II even if it does not meet the specific parameters provided in the definition of "decline", which is in fact more relevant for the inclusion of species in Appendix I. Where quantitative data are available, they should be used to evaluate a species' status. However, where data on population abundance are not available but there are indications that over-exploitation is or may be occurring (i.e., "it is known, or can be inferred or projected") and the regulation of trade could benefit the conservation of the species, listing should be supported.*

[2] *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

1. Taxonomy

1.1 Class: Chondrichthyes

1.2 Order: Carcharhiniformes

1.3 Family: Carcharhinidae

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

1.5 Scientific synonyms: *Pterolamiops longimanus* (Poey, 1861), *Carcharius obtusus* (Garman, 1881), *Carcharius insularum* (Zinder, 1904), *Pterolamiops magnipinnis* (Smith, 1958), and *Pterolamiops budkeri* (Fourmanoir, 1961).

1.6 Common names:

English:	Oceanic whitetip shark, Brown Milbert's sand bar shark, brown shark, nigarno shark, whitetip, whitetip shark, white-tip shark, and whitetip whaler
French:	Requin océanique
Spanish:	Tiburón punta blanca oceánico, aletiblanco oceánico, cazón, galano
Afrikaans:	Opesee-wittiphaai

1.7 Code numbers: Not applicable.

2. Overview

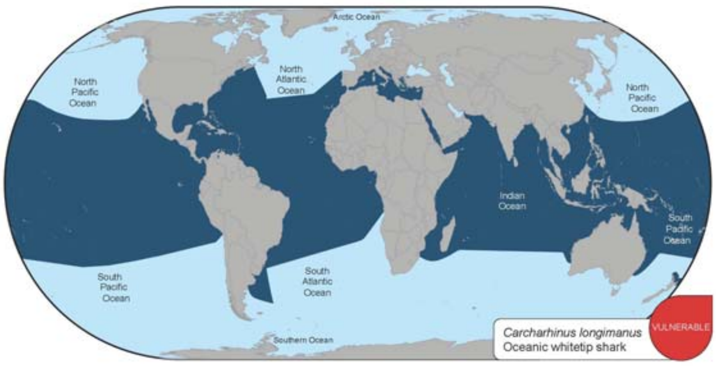
The oceanic whitetip shark, *Carcharhinus longimanus*, qualifies for listing under this criterion, because some populations have exhibited a significant and marked decline in their size. The greatest threats to this species worldwide are harvest for the international fin trade and bycatch. This is one of the shark species with the largest range, which encompasses entire oceans in tropical and subtropical waters between about 30º North and 35º South, and it is usually found far offshore. Oceanic whitetip sharks have a moderate recovery potential when compared to 26 other species of sharks and low population growth rates ($r<0.14$) as defined by the Food and Agriculture Organization of the United Nations (FAO). Ecological risk and productivity assessments have determined that oceanic whitetip sharks rank 5th in their susceptibility to pelagic fisheries among 12 other Atlantic Ocean species (Section 3.3). Abundance trend analyses of catch-rate data have reported large declines for some populations. In the northwest and western central Atlantic regions, analyses of logbook data indicate declines of 60-70% since 1992. Moreover, a standardized catch-rate analysis of data from U.S. pelagic longline surveys in the mid-1950s and U.S. pelagic longline observer data in the late 1990s in the Gulf of Mexico estimated a decline of 99% over four generations for this species. In the central Pacific Ocean, a comparative study of survey data from pelagic longlines starting in the 1950s and observer data in the 1990s indicated a 90% decline in biomass. Nominal catch rates for the oceanic whitetip shark from purse-seine sets on floating objects, unassociated sets and dolphin sets show decreasing trends since 1994. Taken together, it is likely that this low-productivity species ($r<0.14$) has declined to at least 15-20% of baseline (1950s) in the northwest Atlantic and central Pacific Oceans (Section 4). Oceanic whitetip sharks are listed on the IUCN Red List of Threatened Species as Critically Endangered in the northwest and central Atlantic Ocean, and as Vulnerable globally.

Oceanic whitetip sharks are a tropical pelagic species taken as bycatch in tuna and swordfish fisheries. Although their meat is consumed in local markets, they are primarily utilized for their fins, which are the main product on the international market. There are a few small-scale fisheries primarily in the Gulf of Aden and the Pacific coast of Central America (Section 5). An Appendix-II listing would have beneficial effects upon the wild populations of these animals by regulating and ensuring the sustainability of the international trade in fins (Section 6). Oceanic whitetip sharks should benefit from legislation enacted in Palau, French Polynesia, the Maldives, Honduras, the Bahamas, Tokelau and the Marshall Islands to prohibit shark fisheries within their Exclusive Economic Zones (Section 7). Both the International Commission for the Conservation of Atlantic Tunas (ICCAT) and the Inter-American Tropical Tuna Commission (IATTC) have prohibited retaining on board, transhipping, landing, storing, selling or offering for sale any part or whole carcass of oceanic whitetip shark within their fisheries. Recently, the Western and Central Pacific Fisheries Commission (WCPFC) prohibited retaining on board, transhipping or landing oceanic whitetip shark in the area covered by the Convention (Section 8). Inclusion in CITES Appendix-II and its associated legal requirements for acquisition will therefore help the above-mentioned countries, other countries with local bans and Members of relevant Regional Fisheries Management Organizations (RFMOs) to ensure compliance with management measures.

