

Inclusion of Oceanic Whitetip Shark *Carcharhinus longimanus* in Appendix II

Proponents: Palau and the United States of America

Summary: The Oceanic Whitetip Shark *Carcharhinus longimanus* is one of the most widespread shark species, ranging across tropical and subtropical waters (30°N–30°S). This highly migratory species has a large body size (largest specimens in recent studies 250–300 cm), late age at maturity (four to seven years), moderately long life span (up to 22 years), long gestation time (9–12 months), small mean litter size (five–six pups), and long generation time (10 years). These factors mean that the species has low productivity, making it vulnerable to over-exploitation and slow to recover following depletion.

Oceanic Whitetip Sharks were formerly among the most abundant pelagic sharks within their range and have been caught as by-catch in many pelagic fisheries around the world. A few significant small-scale fisheries target them and this species continues to make up a substantial proportion of total shark by-catch in many pelagic fisheries, mostly longline and purse seine fleets targeting tuna and Swordfish. Between 1993 and 2004, Oceanic Whitetip Sharks made up over 20% of the total shark by-catch by the purse seine fishery in the East Pacific. They are also present in 16% of French and Spanish tuna purse seine sets in the western Indian Ocean. The estimated annual by-catch of Oceanic Whitetip Sharks in longline fisheries is over 7000 individuals in the North Pacific and just under 540 000 in the Central and South Pacific. Lack of reporting and recording mean that Oceanic Whitetip Shark catches may be higher than documented in some areas. No stock assessments are available to determine population sizes, but available catch datasets indicate that this species has undergone severe historic and recent declines. In the North West Atlantic and Central Pacific, declines of 90–99% in catch per unit effort and biomass have been observed since the 1950s. Catch per unit effort of Oceanic Whitetip Sharks underwent a declining trend in the East Pacific of 90% in 10 years. Catches reported to the West and Central Pacific Fisheries Commission (WCPFC) declined by around 85% in eight years up to 2006. There is relatively little information on the status of the species in the Indian and South Atlantic Oceans, but it is known to be taken as by-catch in these areas (and in a directed fishery in the Gulf of Aden) and may be expected to have been subject to similar declines to those documented elsewhere. Catches in longline fisheries in the equatorial Atlantic are reported to have declined steeply. A large proportion of Oceanic Whitetip Shark by-catch in pelagic longlines is alive when brought onto the vessel (>75% in the USA longline fishery, 76–88% in Fijian longline fishery) and most individuals would be likely to survive if released unharmed.

Strong demand for Oceanic Whitetip Shark fins drives international trade and encourages the removal and retention of fins from sharks taken as by-catch throughout their range. Patterns and trends in the international fin trade are largely unknown as a result of a lack of species-specific trade records. However, analysis of commercial trade data from the Hong Kong fin market provided an estimate of 200 000 to one million Oceanic Whitetip Sharks harvested for the fin trade in 2000. It is estimated that Oceanic Whitetip Shark fins made up 2% by weight of the total global fin trade between 2002 and 2004.

Oceanic Whitetip Sharks are listed in Annex I of the United Nations (UN) Convention on the Law of the Sea, although no species-specific management has yet been put in place. They are subject to a joint quota in the USA and should benefit from shark finning bans which are in place in various countries and shark fishing bans in Palau, French Polynesia and the Maldives. Oceanic Whitetip Sharks are listed globally as Vulnerable on *The IUCN Red List of Threatened Species*, while the North West Atlantic and Central Atlantic populations are listed as Critically Endangered.

The FAO Committee on Fisheries (COFI) recognized the need to improve management of shark fisheries with the adoption in 1999 of the International Plan of Action for the Conservation and Management of Sharks (IPOA–Sharks), endorsed by the FAO Council in 2000. In 2009, FAO reported that out of 68 members responding to a questionnaire, 50% had conducted assessment as to whether a National Plan of Action (NPOA) was needed; 90% of those have gone on to develop and implement an NPOA. Several current NPOAs encompass regions where Oceanic Whitetip Sharks are caught as by-catch, including Japan, USA, and Fiji (Pacific Islands Regional Plan of Action). To date there has been no assessment of the effectiveness of NPOAs.

