FICHA TIBURÓN BLANCO

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Taxonomy [top]

Kingdom	Phylum	Class	Order	Family
ANIMALIA	CHORDATA	CHONDRICHTHYES	LAMNIFORMES	LAMNIDAE

Scientific Name: Carcharodon carcharias
Species Authority: (Linnaeus, 1758)
Common Name/s:
English – Great White Shark
Synonym/s: Squalus carcharias Linnaeus, 1758

Assessment Information [top]

Red List Category & Criteria: Vulnerable A2cd+3cd ver 3.1
Year Published: 2009
Date Assessed: 2005-10-01
Assessor/s: Fergusson, I., Compagno, L.J.V. & Marks, M.
Reviewer/s: Musick, J.A. & Fowler, S.L. (Shark Red List Authority)
Justification:
This assessment is based on the information published in the 2005 shark status survey (Fowler *et al.* 2005).

Despite the high profile media attention the Great White Shark (*Carcharodon carcharias*) receives, relatively little is known about its biology. It appears to be fairly uncommon compared to other widely distributed species, being most frequently reported from South Africa, Australia, California and the northeast United States. World catches of Great White Sharks from all causes are difficult to estimate, though it is known to have a relatively low intrinsic rebound potential (Smith *et al.* 1998). Threats to the species include targeted commercial and sports fisheries for jaws, fins, game records and for aquarium display; protective beach meshing; media-fanned campaigns to kill Great White Sharks after a biting incident occurs; and degradation of inshore habitats used as pupping and nursery grounds.

History:
2000 – Vulnerable
1996 – Vulnerable
1994 – Insufficiently Known (Groombridge 1994)

1990 – Insufficiently Known (IUCN 1990)

Geographic Range [top]

Range Description:

The Great White Shark occupies a cosmopolitan range throughout most seas and oceans with concentrations in temperate coastal seas (Compagno 2001). It is principally known as a pelagic dweller of temperate continental shelf waters, but also ranges into the open ocean far from land and near oceanic islands, the cold boreal and austral (sub-Antarctic) seas and the coastal tropics. It is found from the surfline and the intertidal zone to far offshore, and from the surface down to depths over 250 m. It does not occur in fresh water, but penetrates saline bays and estuaries; during high tide it may swim in bays that have no water at low tide. Recent tagging and tracking studies and DNA analyses have demonstrated that this species undertakes long distance trans-oceanic movements, for example between South Africa and Australasia (Pardini *et al*. 2001) and California and the Hawaiian Islands (Boustany *et al.* 2002). Consequently its distribution is not considered disjunct, albeit that interchange between some populations may be limited. It is most commonly recorded from the waters of southern Africa (particularly from Namibia to KwaZulu-Natal and Mozambique); eastern, western and particularly southern Australia; New Zealand; the Japanese archipelago; the north-eastern seaboard of North America, especially Long Island and environs; the Pacific coast of North America, primarily from Oregon to Baja; the coast of Central Chile; and the Mediterranean Sea, primarily the Western-Central region and Tyrrhenian Sea (Compagno 2001).

Great White Sharks also occur, albeit less frequently, at many sites elsewhere (e.g., Brazil, Caribbean, Azores, Hawaii, north-west Africa, east Africa (Kenya, Tanzania), Seychelles, Mauritius, Madagascar, Sri Lanka, northern Australia, New Caledonia and Philippines). Limited inter-hemispherical movement between temperate areas, across equatorial waters by means of tropical submergence has been suspected (Last and Stevens 1994), but more recently Great White Sharks have been found in tropical inshore waters of east and southern Africa and even sighted and photographed by divers on coral reefs in Mozambique and elsewhere (Cliff *et al.* 2000, Compagno 2001).

Countries:

Native:
Albania; Algeria; Australia (Northern Territory, South Australia); Bahamas; Barbados; Bosnia and Herzegovina; Brazil; Chile; Croatia; Cyprus; Egypt; France; Gibraltar; Greece; Israel; Italy; Japan; Kenya; Lebanon; Libya; Madagascar; Mauritania; Mauritius; Montenegro; Morocco; Mozambique; Namibia; New Caledonia; New Zealand; Philippines; Seychelles; Slovenia; South Africa; Spain; Sri Lanka; Syrian Arab Republic; Tanzania, United Republic of; Tunisia; Turkey; United States (California, Hawaiian Is., Oregon); Western Sahara

FAO Marine Fishing Areas:

Native:
Atlantic – western central; Atlantic – northeast; Atlantic – eastern central; Atlantic – southwest; Atlantic – southeast; Atlantic – northwest; Indian Ocean – western; Indian Ocean – eastern; Mediterranean and Black Sea; Pacific – southeast; Pacific – northeast; Pacific – northwest; Pacific – eastern central; Pacific – western central; Pacific – southwest

Range Map: Click here to open the map viewer and explore range.