3. <u>Species characteristics</u>

3.1 Distribution

The oceanic whitetip shark is distributed worldwide in epipelagic tropical and subtropical waters between 30º North latitude and 35º South latitude (Baum *et al.*, 2006). Its range includes the western Atlantic Ocean from Portugal to the Gulf of Guinea and possibly the Mediterranean Sea. In the Indo-Pacific, this species is found from the Red Sea and the coast of East Africa to Hawaii, Samoa, Tahiti and the Tuamoto Islands. In the eastern Pacific Ocean, it ranges from southern California in the United States south to Peru. Oceanic whitetip sharks are found in the following FAO Areas: 21, 27, 31, 34, 41, 47, 51, 57, 61, 71, 77, 81 and 87 (Compagno, 1984).



World distribution map for the oceanic whitetip shark. Taken from IUCN (Baum *et al.*, 2006).

3.2 Habitat

This species of shark is considered to be the only true oceanic shark of the genus *Carcharhinus*. It is usually found offshore in the open ocean, on the outer continental shelf, or around oceanic islands in deep water, and has been recorded to a depth of 152 m. It is found in waters warmer than 20ºC (range 18-28°C), with an average of 15ºC. Tropical Pacific records of pregnant females and newborns are concentrated between 20ºN and the equator, from 170ºE to 140ºW. Young oceanic whitetip sharks have been found well offshore along the south-eastern coast of the United States, suggesting that there may be a nursery in oceanic waters over this continental shelf (Compagno, 1984; Fourmanoir, 1961; Last and Stevens, 1994; Bonfil *et al*., 2008). The species has recently been recorded in oceanic longline industrial fishing catches in the Colombian Caribbean (Caldas and Correa, 2010).

3.3 Biological characteristics

Oceanic whitetip shark life history parameters have been studied in the North Pacific and southwest Atlantic Ocean (see Annex 1). Seki *et al.* (1998) studied the age, growth and reproduction of the oceanic whitetip shark in the North Pacific Ocean and determined growth rates (Von Bertalanffy, k) in both males and females to be 0.10 year^{-1}. In the western equatorial Atlantic Ocean, Lessa *et al.* (1999) estimated growth rates between 0.08-0.09 year^{-1}. Theoretical maximum sizes range from 325 to 342 cm total length (TL) (Lessa *et al.*, 1999; Seki *et al.*, 1998). A maximum age of 13 years was determined using vertebral sections (Lessa et al., 1999).

Few reproductive studies are available for oceanic whitetip sharks. Seki *et al.* (1998) suggested a 2-year reproductive cycle with a 9-12 month gestation period, where litter sizes range from 1 to 14 with a mean of 5-6 embryos depending on geographic location. Litter size was found to increase with maternal size in the northwest Atlantic Ocean (Backus *et al.*, 1956). Pups are born at a size between 55 and 75 cm TL. In the North Pacific, females become mature at about 168-196 cm TL, and males at 175-189 cm TL, corresponding to an age of 4-5 years, respectively (Seki *et al*., 1998).

Lessa *et al.* (1995) found that both sexes mature at 180-190 cm TL (age 6-7 years) in the western equatorial Atlantic Ocean.

Using a demographic method that incorporates density dependence, Smith *et al.* (1998) determined that oceanic whitetip sharks have a moderate intrinsic recovery potential when compared to 26 other species of sharks. Using a density independent demographic approach, Cortés (2008) calculated population growth rates (λ) of 1.069 $year^{-1}$ (1.029, 1.119; lower and upper 95% confidence limits, respectively) and generation times (T) of 11.1 years (9.4, 13.0). In this study, population growth rates were low to moderate when compared with eight other pelagic species. Estimates of the intrinsic rate of increase for this species (r=0.09-0.07 $year^{-1}$) indicated that oceanic whitetip populations are vulnerable to depletion and will be slow to recover from over-exploitation based on FAO's low-productivity category (<0.14 $year^{-1}$) (FAO, 2001) and Musick *et al.* (2000). Ecological risk and productivity assessments have determined that this species ranks 5th in susceptibility to pelagic fisheries among 12 other Atlantic Ocean species (Cortés *et al*., 2008).

3.4 Morphological characteristics

This shark has a large rounded first dorsal fin and very long and wide pectoral fins with a characteristic white colour on the tips. The head has a short and bluntly rounded nose and small circular eyes with nictitating membranes. The first dorsal fin is very wide with a rounded tip, originating just in front of the rear tips of the pectoral fins. The second dorsal fin originates over or slightly in front of the base of the anal fin. Possessing broadly rounded tips, the pectoral fins are very large and elongated. The white markings on the dorsal, pectoral, pelvic and caudal fins are sometimes accompanied by white mottling on the fins or black markings in young individuals. The body can be greyish bronze to brown in colour, depending upon geographical location. The underside is whitish, with a yellow tinge in some individuals. Abercrombie and Chapman (2012) have developed a guide showing that it is easy to identify the rounded fins with white parts that are characteristic of oceanic whitetip sharks.

3.5 Role of the species in its ecosystem

Oceanic whitetip sharks are high trophic-level predators in the open ocean, feeding mainly on teleosts and cephalopods (Backus, 1956), but some studies have also reported that they prey on sea birds and marine mammals, among others (Compagno, 1984). Based on the diet of the oceanic white shark, Cortés (1999) determined that its trophic level was 4.2 (maximum=5.0).

4. Status and trade

4.1 Habitat trends

Critical habitats for oceanic whitetip sharks are not known. Pacific Ocean records of pregnant females and newborn oceanic whitetip sharks are concentrated between 20° North latitude and the equator, from 170° East longitude to 140° West longitude. Young oceanic whitetip sharks have been found in oceanic waters along the south-eastern coast of the United States, suggesting that there may be an offshore nursery over this continental shelf (Fourmanoir, 1961, Compagno, 1984, Last and Stevens, 1994, Bonfil *et al*., 2008). The effects of climate change on world ocean temperatures, pH and related biomass production could potentially impact oceanic whitetip populations, but the possible consequences of such impacts are unknown. Recent information obtained from the industrial oceanic longline fishery in Colombia has shown an interaction with juveniles (Caldas and Correa, 2010) that may be impacting likely development areas for the species.