The proposed listing would include an annotation to delay entry into effect of the inclusion of *C. longimanus* in Appendix II by 18 months to enable Parties to

resolve related technical and administrative issues.

Analysis: Oceanic Whitetip Shark fins are heavily exploited as by-catch in fisheries that occur throughout their range, where removal and retention of fins is encouraged by the high value of their fins in international trade. A large proportion of the Oceanic Whitetip Shark catch is alive when brought onto the vessel and it is believed that most individuals would survive if released unharmed, rather than retained for fin removal. The species is inherently vulnerable to over-exploitation and there is evidence demonstrating declines in most cases where exploited populations are monitored. Several stocks of Oceanic Whitetip Shark appear already to meet the criteria for inclusion in Appendix I, with historical declines to <10% of baseline, which for this low productivity species is within the decline guidelines for commercially exploited aquatic species in *Resolution Conf. 9.24 (Rev. CoP14)*. Other stocks are of unknown status, but in many areas are known to be subject to heavy fishing pressure; these may be expected to show similar changes to monitored populations. There is no indication of substantial unexploited stocks.

It would appear, therefore, that the species meets the criteria for inclusion in Appendix II, in that regulation of international trade is required to ensure that the species does not become eligible for inclusion in Appendix I.

Supporting Statement (SS)	Additional information
<u>Taxonomy</u>	
<u>Range</u>	
Occurs between 20° N and 20° S in a circumglobal band, moving up to 30° N and 30° S during summer migrations. Its range may possibly include the Mediterranean.	<i>Oceanic Whitetip Sharks fall within the jurisdiction of 131 range States. Native to the following FAO fishing areas: Atlantic – eastern central; Atlantic – northeast; Atlantic – northwest; Atlantic – southeast; Atlantic – southwest; Atlantic – western central; Indian Ocean – western; Indian Ocean – eastern; Pacific – southeast; Pacific – southwest; Pacific – western central; Pacific – eastern central; Pacific – northwest; Pacific – northeast</i>
<u>IUCN Global Category</u>	
Global—VU North West Atlantic—CR Central Atlantic—CR	<i>Global species assessment VU A2ad+3d+4ad (Assessed 2006, Criteria version 3.1)</i>

Biological and trade criteria for inclusion in Appendix II (*Resolution Conf. 9.24 (Rev. CoP14) Annex 2 a*)

A) Trade regulation needed to prevent future inclusion in Appendix I

Oceanic Whitetip Sharks have several biological characteristics which contribute to their having a low intrinsic rate of population increase (7–9% per year), indicating

There is some variation in the measurements given for Oceanic Whitetip Sharks. Maximum recorded length for Oceanic Whitetip Shark according to Randal et al.,

Supporting Statement (SS)

that they are vulnerable to depletion and will be slow to recover from over-exploitation based on FAO's low productivity category ($<0.14\text{yr}^{-1}$).

These characteristics include: large theoretical body size (325–342 cm), large size at maturity (168–296 cm), late age at maturity (four to seven years), moderately long life span (11–13 years), long gestation time (9–12 months), small mean litter size (five–six pups), and long generation time (10 years).

Populations of Oceanic Whitetip Sharks have undergone marked historic and recent declines in the North West Atlantic, West Central Atlantic, Central and East Pacific. In several locations Oceanic Whitetip Sharks have declined at least to 15–20% of baseline. Other stocks are likely to experience similar declines unless trade regulations provide an incentive to introduce sustainable management.

Despite their prevalence in pelagic fisheries, catches of Oceanic Whitetip Sharks are often unrecorded or unreported and in many cases not reported to species level; thus catches may be larger and more widespread than documented.