Population [top]

Population Trend: ? Unknown

Habitat and Ecology [top]

Habitat and Ecology:

The maximum size attained by Great White Sharks remains a matter of debate, and is estimated to be around 6 m, and possibly to 640 cm or more; the largest free-swimming individuals commonly captured are between 500-580 cm (mostly adult females) (Compagno 2001). Lengths at maturity for both sexes remain somewhat undetermined and based on (currently limited) age-growth data it may be possible that different populations mature at varying lengths. The majority of females mature at between 450-500 cm total length (TL) (Francis 1996), but have been reported as immature at sizes as much as 472-490 cm long (Springer 1939, Compagno 2001). Males mature at about 350-410 cm (Pratt 1996, Compagno 2001). One study of age and growth, pooled from 21 specimens (Cailliet *et al.* 1985) suggests a generalised age of maturity of 10-12 years based on counts of vertebral growth rings that are deposited yearly. A mature female of 500 cm is estimated to have reached c.14-16 years. The average reproductive age is estimated at 17 years. The oldest individual reported is a female with 23 growth rings from South Africa, assumed to be at least 23 years old. Longevity is suspected as being about 30 years (Cailliet *et al.* 1985). Since 1980, six pregnant females have been verified, taken from coastal waters off Okinawa and Japan (Uchida *et al.* 1996); North Cape, New Zealand (Francis op. cit.) and Cape Bon, Tunisia (Fergusson 1996). Further recent but unconfirmed reports originated during the same decade from Australia (Bruce 1992, Francis, op. cit. Via J.D. Stevens pers. comm.) and Taiwan (Francis op. cit. As pers. comm. with D. Ebert). Reported litter-sizes range from 2?10 foetuses. Gestation time is unknown but likely to be a year or more (Compagno 2001). Size at birth is within a range of 109-165 cm TL. The Great White Shark is ovoviviparous and practices uterine cannibalism in the form of oophagy (ingestion of unfertilized eggs). Mating has not been reliably witnessed to-date. Conceivably, females may give birth every two or three years rather than annually. Parturition apparently occurs during the spring to late summer in warm-temperate neritic waters.

Great White Sharks take a variety of bony fish as prey, from sedentary demersal rockfish, lingcod and benthic flatfish to fast pelagic species, and ranging in size from small demersal and schooling fishes to giants such as broadbill swordfish and bluefin tuna. Great White Sharks are known to congregate at concentrations of schooling bony fishes such as pilchards and bluefish, and follow the KwaZulu-Natal sardine run off South Africa (Compagno 2001). A broad range of elasmobranchs ? sharks and batoids ? are eaten by Great White Sharks, as are chimaeroids, chelonians, cephalopods and other molluscs, crustaceans and occasionally sea birds such as cormorants and penguins (Compagno 2001). The role of *C. carcharias* as a primary predator upon marine mammals and especially pinnipeds (e.g., northern elephant seals, harbour seals, California sealions, fur seals), has dominated much contemporary study of this species due to accessibility and intensive studies of seal colonies and a focus on seal predation as being related to biting of humans by great white sharks. The global importance of pinnipeds as prey taxa may be overstated, due to the regional bias in contemporary field observation towards those areas where sharks and pinnipeds are sympatric. Great White Sharks (especially larger individuals) are also active hunters of small odontocetes, particularly so (but not exclusively) in regions where pinnipeds are scarce

or absent. Dead baleen whales and other large cetaceans may contribute a significant amount to the Great White Shark?s diet in some areas (Long and Jones 1996), but such food is sporadically available.

Systems: Marine

Threats [top]

Major Threat(s):