4.2 Population size

There are stock assessments available for the central and western Pacific Ocean where it is noted that the population is over-exploited (Rice and Harley, 2012). Population size is unknown in other areas of the world.

4.3 Population structure

Genetic studies have not been conducted for this species. Limited conventional tagging studies in the northwest Atlantic Ocean indicate movements between the Gulf of Mexico and the Atlantic coast of Florida, Cuba and the mid-Atlantic Bight from the Lesser Antilles to the central Caribbean Sea, and east to west along the equatorial Atlantic Ocean (Kohler *et al*., 1998). The maximum distance travelled was 2,270 km. There is no information on the size class and sex distribution of oceanic whitetip shark populations.

4.4 Population trends

Atlantic Ocean

This species was initially described as the most common pelagic shark throughout the warm-temperate and tropical waters of the Atlantic (Mather and Day, 1954) and beyond the continental shelf in the Gulf of Mexico (Bullis, 1961). Abundance trend analyses using catch-rate data (see Annex 2) have since reported large declines in abundance for some populations. In the northwest Atlantic regions, standardized catch-rate indices estimated from self-reported logbook data by pelagic commercial longline fishers indicated declines of 70% from 1992 to 2000 (Baum *et al*., 2003) and 57% from 1992 to 2005 (Cortés *et al*., 2008). However, standardized catch-rate analysis of data collected by on-board scientific observers that sample the same pelagic longline fishery resulted in a less pronounced decline than the logbook series (9% vs. 57%) while the nominal observer series showed a 36% decline (Cortés *et al*., 2007). A standardized catch-rate analysis of data from U.S. pelagic longline surveys in the mid-1950s and U.S. pelagic longline observer data in the late 1990s in the Gulf of Mexico showed an estimated decline of 99% over four generations for this species (Baum and Myers, 2004). The mean size of oceanic whitetip shark captured in the Gulf of Mexico was 86.4 kg in the 1950s but declined to 56.1 kg in the 1990s (Baum and Myers, 2004). However, changes in fishing gear and practices over this period were not fully taken into consideration in the analysis, and there is currently debate as to whether or not these changes may have resulted in an overestimation of the magnitude of these declines (Burgess *et al*., 2005; Baum *et al*., 2005). Nevertheless, when trends in abundance from the former analyses (1992-2000; Baum *et al*., 2003) are extrapolated back to the mid-1950s, they match the latter analysis (Baum and Myers, 2004) of abundance declines for oceanic whitetip shark (Baum *et al*., 2006). Thus, it is likely that the population of this low-productivity species is at least 15-20% of baseline (1950s) in the northwest Atlantic Ocean.

Abundance of oceanic whitetip sharks appears to be patchy in the south and central Atlantic, but evidence suggests it is declining where it was formerly abundant. In equatorial waters, this was the second most abundant species caught by Brazilian longline vessels between 1992 and 1997 (Lessa *et al.,* 1999). Oceanic whitetip sharks were present in 4.72% of tropical eastern Atlantic French and Spanish tuna purse-seine sets (Santana *et al.*, 1997). Domingo (2004) reported that the Uruguayan longline fleet observer program in 1998–2003 recorded catch rates of only 0.006 sharks/1,000 hooks in Uruguayan and adjacent high seas south Atlantic waters (latitude 26°-37°, 16-23°C) and 0.09 sharks/1,000 hooks in international waters off western equatorial Africa. Domingo also reported that similarly infrequent records of individuals of the species were obtained by Brazilian and Ecuadorian Atlantic longline fleets. In the Brazilian longline tuna fleet, almost 80% of the oceanic whitetip sharks caught between 2004 and 2009 were juveniles (Tolotti *et al.*, 2010). The species comprised less than 1% of the shark bycatch of the Japanese Atlantic longline fleet during 1995-2003 (Senba and Nakano, 2004), and 0.2% of the Atlantic shark catch by the Spanish fleet in 1999 (Mejuto *et al*., 2001).

Pacific Ocean

In the central tropical Pacific, tuna longline survey data from the 1950s indicated oceanic whitetip sharks constituted 28% of the total shark catch of fisheries south of 10ºN (Strasburg, 1958). Oceanic whitetip shark catch rates ranged from 2 to 29 (mean 12.44) sharks per 1,000 hooks set (all depths combined) in each 10°x10° area surveyed. This was the most abundant open-ocean tropical pelagic shark species at the time, corroborating observations made by Hubbs (1951), Bullis and Captiva (1955), Mather and Day (1954) and Backus *et al*. (1956). Japanese research longline records during 1967-68 indicate that oceanic whitetip sharks were among the most common shark species taken by tuna vessels in tropical seas. It was the second most abundant species, comprising 22.5% of the shark catch in the western Pacific but the third most abundant after silky sharks, *Carcharhinus falciformis*, at 21.3% of the shark catch in the eastern Pacific (Taniuchi, 1990).