Declines in Oceanic Whitetip Shark catch rates and body size, mostly as by-catch in pelagic longline fisheries, as described in the SS are summarized below:

Year	Location	Data	Trend
1992-2005	NW Atlantic	CPUE	57% decline*

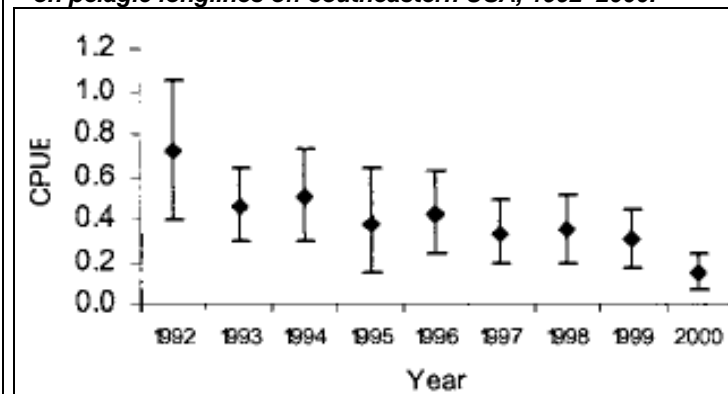
Additional information

(1990) is 396 cm; common length reported in Compagno et al., (1995) is 270 cm. Size at maturity appears to be approximately 180–200 cm for most populations of Oceanic Whitetip Sharks globally (Harry, 2009). In all recent studies, the largest empirically measured specimens were between 250–300 cm; sizes of 250–296 cm are larger than the usual size obtained (Ibid). By all estimations, these are very large sharks.

Maximum reported age for Oceanic Whitetip Sharks is 22 years (Smith et al., 1998).

Catch per unit effort (numbers/1000 hooks) of Oceanic Whitetip Sharks in a Swordfish fishery off Florida's east coast, USA, was 0.87 in 1981/1983 and 0.32 during 1992/2000, a decline of 63%, with an ongoing decline in catch per unit effort within the latter time period (Berkley and Campos, 1988; Beerkircher et al., 2002) (See Figure 1 below).

Figure 1: Yearly mean catch per unit effort of Oceanic Whitetip Sharks caught on pelagic longlines off southeastern USA, 1992–2000.



Source: Beerkircher et al., 2002

Figure 2: Declines in estimated relative abundance for various coastal and oceanic shark species in the North West Atlantic. H shows logbook data for Oceanic Whitetip Sharks collected from 1993.

Supporting Statement (SS)				Additional information			
1992-2000	NW Atlantic	CPUE	70% decline*		<p>Source: Baum et al., 2003</p> <p>Oceanic Whitetip Shark catch data reported to the WCPFC since 1994 have declined by about 85% in eight years to 2006. Reported increases in catch and catch per unit effort up to the late 1990s may be the result of species identification errors (WCPFS, 2008). See Figures 3 and 4 below.</p>		
1992-2003	NW Atlantic	CPUE	9% decline*				
1954-1957 & 1995-1999	Gulf of Mexico	CPUE	99% decline*				
1954-1957 & 1995-1999	Gulf of Mexico	Mean size (kg)	35% decline				
1951/58-1999/2002	C Pacific	B	90% decline*				
1951/58-1999/2002	C Pacific	Mean size (kg)	50% decline				
1967/70-1992/95	C Pacific W of 180° Lat	CPUE	No change				
1967/70-1992/95	C Pacific E of 180° Lat, 0-10°N	CPUE	40-80% increase				
1967/70-1992/95	C Pacific E of 180° Lat, 10-20°N	CPUE	30-50% decline				
1995/2000-2004/6	C Pacific	CPUE	78% decline in deep sets 54% decline in shallow sets				
1996-2006	E Pacific	CPUE	Decreasing trend ~90%				

CPUE=Catch per unit effort, B=Biomass.

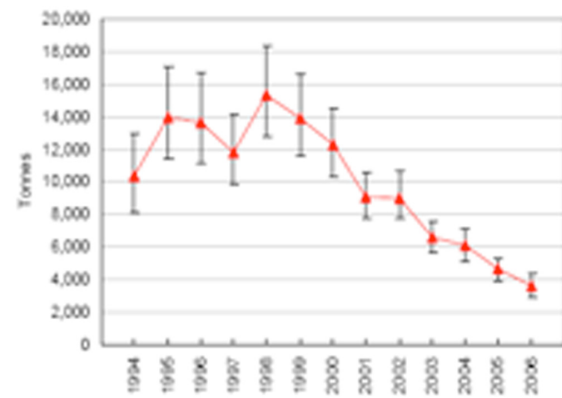
* Data have undergone a statistical standardization to correct for factor unrelated to abundance.