Under various synonyms (maneater, white death), the Great White Shark has long been a focus for negative media attention, generated by its sometimes lethal interactions with humans. As a consequence of this typically exaggerated threat to human safety and an almost legendary ?Big Fish? status, the species is targeted as a source for sports-fishing, commercial drumline trophy-hunting (for jaws, teeth and even entire specimens preserved), sporadic human consumption or merely as the piscine whipping-boy of individuals pandering to shark attack paranoia. All of these activities have greatly increased since the ?JAWS? media phenomenon of the mid 1970s, not only to the detriment of *C. carcharias* but also in encouraging targeting of other, less high-profile species. Nowhere is the Great White Shark abundant and productive enough to sustain long-term directed fisheries; the majority of annual captures worldwide being made incidentally through commercial fisheries operating longlines, setlines, gillnets, trawls, fish-traps and other gear. The Great White Shark is ensnared throughout the water column in nearshore fisheries but, notably, is rarely represented in the elasmobranch bycatch of offshore oceanic pelagic fisheries (unlike Shortfin Mako (*Isurus oxyrinchus*) and Porbeagle (*Lamna nasus*)). The Great White Shark is vulnerable to capture trauma and may be killed or has limited survivorship after capture. Great White Sharks are curious and readily approach boats, scavenge from fishermens? nets or longlines and devour hooked fish taken by rod-and-line or swordfish harpoon. This vulnerable propensity often results in either their own accidental entrapment or deliberate killing by commercial fishermen. In certain regions the Great White Shark has traditionally been viewed negatively as manifesting a costly interference to fisheries, although some fishers appreciate it for its role in eating pinnipeds that devour their catches. This species is unquestionably vulnerable to directed exploitation such as sports fisheries, the curio trade, the oriental shark-fin trade and even the public aquarium trade. The overall, long-term impact of these causes of mortality upon regional populations, coupled to those caused through indirect fishery captures or protective beach meshing, is probably detrimental. The removal of even a few individuals apparently has very tangible effect at discrete localities (such as the Farallon Islands, California, based upon observations following the cull of four local sharks in 1984 (Ainley *et al.* 1985)). Habitat degradation (development, pollution and overfishing) also threatens this species and may largely exclude it from areas, perhaps traditionally utilised for feeding or as nurseries, where it was historically much more abundant. Great White Sharks have been sought as the ultimate species to display in large public oceanaria, but with poor survivorship so far. Directed fishery exploitation of Great White Sharks is primarily undertaken with the aim of trading its teeth and jaws as trophies or curios and its fins for the oriental fin trade. In South Africa offers of US$20,000?$50,000 have been made for great white shark jaws and US$600? $800 for individual teeth. Apart from their size, Great White Shark products in the form of curios and fins are boosted in value because of notoriety. A fin-set from a large great white shark may be valued at over US$1,000. Unfortunately, as with rhino horns and elephant tusks, the high value of Great White Shark products encourages poaching, clandestine trade and flouting of protective laws (Compagno 2001). Comparative data of catch-rates and CPUE are sketchy or lacking for most of the Great White Shark?s range, although some figures

are available from select regions. Observations of game fishery captures in south-east Australia between 1961?1990 indicate a catch-ratio from 1:22 in the 1960s, declining to 1:38 in the 1970s and 1:651in the 1980s (Pepperell 1992), suggesting a possible decline in abundance. South Australian game-fishing catches from 1980?1990 averaged 1.4 sharks per year and has declined since the 1950s, possibly through a reduction in effort (Bruce 1992). Sydney game fishing catches have ranged from 0?17 between 1950?1980, with no significant trend. Commercial bycatches off Australia are suspected to be the largest cause of mortality to Australian Great White Sharks, although without any data to currently substantiate this claim (J.D. Stevens and B. Bruce pers. comm.).

Recent tagging off South Australia (70?90 animals tagged) has demonstrated a 4?6% recapture rate (Stevens and Bruce pers. Comm.), which may be considered cause for concern. Approximately 40% of 126 Great White Sharks tagged at Dyer Island or Struisbaai, South Africa, between 1992?94 were resighted (Compagno unpubl.). Both the Australian and African research demonstrates at least short-term residency and site-affinity with some pronounced seasonality, coupled to more irregular nomadicity. Off the eastern USA, NMFS statistics from 1965?1983 show a decline from 1:67?1:210 (Casey and Pratt 1985), suggesting a possible decline in abundance. Data from beach meshing programmes in NSW and Queensland show a gradual and irregular decline in CPUE since the 1960s (J.D. Stevens and B. Bruce pers. comm.) whilst trends in KwaZulu-Natal meshing programmes are variable and less clear, but essentially downwards. Other indices of catch-rates are available from: California, between 1960?1985 as 0?14 sharks per year (mean 3.2, Klimley 1985), KwaZulu-Natal, between 1974?1988 as 22?61 sharks per year (Cliff *et al.* 1989) and the Central Mediterranean Sea (Sicilian Channel), between 1950? 1994 as 0?8 sharks per year (mean 2.2, Fergusson unpubl.). We presently have no complete data for Japan, New Zealand or Chile. In other areas, catches are much more nominal and very sporadic (e.g., Brazil, Hawaii).

Conservation Actions [top]

Conservation Actions:

The Great White Shark is currently protected in the Australian EEZ and state waters, South Africa, Namibia, Israel, Malta and the USA (California and Florida states, with directed fisheries prohibited off all coasts). Protective laws are strict, but loopholes and inadequate enforcement causes problems including promoting the black-market for high-value Great White Shark products including jaws, teeth and fins. Australia has developed a comprehensive and multidisciplinary recovery plan for great white sharks in its waters (Compagno 2001). A proposal to list the great white shark in CITES, to regulate or ban international trade failed in 2000, but Australia has since listed the species in Appendix III. A CITES listing might help slow trade in great white shark products, but will not eliminate low volume criminal trade. The Great White Shark was added to both Appendices of the Convention on the Conservation of Migratory Species (CMS) in 2002 with the objective of providing a framework for the coordination of measures adopted by range states to improve the conservation of the species (Government of Australia 2002). The great white shark should be removed from international game fish record lists, and needs consistently rational and realistic treatment by entertainment and news media to counter its notoriety and inflated market value.

Citation:

Fergusson, I., Compagno, L.J.V. & Marks, M. 2009. *Carcharodon carcharias*. In: IUCN 2013. IUCN Red List of Threatened Species. Version 2013.2.