A comparative study using generalized linear models of pelagic longline survey data from the 1950s with data collected on commercial longline vessels by at-sea observers in the 1990s between latitudes 20ºS and 20ºN and longitudes 180ºW and 120ºE indicated a 90% decline in biomass of oceanic whitetip shark (Ward and Myers, 2005). An examination of average size indicated a decrease in mean body mass from 36 kg to 18 kg in the central Pacific Ocean, which suggests that overfishing may be occurring (Ward and Myers, 2005). Scientific survey data recorded by Japanese tuna longline vessels from New Guinea to Hawaii during 1967-1970 and 1992-1995 indicated significant changes in catch per unit effort (CPUE) (when corrected for changes in gear depth) between the two time periods but only east of 180° longitude. North of the equator (0-10°North latitude), oceanic whitetip CPUE increased by 40-80%, whereas farther north (10-20°North) catch rates decreased by 30% (Matsunaga and Nakano 1999). In 2007, the oceanic whitetip shark was categorized as being at “medium” ecological risk for both deep and shallow longline sets in the Pacific Ocean (Kirby and Hobday, 2007).

An analysis of catch data for sharks caught in the Hawaii-based pelagic longline fishery during 1995-2000 and 2004-2006 found that mean nominal CPUE for oceanic whitetip shark significantly decreased between the two time periods (Walsh *et al.,* 2009). CPUE from 1995 to 2000 was 0.272 and 0.351 sharks per 1,000 hooks for deep and shallow sets, respectively; these figures decreased to 0.060 and 0.161 sharks per 1,000 hooks in 2004-2006, respectively (Walsh *et al.*, 2009). Updated information from the Hawaii-based pelagic longline fishery shows that oceanic whitetip shark CPUE has declined by >90% since 1995, when the mean annual nominal CPUE for oceanic whitetip shark decreased significantly from 0.428/1,000 hooks in 1995 to 0.036/1,000 hooks in 2010 (Walsh and Clarke, 2011). In eastern Pacific tropical tuna purse-seine fisheries, unstandardized nominal catch-rate data for the oceanic whitetip shark from purse-seine sets on floating objects, unassociated sets and dolphin sets all show decreasing trends since 1994 (IATTC Document SAR-8-15, 2007).

Data from Hawaii, Japan and other longline fishing fleets were included in a more recent synopsis of the status of the oceanic whitetip shark in the western central Pacific Ocean that demonstrated strong evidence for a population decline in that area (Clarke, 2011). Rice and Harley (2012) recently performed a stock assessment for this species in the western and central Pacific Ocean, using Stock Synthesis software to develop an age-structured, spatially aggregated two-sex model that grouped information on catch, effort and size composition of catch from four fisheries. They found that the species is over-exploited and there is consistent evidence of declines in catch, CPUE, size composition, spawning biomass, recruitment and total biomass from 1995 to 2009. Estimated fishing mortality was found to have increased to levels far in excess of FMSY, the fishing mortality that can produce maximum sustainable yield (FCURRENT / FMSY = 6.5) and across the entire model estimated mortality values were much higher than FMSY. Estimated spawning biomass (SB) was found to have declined to levels far below spawning biomass at MSY (SBCURRENT / SB MSY = 0.153) and across the entire model current SB was much lower than SB at MSY.

Overall, declines in abundance in CPUE and biomass from 30% to 90% have been reported, primarily in the central and eastern Pacific Ocean, indicating that this low-productivity species has declined to at least 15-20% of baseline (i.e., biomass estimates from the 1950s).

Indian Ocean

On the status of the oceanic whitetip shark resource, the Indian Ocean Tuna Commission (IOTC) stated, “The population dynamics and stock structure of the oceanic whitetip shark in the Indian Ocean are not known” (IOTC, 2008). Semba and Yokawa (2011) reported the CPUE of the Japanese longline fishing fleet in the Indian Ocean between 2000 and 2009, showing a decline of almost 40% in CPUE from 2003 to 2009. Poisson (2011) reported a bycatch mortality of 59% of oceanic whitetip sharks caught in the swordfish longline fishery in the south-western Indian Ocean. Comparisons of longline gear data collected in 1987-1988 and 2000-2004 have shown a declining trend in the abundance of oceanic whitetip shark from 19.9% to 3.5%, which is a potential indicator of the depletion of the total population (Anderson *et al.*, 2011).

4.5 Geographic trends

No information available.

5. <u>Threats</u>

The oceanic whitetip shark is one of the tropical pelagic species most often taken as bycatch in tuna and swordfish fisheries. There are a few small-scale fisheries, primarily in the Gulf of Aden and the Pacific coast of Central America (Bonfil and Abdallah, 2004), that target oceanic whitetip sharks. Despite their prevalence in pelagic fisheries, catches are not recorded or reported to species level; thus, oceanic whitetip shark catches may be higher than documented for some areas. For example, an analysis of trade data suggests that catches reported to ICCAT may seriously underestimate (by 50-fold) the actual catch of this species in the Atlantic Ocean (Clarke 2008).

A large proportion of the oceanic whitetip sharks taken as bycatch on pelagic longlines are alive when brought to the vessel (>75% in the U.S. Atlantic longline fishery – Beerkircher *et al*., 2002 – and 65-88% in the Fijian longline fishery – Gilman *et al*., 2008). Thus, most would likely survive if released unharmed, in accordance with several RFMO shark resolutions (Camhi *et al*., 2009). However, the high value of their fins and the low value of the meat encourage finning (removal and retention of fins and discarding of carcasses) rather than the release of live sharks.