There is some variation in the estimated declines in catch per unit effort of Oceanic Whitetip Sharks in the North West Atlantic based on different data sources. These include 57–70% decline from 1992 to 2000 (from self-reported logbooks on commercial longliners), 36% decline (nominal observer series), and 9% decline, 1992–2003 (on-board scientific observers). There has been some debate over the extreme declines estimated for Oceanic Whitetip Sharks in the Gulf of Mexico since the 1950s. However, extrapolation of more recent datasets, dating back to the 1950s, match the historical analysis and thus it is likely Oceanic Whitetip Sharks are at least 15–20% of baseline in the North West Atlantic.

Long-term catch or abundance data are scarce for Oceanic Whitetip Sharks in the South and Central Atlantic. Their abundance appears to be patchy with evidence suggesting it has declined where formerly abundant. Catch rates by Brazilian longline vessels in equatorial waters have declined steeply since 1997.

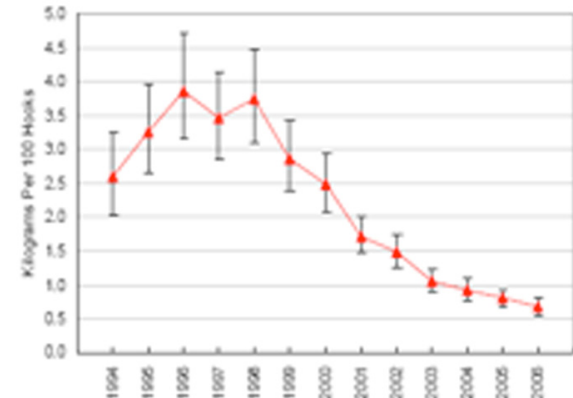
No data are available to assess the status of Ocean Whitetips in the Indian Ocean, although they are known to be caught there (see section B below).

Supporting Statement (SS)	Additional information
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Source: WCPFC, 2008.

Figure 4: Annual catch per unit effort (kg/100 hours) for Oceanic Whitetip Shark by longliners from 1994 to 2006 in the West and Central Pacific.



Source: WCPFC, 2008.

B) Regulation of trade required to ensure that harvest from the wild is not reducing population to level where survival might be threatened by continued harvest or other influences

International demand for their high value fins (USD45–85 per kg) drives retention of Oceanic Whitetip Sharks caught as by-catch in unsustainable high seas fisheries in

An average wholesale auction price for dried/unprocessed Oceanic Whitetip Shark fins in 2001 was USD122/kg (range USD 27–357/kg) (Clarke, 2009). They are among

