

## White Shark, *Carcharodon carcharias*

Report Card assessment	Depleted		
IUCN Red List Australian Assessment	Refer to Global Assessment	IUCN Red List Global Assessment	Vulnerable
Assessors	Fergusson, I., Compagno, L.J.V. & Marks, M.		
Report Card Remarks	Low productivity and likely declines in catches; Recovery Plan in Australia		

### Summary

The White Shark is widely distributed throughout tropical and temperate waters. It is known to move long distances along coastlines and across the open ocean. It is fairly uncommon throughout much of its distribution but is commonly recorded in South Africa, California, Australia and northeast United States. The species is taken as incidental catch in commercial and recreational fisheries. It is targeted in shark control programmes in Australia and South Africa with data indicating long term declines have occurred. The teeth, jaws and fins are highly prized. The White Shark has a low reproductive rate which limits its ability to recover from exploitation. The species is listed on Appendix II of CITES. The White Shark is currently protected in Australia (listed as Vulnerable on EPBC Act), New Zealand, South Africa, USA, Mediterranean and European countries and many small Island States. Australia has a Recovery Plan in place, though without accurate estimates of population size it is not possible to determine if populations are recovering. Therefore, the White Shark is assessed as globally Vulnerable (IUCN) and in Australia as OVERfished (SAFS), with actions underway to more accurately assess the population trend.



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### Distribution

The White Shark is cosmopolitan throughout much of the ocean with a preference for temperate waters (Compagno 2001). It is concentrated in coastal and pelagic shelf waters but is also found in the open ocean. It probably occurs throughout Australian waters but is more common in the south, from North West Cape (Western Australia), across southern Australia and north to central Queensland (Last and Stevens 2009, DoE 2013). There are known linkages between White Sharks that occur in Australian waters and New Zealand and South Africa (Bonfil et al. 2005, Francis et al. 2015).

## Stock structure and status

There is some limited information on population size, structure, and trend for the White Shark. Genetic evidence suggests that there are separate populations around the world, despite the White Shark being highly mobile (Andreotti et al. 2016a). In Australia, genetics and movement data suggests there are two populations of White Sharks, one on the east coast and another on the southwest coast that are separated by Bass Strait (Blower et al. 2012). Based on genetics, a theoretical population size of breeding adults across all of Australia was approximately 1500 individuals. This estimate was preliminary due to a low number of samples and must be interpreted with caution. It was not possible to estimate the east coast population size, while the west coast preliminary population estimate was approximately 700 breeding individuals (Blower et al. 2012). Recent analysis using a close-kin genetic approach estimated the eastern Australian (including New Zealand) adult population size was approximately 750 individuals, and the West Coast population was approximately 1460 individuals (Bruce et al. 2018).

Defining the trend in Australian White Shark population is difficult as the species is widely dispersed, highly mobile, occurs in low density and there is limited catch data because it is not targeted by commercial fishers (DoE 2013). Data from the New South Wales (NSW) shark control programme suggests White Shark numbers may have stabilised in NSW over the last 30 years (DoE 2013). Similar evidence comes from the close-kin genetic analysis (Bruce et al. 2018) There is historical evidence of a decline in White Shark numbers across Australia over the last 60 years with no evidence that numbers have substantially recovered since they were protected in Australia by a listing as Vulnerable under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) and protected under various state legislation in the late 1990s due to population decline (DoE 2013). Australia has a National Recovery Plan in place that aims to halt the decline and support the recovery of the White Shark in Australian waters with actions identified to more accurately assess population trends (DoE 2013).

## Fisheries

White Sharks are caught as bycatch in commercial and recreational fisheries, and also killed in shark control programs in Queensland and New South Wales. As a Threatened species this species cannot be targeted by fishers. The teeth, jaw sets and fins are highly prized (Ebert et al. 2013). It has a relatively low intrinsic rebound potential that limits its ability to recover from exploitation (Smith et al. 1998). The majority of catches worldwide are through incidental catch in recreational fisheries and commercial fisheries operating longlines, setlines, gillnets, trawls and other gear. The overall, long-term impact of these causes of mortality upon regional populations is probably detrimental. The White Shark is also currently protected in New Zealand, South Africa, USA, Mediterranean and European countries and many small Island States (Ebert et al. 2013). Exemptions are made for shark control programmes. The White Shark is also protected through international agreements, that is, the Convention on International Trade in Endangered Species (CITES) Appendix II and Convention on Conservation of Migratory Species (CMS) Appendices I and II.

## Habitat and biology

The White Shark prefers temperate coastal and shelf waters and occurs from the surface to depths of 1,300 m (Last and Stevens 2009, Ebert et al. 2013). Adults are most commonly observed in aggregations near rocky reefs around pinniped colonies (Ebert et al. 2013). Juveniles in the eastern Australian subpopulation occur along sandy beaches and in estuarine environments (). Maximum size is around 600 cm total length (TL) possibly up to 640 cm TL (Compagno 2001). Maximum age is estimated to be 30–44 years (Natanson and Skomal 2015, Christiansen et al. 2016). Reported litters

sizes are 2–17, though the maximum number of confirmed pups is 10 (Francis 1996). It has a long gestation estimated up to 18 months (Mollet et al. 2000) and it may only reproduce once every three years (Last and Stevens 2009).

Longevity and maximum size	Longevity: estimated 30-44 years Max size: 600 cm, possibly 640 cm TL
Age and/or size at maturity (50%)	Males: 7-9 years, 360-380 cm Females: 12-17 years, ~450-500 cm TL

**Link to IUCN Page:** <http://www.iucnredlist.org/details/3855/0>

**Link to page at Shark References:** <http://shark-references.com/species/view/Carcharodon-carcharias>

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