Atlantic Ocean

Information collected by at-sea scientific observers on U.S.-flagged longline vessels in the western North Atlantic Ocean indicates that oceanic whitetip is the 8th most abundant pelagic species caught. However, the low abundance of this species likely reflects the distribution of the fishery, as most U.S.-flagged vessels fish at the northernmost part of the range of the oceanic whitetip shark (Beerkircher et al., 2002). The United States reports that very few oceanic whitetip sharks are landed by commercial fisheries. Except for two peaks of about 1,250 and 1,800 sharks landed in 1983 and 1998, respectively, total catches never exceeded 450 individuals per year. Oceanic whitetip sharks comprised less than 1% of the shark bycatch of the Japanese Atlantic longline fleet during 1995-2003 (Senba and Nakano 2004), and 0.2% of Atlantic shark catch by the Spanish fleet in 1999 (Mejuto *et al*., 2001). However, the proportion of the catch of oceanic whitetip shark increases in areas of the Atlantic Ocean that are more tropical than temperate. For example, oceanic whitetip sharks were present in 4.72% of eastern tropical Atlantic French and Spanish tuna purse-seine sets (Santana *et al*., 1997). Domingo (2004) reported that the Uruguayan longline fleet observer program in 1998-2003 recorded catch rates of 0.006 sharks/1,000 hooks in Uruguayan and adjacent high seas South Atlantic waters (latitude 26º-37º, 16-23ºC) but catch rates increased to 0.09 sharks/1,000 hooks in international waters off western equatorial Africa. Only Brazil, Mexico, Spain, St. Lucia and the United States have reported catches to ICCAT and, as indicated by Clarke (2008), these data are likely inaccurate and therefore may under-represent the magnitude of catches in the Atlantic Ocean. This species has been recorded as part of the catch of oceanic longline industrial fisheries in the Colombian Caribbean, with mean catch sizes of 128 +/- 62.35 cm TL, which corresponds to juveniles and may be impacting likely development areas (Caldas and Correa, 2010).

Pacific Ocean

According to the Inter-American Tropical Tuna Commission (IATTC), oceanic whitetip sharks are most often taken as bycatch by ocean purse-seine fisheries. Information collected by observers between 1993 and 2004 indicates oceanic whitetip sharks make up 20.8% of the total shark bycatch. Total observed numbers over the 11-year period indicated that 32,000 sharks were caught in combined dolphin, unassociated, and floating object purse-seine sets. Sampling coverage of the western Pacific Ocean purse-seine fishery by IATTC observers varied by set type, but was generally greater than 60% of the sets of large vessels since 1994. (IATTC, 2002; IATTC, 2004). The lowest sampling coverage for bycatch occurred in 1993, with coverage of 41% for dolphin sets, 46% for floating object sets, and 52% for unassociated sets.

For longline fisheries, Bonfil (1994) estimated annual catches of oceanic whitetip sharks in the Pacific Ocean using the hooking rates obtained in the 1950s (Strasburg, 1958) applied to the current fishing effort. This produced estimates of 7,253 oceanic whitetip sharks (about 145 mt) taken annually as bycatch in the North Pacific, and 539,946 sharks (1,799 mt) in the central and South Pacific.

Recent increases in the longline fishery and purse-seine fishery effort in the equatorial region of the western and central Pacific Ocean could imply large increases in fishing mortality over the last two decades (Williams and Terawasi, 2011). Observer data indicate that longline fisheries in the western and central Pacific Ocean mainly catch juvenile oceanic whitetip sharks (Rice and Harley, 2012). Bromhead *et al*. (2012) provide information on factors influencing catch and mortality rates in several shark species, including oceanic whitetip sharks.

Indian Ocean

Although catches of oceanic whitetip shark are not reported to the Indian Ocean Tropical Tuna Commission (IOTC), information on the level of harvest for the species can be derived from other studies. In the Maldives, Anderson and Ahmed (1993) reported that oceanic whitetip sharks taken commercially by shark longliners and as bycatch by tuna fisheries represented 23% of all sharks caught. Japanese longline records during 1967-68 indicate that the oceanic whitetip shark comprised 3.4% of the Indian Ocean shark catch by longline vessels targeting tuna (*Thunnus maccoyii*) (Taniuchi, 1990). The oceanic whitetip shark is also present in 16% of French and Spanish tuna purse-seine nets in the western Indian Ocean (Santana *et al.*, 1997).

6. Utilization and trade

6.1 National utilization

Because of economic and cultural differences, national utilization varies. When carcasses are not discarded at sea, oceanic whitetip sharks are utilized for human consumption. Meat is consumed fresh, smoked or dried and salted. Fins may be dried and utilized locally. Vannuccini (1999) reported that oceanic whitetip meat is eaten fresh and smoked in Mexico and the United States, and fresh, dried and salted in the Seychelles and Sri Lanka. The livers are sometimes also harvested for oil and the skin is used as leather.

6.2 Legal trade

Oceanic whitetip sharks are caught as bycatch in high seas pelagic fisheries. As the meat is of generally low value, it is often discarded and the fins are retained because of their high value (USD 45 to USD 85 per kg) in international trade.

International shark trade information is not documented to the species level for sharks in the Harmonized Tariff Schedule. Therefore, species-specific information about quantity or value of imports or exports is not available through the tariff schedule. In addition, most parties do not report catches to species level to FAO or Regional Fisheries Management Organizations (RFMOs). However, information on the trade of oceanic whitetip shark fins can be obtained by examining the fin market of Hong Kong SAR, whose global trade in fins represented 65-80% from 1980 to 1990 (Clarke, 2008) and 44-59% of the market from 1996 to 2000 (Fong and Anderson 2000; Clarke 2004). Prior to 1998, imports of fins into Hong Kong SAR were reported as either dried or frozen ("salted") without distinguishing between processed and unprocessed fins. To avoid double counting fins returning to Hong Kong SAR from processing in mainland China, only unprocessed dried and frozen fins were included in total imports into Hong Kong SAR. Shark fin traders in Hong Kong SAR use 30-45 market categories for fins (Yeung *et al*., 2000), but the Chinese names of these categories do not correspond to the Chinese taxonomic names of shark species (Huang, 1994). Instead, Chinese market categories for shark fins appear to be organized primarily by the quality of fin rays produced and secondarily by distinguishing features of dried fins. Using commercial data on traded weights and sizes of fins, the Chinese category for oceanic whitetip shark, coupled with DNA and Bayesian statistical analyses to account for missing records, Clarke *et al.* (2006a, 2006b) estimated that between 220,000 and 1,210,000 oceanic whitetip sharks were traded globally in 2000.