Supporting Statement (SS)	Additional information
<p>parts of their range. Other stocks are likely to experience similar declines unless trade regulations provide an incentive to introduce sustainable management. Fins are usually removed and carcasses discarded at sea since the meat is generally of low value, although it is sometimes consumed fresh, dried or salted. Their livers are sometimes also harvested for oil and the skin used as leather. A large proportion of Oceanic Whitetip Shark by-catch in pelagic longlines is alive when brought onto the vessel (>75% in US longline fishery, 76–88% in Fijian longline fishery), thus most would be likely to survive if released unharmed.</p> <p>Commercial trade data from the Hong Kong fin market, combined with DNA and statistical analysis to account for missing records, provide an estimate of 222 000–1 210 000 Oceanic Whitetip Sharks traded globally in 2000. Oceanic Whitetip Shark fins are some of the most distinctive and constitute approximately 2% by weight of the total international fin trade.</p> <p>Oceanic Whitetip Sharks are taken as by-catch throughout the Atlantic, including by French and Spanish tuna purse-seine fleets, the Uruguayan longline fleet, and the Japanese Atlantic longline fleet. This species make up a greater proportion of total shark by-catch in fisheries operating in tropical compared to temperate regions of the Atlantic. Brazil, Mexico, Spain, St Lucia, and the USA have reported catches of Oceanic Whitetip Shark to the International Commission for the Conservation of Atlantic Tuna (ICCAT) and are likely to underrepresent (50-fold) the magnitude of catches in the Atlantic.</p> <p>According to the Inter-American Tropical Tuna Commission (IATTC), Oceanic Whitetip Sharks made up over 20% of the total shark by-catch by the purse seine fishery in the East Pacific between 1993 and 2004. The total observed number caught in this time was 32 000. Given the limited observer sampling coverage, this is likely to be a substantial underestimate. The estimated annual by-catch of Oceanic Whitetip Sharks in longline fisheries is over 7000 in the North Pacific and just under 540 000 in the Central and South Pacific.</p> <p>Oceanic Whitetip Shark catches are not reported to the Indian Ocean Tropical Tuna Commission, although they are caught in its region of jurisdiction. There are reports of Oceanic Whitetip Sharks being targeted by shark longliners and taken as by-catch by tuna fishermen in the Maldives. In the 1960s, Oceanic Whitetip Sharks made up 3.4% of the shark by-catch taken by Japanese longline vessels targeting Southern Bluefin Tuna in the Indian Ocean. Oceanic Whitetip Sharks are present in 16% of French and Spanish tuna purse seine sets in the western Indian Ocean.</p> <p>A few small-scale fisheries target Oceanic Whitetip Sharks, primarily in the Gulf of Aden and on the Pacific coast of Central America.</p>	<p><i>the top 20 preferred species for the fin trade (Ibid).</i></p> <p><i>Oceanic Whitetip Sharks are significant in by-catch of Brazilian longline fisheries in the South Atlantic (Hazin et al., 2008).</i></p> <p><i>The lack of information of Oceanic Whitetip Shark catches to the Indian Ocean Tropical Tuna Commission is likely to be because species-level reporting is not required in this region (McManus, 2009).</i></p>

Supporting Statement (SS)	Additional information
Other information	
<u>Threats</u>	
Directed and by-catch fisheries.	
<u>Conservation, management and legislation</u>	
Oceanic Whitetip Sharks are listed on Annex I (Highly Migratory Species) of the UN Convention on the Law of the Sea.	
No species-specific management exists.	
A combined pelagic shark quota in the USA is in place for Oceanic Whitetip Shark, Common Thresher <i>Alopias vulpinus</i> , and Shortfin Mako <i>Isurus oxyrinchus</i> . Atlantic sharks in the USA must be landed with fins naturally attached. Shark finning is banned in 21 countries, the EU, and by nine Regional Fisheries Management Organizations (RFMOs). Shark fisheries are prohibited throughout the Exclusive Economic Zones (EEZs) of French Polynesia, Palau and the Maldives (in 2010).	<p><i>The IPOA for the Conservation and Management of Sharks urges all States with shark fisheries to implement conservation and management plans. In 2009, FAO reported that of 68 members responding to a questionnaire, 50% had conducted assessments as to whether a shark NPOA was needed; 90% of those have gone on to develop and implement an NPOA (Lack and Sant, 2009). FOA member States with NPOAs encompass several regions where Oceanic Whitetip Shark are caught as by-catch, including Japan and USA. In 2009, the Pacific Islands Regional Plan of Action (RPOA) for sharks was announced (Lack and Meere, 2009). This region encompasses several areas where Oceanic Whitetip Sharks are caught as by-catch, including Fiji.</i></p> <p><i>There have been no assessments of the effectiveness of any NPOAs to date and no RFMO has yet adopted a regional plan of management for sharks (Lack, 2009).</i></p> <p><i>By-catch mitigation strategies for Australian pelagic fisheries that capture the species include a trip limit of 20 sharks per boat, restrictions on finning sharks at sea, and the banning of wire traces (Gilman et al. 2007).</i></p>
<u>Captive breeding/artificial propagation</u>	
None known.	
<u>Other comments</u>	
Oceanic Whitetip Shark fins are readily identifiable and are rarely mistaken for other shark fins in trade; it will be important to develop guides for meat/carcass and fins of this species.	
The entry into effect of a listing of Oceanic Whitetip Sharks in Appendix II of CITES would be delayed by 18 months, to enable Parties to resolve the related technical and administrative issues.	<p><i>Traders in Hong Kong sort Oceanic Whitetip Shark fins into a separate market category, Liu Qui (Clarke et al., 2006). A genetic study of 23 Liu Qiu fins showed all 23 were correctly identified as Oceanic Whitetip Sharks (Ibid).</i></p>

