



Protecting South Australia's Fish, Sharks & Rays

The White Shark (*Carcharodon carcharias*)

FACT SHEET #10

The white shark, also known as a white pointer or a great white shark, is the world's largest predatory fish. The only known surviving species of its genus – *Carcharodon* – the white shark is found throughout the world's oceans, but generally prefers cool temperate waters such as those of South Australia.

White sharks are more often sighted near coastal islands, rocky reefs, banks and rocky headlands where there is deep water close to shore, and in the waters of continental shelves. Most commonly they are found near colonies of pinnipeds such as fur seals and sea lions, particularly during pupping season.

HABITAT AND BIOLOGY

White sharks are believed to have evolved about 65 million years ago and their effectiveness as top order predators has meant that they have survived virtually unchanged until today. They differ from most other sharks in that they are warm-bodied, which has helped them become dominant predators in cool and cold environments.

Female white sharks can grow to at least 6 m and occasionally to more than 7 m. One of the largest white sharks ever recorded was captured accidentally by a professional fisher in 1987 off Kangaroo Island, South Australia and it was estimated to be about 7 m. The maximum weight of females may be as high as 3,400 kg and are estimated to live as long as 50-60 years.

The body of white sharks is possibly one of the most recognisable shapes in the world, its torpedo shape and large dorsal fin made famous in movies like 'Jaws'. The white belly of the shark and its dark back enable it to camouflage both from below and above.

Females are believed to mature sexually at between 4.5-5 m and up to 17 years old and males at about 3.6-3.8 m and around 8 years old. Females only reproduce every 2-3 years and the gestation period is thought to exceed 12 months, possibly as long as 18 months. Litter sizes have been recorded between 2-10 pups per litter. The females give birth to live pups about 1-1.5 m long, which are completely independent at birth.

Adult white sharks are known to have a broad diet including squid and fish, such as snapper, mackerel and tuna. They also eat other sharks and marine mammals, such as dolphins, sea lions and fur seals. Important prey in South Australian waters are the Australian sea lion and New Zealand fur seals.

CURRENT CONSERVATION STATUS

The white shark is fully protected in Commonwealth waters under the EPBC Act (listed as an endangered species in the vulnerable category). They are also protected in State waters under the SA Fisheries Management Act (2007). In addition they are on the IUCN Red List and are a protected species in many other countries.

The White Shark

Photo: (c)

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A research tag visible on a white shark fin

Photo: (c)

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Although protected in all Australian waters, white sharks continue to be caught as bycatch and illegally targeted by trophy hunters.

THREATS AND RESPONSES

Fish, sharks and rays in SA waters face a wide variety of threats including: damage to or loss of habitat; over-fishing by commercial, recreational, and spear fishers; being taken as by-catch by commercial fishers; the impacts of climate change; introduced marine pests; and an overall lack of knowledge of the species.

White sharks are naturally relatively low in abundance, slow-growing, long-lived, have late age at maturity, low reproductive ability and relatively low natural mortality. Subsequently it has a long population recovery time following depletion and even small increases in mortality are considered to have a significant impact on white shark populations.

The Commonwealth Government's White Shark Recovery Plan identifies the major cause of mortality as bycatch in commercial long-line and net fisheries and entanglements in fin fish farm cages. Based on anecdotal reports of bycatch and entanglements, up to 100 white sharks are estimated to be killed in South Australia each year.

Improved reporting of white shark bycatch and mortality in all fisheries and finfish cage aquaculture operations will help to more accurately monitor the population. Methods of reducing bycatch in commercial fisheries also need to continue to be developed and implemented.

White sharks are also accidentally caught by recreational fishers in SA, particularly those targeting snapper, a popular white shark prey. Smaller white sharks are also believed to be caught as a result of being mistaken for other species such as mako sharks. The black market trade in white shark jaws and teeth is another significant threat – particularly as these have fetched up to \$50,000 and \$600 respectively.

Education programs aimed at recreational fishers and greater emphasis on compliance is needed to overcome these threats.

As the top predator, white sharks are susceptible to concentrations of toxins that pollute the marine environment. Studies have identified high levels of organochlorides such as DDT in white sharks. While the effects of these toxins on white shark reproduction or survival are very difficult to study or document, they are likely to be significant given the damaging effects of these chemicals in other predatory fish and marine mammals. Steps to reduce toxins entering the sea will help reduce this impact.

While the exact impacts of climate change on the marine environment are uncertain, there is little doubt that it will negatively affect marine habitats and species, particularly through increases in water temperature and sea level rise.

Implementing the actions identified in the White Shark Recovery Plan and the National Plan of Action for the Conservation and Management of Sharks will help minimise the threats discussed above. In particular, community education programs and research into the distribution of white sharks and their critical habitats, such as the Conservation Council of SA's White Sharks Count, program needs to be undertaken.

For more information: www.ccsa.asn.au/fsr

ACKNOWLEDGEMENT

Information used in this fact sheet was compiled from sources including: Baker, J.L. (2007 in prep.) Status of Marine Species at Risk in South Australia: Technical Report – Bony and Cartilaginous Fish.