6.3 Parts and derivatives in trade

Oceanic whitetip sharks are caught as bycatch in high seas pelagic fisheries. Space for retaining meat from this species is often limited and reserved for higher-value species such as tunas and swordfish. As the meat is generally of low value, oceanic whitetip shark fins are usually retained because of their high value (USD 45 to USD 85 per kg) while the carcass is likely to be discarded at sea. However, within artisanal fisheries the meat is saved for local consumption. Thus, the primary product from oceanic whitetip sharks in international trade is the fins. Other products, including skin, liver oil, cartilage and teeth, are considered low grade, are not traded in large quantities and are not separately recorded in trade statistics (Clarke, 2004). Demand for these products appears to fluctuate over time with changes in fashion, medical knowledge and the availability of substitutes. There are numerous difficulties in using the existing trade databases to quantify trends in the shark trade by species. For example, none of the 14 commodity categories used by FAO for chondrichthyan fishes can be taxonomically segregated, with the exception of four categories for various forms of dogfish sharks (family Squalidae). Furthermore, because of non-specific reporting of both trade and capture production figures by many countries, sharks are commonly aggregated into generic fish categories. Therefore, at present, quantitative analysis of shark products based on FAO trade data can only be conducted for generic shark products. The use of commodity codes also varies considerably among countries, further complicating the traceability of products by species and provenience. Information on trade in oceanic whitetip shark products other than fins comes mostly from observations of personnel in the field.

Fins from this species are one of the most distinctive and common products in the Asian shark fin trade. According to Japanese fin guides (Nakano, 1999) oceanic whitetip shark fins have broadly rounded tips and the pectoral fins are very long and wide, with white mottling on the tip of pectoral and dorsal fins and lower lobes of the caudal fin. Fins are easily identifiable without genetic analysis and traders in Hong Kong SAR seldom mix them with other species (Clarke *et al*., 2006a). Clarke *et al.* (2004; 2006a) estimated that oceanic whitetip shark fins comprise about 2.0% by weight of the total fin trade. Molecular genetic testing of 23 fin samples that were imported from three oceans and collected from nine randomly sampled fin traders in Hong Kong SAR demonstrated 100% concordance between the fin trade name "Liu Qui" and oceanic whitetip shark (Clarke *et al*., 2006). Wholesale prices for oceanic whitetip fin sets originating from the South Pacific ranged from USD 45 to USD 85 per kg (Clarke *et al*., 2004a). Clarke *et al*. (2006b) estimated that in 2000 0.6 million oceanic whitetip sharks (or 22,000 metric tons), were utilized annually for the fin trade. Oceanic whitetip shark fins are so distinctive that it is also easy for non-experts to identify them. A recent fin identification guide indicates the necessary steps to distinguish an ocean whitetip shark fin from any other shark fin (Abercrombie and Chapman, 2012, Annex 3). The large rounded fins with white parts help confirm identity via simple observation.

6.4 Illegal trade

Most Regional Fisheries Management Organizations and some national laws prohibit shark finning at sea (discarding the carcass and transhipping the fins at sea). Other countries have explicit prohibitions on trade in fins.

6.5 Actual or potential trade impacts

Demand from international shark fin markets is the driving economic force behind the retention and mortality of oceanic whitetip sharks taken as bycatch. The implementation of CITES will complement the existing measures taken by Regional Fisheries Management Organizations.

7. Legal instruments

7.1 National

In Colombia, there are no specific conservation measures in place for this species. Yet, targeted shark fishing is prohibited in the Colombian Caribbean islands (San Andrés, Providencia and Santa Catalina Archipelago) (Resolution 003333/2008 of the Colombian Agricultural Institute - ICA) and shark finning is prohibited in Colombia (Resolution 1633/2007 of the Colombian Institute for Rural Development - INCODER). In the United States, a combined quota of 488 metric tons exists for oceanic whitetip, common thresher and shortfin mako, and Atlantic sharks must be landed with all fins naturally attached. Chile also requires that sharks be landed with their fins naturally attached. Oceanic whitetip sharks should benefit from legislation enacted by French Polynesia (2006), Palau (2003, 2009), the Maldives (2010), Honduras (2011), the Bahamas (2011), Tokelau (2011) and the Marshall Islands (2011) prohibiting shark fisheries throughout their Exclusive Economic Zones. Other countries have protected areas where shark fishing is prohibited, such as Isla del Coco in Costa Rica, Isla Malpelo in Colombia, the Galapagos Islands in Ecuador, the Banc d'Arguin National Park in Mauritania and the Marine Protected Areas in Guinea-Bissau. Shark-finning bans implemented by 21 countries and the European Union (EU) as well as by nine Regional Fisheries Management Organizations may help somewhat to reduce shark mortality (Camhi *et al.*, 2009).