Reviewers:

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References:

- Baum, J., Medina, E., Musick J.A., Smale, M. (2006). *Carcharhinus longimanus*. In: IUCN (2009). *IUCN Red List of Threatened Species*. Version 2009.1 <www.iucnredlist.org>
- Baum, J. K., Myers, R.A., Kehler, D.G., Worm, B., Harley, S.J. and Doherty, P.A. (2003). Collapse and conservation of shark populations in the Northwest Atlantic. *Science* 299:389–392.
- Beerkircher, L.R., Cortés, E., and Shivji, M. (2002). Characteristics of Shark Bycatch Observed on Pelagic Longlines off the Southeastern United States, 1992–2000. *Marine Fisheries Review*, 64(4): 40–49.
- Berkeley, S. A., and Campos, W.L. (1988). Relative abundance and fishery potential of pelagic sharks along Florida's east coast. *Mar. Fish. Rev.* 50: 9–16.
- Clarke, S.C., Magnussen, J.E., Abercrombie, D.L., McAllister, M.K., Shivji, M.S. (2006). Identification of shark species composition and proportion in the Hong Kong shark fin market based on molecular genetics and trade records. *Conservation Biology*. 20: 201-211.
- Clarke, S.C. (2009). *In litt.* to IUCN/TRAFFIC Analyses Team, Cambridge, UK.
- Compagno, L.J.V., Krupp, F. and Schneider, W. (1995). Tiburones. p. 647–744. In: Fischer, W., Krupp, F., Schneider, W., Sommer, C., Carpenter, K.E. and Niem, V. (Eds.). *Guia FAO para identificación de Especies para los Fines de la Pesca. Pacífico Centro-Oriental*. 3 Vols. FAO, Rome.
- Harry, A. (2009). *In litt.* to IUCN/TRAFFIC Analyses team, Cambridge, UK.
- Hazin, F.H.V, Broadhurst, M.K., Amorim, A.F., Arfelli, C.A. and Domingo, A. (2008). Catches of pelagic sharks by subsurface longline fisheries in the South Atlantic Ocean during the last century: A review of available data with an emphasis on Uruguay and Brazil. Pp 213–229. In: *Sharks of the Open Ocean: Biology, Fisheries and Conservation*. Camhi, M.A., Piktich, E.K. and Babcock, E.A. (Eds). Blackwell Publishing, Oxford, UK.
- Lack, M. (2009). *In litt.* to IUCN/TRAFFIC Analyses Team, Cambridge, UK.
- Lack, M. and Meere, F. (2009). *Pacific Islands Regional Plan of Action for Sharks: Guidance for Pacific Island Countries and Territories on the Conservation and Management of Sharks*. Shellack Pty Ltd.
- Lack, M. and Sant, G. (2009). *Trends in Global Shark Catch and Recent Developments in Management*. TRAFFIC International, Cambridge, UK.
- McManus, E. (2009). *In litt.* to IUCN/TRAFFIC Analyses Team, Cambridge, UK.
- Morgan, A. and Burgess, G.H. (2007). *At-vessel fishing mortality for six species of sharks caught in the Northwest Atlantic and Gulf of Mexico*. *Gulf of Caribbean Research* 19: 1–7.
- Randall, J.E., G.R. Allen and R.C. Steene. (1990). *Fishes of the Great Barrier Reef and Coral Sea*. University of Hawaii Press, Honolulu, Hawaii. 506 p.
- Smith, S.E., Au, D.W. and Show, C. (1998). Intrinsic rebound potentials of 26 species of Pacific sharks. *Marine and Freshwater Research* 49(7):663–678.
- Western and Central Pacific Fisheries Commission. 2008. Estimates of annual catches in the WCPFC Statistical Area. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. <http://www.wcpfc.int/doc/st-ip-1/estimates-annual-catches-wcpfc-statistical-area-0>.