7.2 International

Oceanic whitetip sharks are listed in Annex I, Highly Migratory Species, of the UN Convention on the Law of the Sea. ICCAT, IATTC, WCPFC and IOTC and other RFMOs have adopted finning bans that require full utilization of captured sharks and encourage release of incidentally caught live sharks. Retaining on board, transhipping, landing, storing, selling or offering for sale any part or whole carcass of oceanic whitetip sharks is prohibited in fisheries covered by the ICCAT Convention (2010; Recommendation 10-07) and the IATTC (2011; Resolution C-11-10). In addition, retaining on board, transhipping or landing oceanic whitetip sharks is prohibited in fisheries covered by the WCPFC Convention Area (2012; Measure 2011-04). OSCPESCA member countries in Central America have issued the OSP-05-11 regulation on finning in the region.

8. Species management

8.1 Management measures

In relation to the above-mentioned points, several measures have been adopted for the oceanic whitetip shark in the framework of RFMOs. CITES document requirements will complement these measures, contributing to the monitoring of international trade in this species and ensuring such trade is legal and sustainable.

8.2 Population monitoring

Population monitoring requires collection of catch data as initial input for stock assessment. In 1996, ICCAT began requesting that its Contracting Parties submit data for eight species of pelagic sharks. However, ICCAT recognized that most members would find it difficult to immediately fulfil this obligation. In 2001, only five countries reported oceanic whitetip shark catches to ICCAT. Since 1997, Japan has required the recording of oceanic whitetip shark in a separate category in logbooks of all pelagic fisheries. The WCPFC also requests that data be reported on sharks, including the oceanic whitetip. In 2011, the IOTC recommended that species-level catch data be provided for longline, gill net and purse-seine net vessels regarding the most commonly caught species, including the oceanic whitetip shark (IOTC, 2011).

8.3 Control measures

8.3.1 International

Apart from the measures taken by ICCAT, IATTC and WCPFC (see Section 7.2), there are no species-specific international management measures in place for oceanic whitetip sharks.

8.3.2 Domestic

The legal control instruments listed in Section 7.1 are the existing domestic control measures.

8.4 Captive breeding and artificial propagation

N/A

8.5 Habitat conservation

Shark fishing is prohibited in large areas of the tropical Pacific Ocean that lie within the Exclusive Economic Zones of Palau, French Polynesia, the Maldives and the Marshall Islands. In the Caribbean, Honduras and the Bahamas have declared their territorial waters to be shark sanctuaries, and in Colombia (Archipelago of San Andrés), targeted shark fishing is prohibited.

8.6 Safeguards

None available.

9. Information on similar species

Six shark species of the Order Carcharhiniformes have white-tipped fins but are unlikely to be confused with oceanic whitetip shark fins. These six species are *Hemitriakis leucoperiptera, Hemigaleus microstoma, Paragaleus leucolomatus, Carcharhinus albimarginatus, Carcharhinus amblyrhynchos* and *Triaenodon obesus*. However, these species are rarely caught in pelagic fisheries and have not been identified in the fin market of Hong Kong SAR. While all these species have white-tipped fins, those of oceanic whitetip sharks are significantly larger and generally more broadly rounded (see Annex 3), whereas fins of the aforementioned species are falcate (sickle-shaped), the tips are pointed and the white markings are on the tip and the trailing edge (Abercrombie and Chapman, 2012).

10. Consultations

Countries	Support Indicated (Yes/No/ Undecided/ No Objection)	Summary of Information Provided
Albania, Algeria, Antigua and Barbuda, Argentina, Barbados, Belize, Benin, Bosnia and Herzegovina, Brunei-Darussalam Cambodia, Cameroon, Canada, Cape Verde, Chile, Comoros, Congo, Costa Rica, Côte d'Ivoire, Croatia, Cuba, Cyprus, Democratic Republic of the Congo, Djibouti, Dominica, Ecuador, Egypt, El Salvador, Equatorial Guinea, Eritrea, Fiji, France, Gabon, Gambia, Ghana, Granada, Greece, Guatemala, Guinea, Guinea-Bissau, Guyana, India, Indonesia, Iran (Islamic Republic of), Israel, Italy Japan, Kenya, Lebanon, Liberia, Libya, Madagascar, Malaysia, Malta, Mauritania, Mauritius, Monaco, Montenegro, Mozambique, Namibia, Netherlands, New Zealand, Nicaragua, Nigeria, Oman, Pakistan, Palau, Panama, Papua New Guinea, Peru, Philippines, Portugal, Republic of Korea, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, Samoa, Sao Tome and Principe, Saudi Arabia, Senegal, Seychelles, Sierra Leone, Solomon Islands, Spain, Sri Lanka, Sudan, Suriname, Syria, Tanzania, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, United Arab Emirates, United Kingdom, United States, Uruguay, Vanuatu, Venezuela (Bolivarian Republic of), Viet Nam, Yemen		Consultations have been sent and responses are pending.
Australia	Undecided	Australia agrees with prioritizing the oceanic whitetip shark based on the global conservation status of the species and the prevalence of international trade. Australia has a strong interest in shark conservation, in accordance with its second National Plan of Action (July 2012).
Bahamas	Support	The Bahamas provides full protection for all shark species in its territorial waters.
Bangladesh	Support	At present, the government does not allow trade or any type of trophy involving this species.
Brazil	Support	Brazil has information on catches of this species in its territorial waters and supports the proposal.

Countries	Support Indicated (Yes/No/ Undecided/ No Objection)	Summary of Information Provided
China	No	Shark species are migratory and it is difficult to assess the natural state of their stocks. Consequently, there is insufficient scientific information to support inclusion of a species in a CITES appendix. China considers that CITES is not the best way to protect these marine species; they should be managed through the FAO and RFMOs.
Dominican Republic	Support	Does not trade in this species, but supports its inclusion in CITES in the interest of conserving marine biodiversity in the Atlantic and the Caribbean.
Honduras	Support	The government considers that the decision to propose this species to CITES sends a significant message of conservation in Central America.
Jamaica	Undecided	The government provided information on sharks to strengthen the assessment of the proposal.
Japan	No	Japan believes that the conservation and management of fishery resources must be implemented through appropriate management of fisheries by each country or by international organizations such as Regional Fisheries Management Organizations (RFMOs). The measures recently taken by RFMOs must be monitored. If there are still many oceanic whitetip sharks in international trade despite the prohibition of finning, each RFMO should strengthen compliance with these measures. Inclusion of the species in CITES Appendix II should only be considered if this fails to lead to an improvement.
Jordan	Support	Although the government has no information on the species, it has no objections or remarks with regard to the proposal.
Mexico	Undecided	It is compiling information to define the national position on this proposal.
Morocco	Support	The government is in favour of regulating trade in this species (CITES).
Myanmar	Support	Although it has no detailed information on shark populations and trends, the government has prohibited shark fishing and has no objection to including this species in CITES.
Singapore	Undecided	It has no specific information on trade in the species.
Slovenia	Undecided	As a member of the European Union, it has no position on the issue.
South Africa	Undecided	It provides information on the species and how shark resources are managed in the country.

11. Additional remarks

The relevant authorities must address the respective procedures to implement this proposal within a period of 18 months.

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Life history parameters for oceanic whitetip shark

Growth rate (von Bertalanffy k)	0.10 year^{-1} (Combined sex, North Pacific) 0.08-0.09 year^{-1} (Combined sex, SW Atlantic)	Seki *et al.* (1998) Lessa *et al.* (1999)
Size at maturity	168-196 cm TL (F; North Pacific) 175-189 cm TL (M; North Pacific) 180-190 cm TL (combined sex; SW Atlantic)	Seki *et al.* (1998) Lessa *et al.* (1999)
Age at maturity	4 years (F; North Pacific) 5 years (M; North Pacific) 6-7 years (combined sex; SW Atlantic)	Seki *et al.* (1998) Lessa *et al.* (1999)
Observed longevity	11 years (North Pacific) 13 years (SW Atlantic)	Seki *et al.* (1998) Lessa *et al.* (1999)
Gestation period	9-12 months	Seki *et al.* (1998) Lessa *et al.* (1999)
Reproductive periodicity	2 years	Seki *et al.* (1998) Lessa *et al.* (1999)
Litter size (mean)	5-6 (range=1-14)	Seki *et al.* (1998) Lessa *et al.* (1999)
Generation time (T)	10 years	Cortés *et al.* (2008)
Population growth rates (r)	0.087 year	Cortés *et al.* (2008)

Summary of population and abundance trend data for oceanic whitetip shark

Year	Location	Data	Trend	Reference
1992-2005	NW Atlantic Ocean	Commercial pelagic fishery logbook	57% decline*	Cortés *et al.* (2007)
1992-2003	NW Atlantic Ocean	Commercial pelagic fishery logbook	70% decline*	Baum *et al.* (2003)
1992-2003	NW Atlantic Ocean	Commercial pelagic longline observer programme	9% decline*	Cortés *et al.* (2007)
1954-1957 and 1995-1999	Gulf of Mexico	Fishery survey and commercial pelagic longline observer programme	99% decline*	Baum and Myers (2004)
1954-1957 and 1995-1999	Gulf of Mexico	Average size	35% decline	Baum and Myers (2004)
1951-1958 and 1999-2002	Central Pacific Ocean	Fishery survey and commercial pelagic longline observer programme	90% decline*	Ward and Myers (2005)
1951-1958 and 1999-2002	Central Pacific Ocean	Average size	50% decline	Ward and Myers (2005)
1967–1970 and 1992–1995	Central Pacific Ocean west of 180º latitude	Fishery survey	No change	Matsunaga and Nakano (1996)
1967–1970 and 1992–1995	Central Pacific Ocean east of 180º latitude and 0º-10ºN	Fishery survey	40-80% increase	Matsunaga and Nakano (1996)
1967–1970 and 1992–1995	Central Pacific Ocean east of 180º latitude and 10º-20ºN	Fishery survey	30-50% decline	Matsunaga and Nakano (1996)
1996 –2006	Eastern Pacific Ocean	Commercial purse-seine observer programme	~90% decline (inferred from figure)	IATTC SAR-7-11 (2006)
1995–2000 and 2004-2006	Central Pacific Ocean	Commercial pelagic longline observer programme	78% decline in deep sets 54% decline in shallow sets	Walsh *et al.* (in press)

* Indicates the data have been statistically normalized to correct for factors unrelated to abundance

Identifying shark fins: Oceanic whitetip, porbeagle and hammerheads. A step-by-step guide to help users quickly identify dehydrated shark fins, particularly those of oceanic whitetip, porbeagle and hammerhead sharks found in fishing ports, sold by traders in marine products or traded across international borders (with permission of the authors Debra Abercrombie and Demian D. Chapman, Ph.D.). Abercrombie, D. and Chapman, D., 2012. Identifying shark fins: Oceanic whitetip, porbeagle and hammerheads.

1st dorsal fin: large and broadly rounded (paddle-like); mottled white color at apex

Pectoral fins: long, broadly rounded at apex; dorsal surface has mottled white color at apex; ventral surface is typically white but can have mottled brown coloration

- mottled white color also present on caudal fin (upper and lower lobe)
- very small juveniles may have mottled black coloration on dorsal, pectoral and caudal fins

Dorsal view
(top)

Ventral view
(underneath)