



SHARK FACTS

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The Shark Trust supports the
European Elasmobranch Association

Whale Shark *Rhincodon typus*

The Whale Shark is the only member of the Rhincodontidae family, and is the largest living fish in the world. Massive in stature, but harmless to humans, the Whale Shark was first discovered in 1829 off the coast of South Africa. Curiosity with this gentle giant has resulted in an increase in the number of visitors to areas where they can be reliably located by divers¹.

The Whale Shark, alongside the Megamouth and the Basking Shark, is one of only three filter-feeding sharks. Unlike Basking Sharks, the Whale Shark does not depend on forward movement to feed, but simply sucks in prey by opening its huge mouth².



Whale Shark © Jeremy Stafford-Deitsch

prominent longitudinal ridges running down the dorsal surface, which is generally coloured from grey to blue or brown with a pattern of creamy spots between pale vertical and longitudinal lines. This gives the appearance of a checkerboard on their dorsal surface while their underbelly is white.

Distribution

Whale Sharks are found in all tropical and warm temperate seas (except the Mediterranean), generally in open seas with a surface temperature of 18-30°C and in areas of high primary productivity (plankton). Although more often seen offshore, they do occasionally come close inshore and enter lagoons or coral atolls.

Whale Sharks are highly migratory with immense habitats, and are regularly sighted around Australia, India, the Maldives, South Africa, Belize, Mexico, the Galapagos Islands, Southeast Asia and Indonesia. They are sighted all year round in some locations, while in other areas they only occur at specific times of the year. This behaviour is thought to be determined by the environmental and oceanographic features of the sea, primarily the upwelling of nutrient rich water that results in areas of high primary productivity (plankton). For example, there is a predictable aggregation of Whale Sharks within the Ningaloo Marine Park, Western Australia, between March and April, which is associated with a coral mass spawning event⁴.

Reproduction

Whale Sharks are ovoviviparous, a method of reproduction whereby the embryos hatch *in utero* and the pups are born alive. It is uncertain how many embryos are carried at any one time but a pregnant female caught in Taiwanese waters was found to be carrying 300 embryos, ranging in size from 48 cm to 58 cm. Pups are born at an approximate size of 58 cm to 64 cm.

Although these figures seem to indicate that Whale Sharks are highly productive, they are based on one individual. Sharks in general are difficult to study and in this case, it is still unknown how often females reproduce, how many pups survive to reach maturity and where Whale Sharks reproduce. It is estimated that sexual maturity is reached at a length of 6 m for males and 8 m for females and this may only be at around 30 years of age. The largest recorded Whale Shark reached over 20 m in length and weighed 34 tonnes¹. The length of their lifespan is also unknown but it is predicated that they can live for anywhere between 60 and 100 years.

Description

Whale Sharks are characterised by a huge, 1.5 m wide mouth on the front of a short snout. They have a half-moon shaped tail and a broad, flattened head. The mouth contains 3000 minute teeth arranged into roughly 300 rows on each jaw, covered by a flap of skin. Its huge gill slits are modified internally into filtering screens, which are used for sieving zooplankton (such as krill, crab larvae and jellyfish) as small as 1 mm³. The body is streamlined with



Whale Shark from above © Mark Caney/Project AWARE

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Fisheries and Trade

Fully grown Whale Sharks have no natural enemy although juveniles have been found in the stomach of a Blue Shark and in the intestine contents of a Blue Marlin³, while in July 1992 two Orcas (*Orcinus orca*) were observed preying on an 8 m Whale Shark in the Gulf of California, Mexico⁵. Even though they are considered harmless to humans, we are the greatest threat currently facing their survival, not only through disturbance and habitat destruction but through trade as well.

Small harpoon fisheries for Whale Sharks have been reported from India, Pakistan, Taiwan, Indonesia, the Philippines (fisheries banned in 1998) and the Maldives (prior to protection in 1995). Whale Sharks are utilized for their flesh, fins and liver oil. The flesh is consumed either fresh, dried salted or frozen, the liver is processed for oil (e.g. used to waterproof boats), the fins for shark fin soup, the offal for fish meal, the cartilage for health supplements and the skin has been used for leather². In many Asian countries, the meat is highly valued. Prior to 1985, a Whale Shark weighing several tonnes sold for a few Taiwanese Dollars (TWD). This price increased in the late 1990s to 190 TWD (US\$7)/kg with a small (2000 kg) Whale Shark fetching as much as 400,000 TWD (US\$14,500). In 2001-2002 prices fell to around 71TWD (US\$2)/kg possibly because the meat is considered to be of lower quality than that of Basking Sharks⁶. As of July 2007, all products derived from Whale Sharks will no longer be on sale in Taiwan and from 2008, fishing of Whale Sharks will be banned by the Taiwanese Government.



Whale Shark with divers © Rachel Graham

Ecotourism

Tour operators offering Whale Shark viewings now exist in Western Australia (Ningaloo Reef), KwaZulu Natal (South Africa), Mozambique, Philippines, Seychelles, Maldives, parts of the Caribbean, and Gulf of California (Mexico). Figures show that these practices have a very high economic value, providing US\$10.3 million annually in Western Australia and US\$3 million in Phuket, Thailand⁷. Whale Shark tourism is worth an estimated US\$47.5 million worldwide and provides a valuable income for the local communities if used in a sustainable fashion⁸.

Conservation and management

The IUCN *Red List of Threatened Species* lists the Whale Shark as Vulnerable, which indicates the species is not endangered but is at risk of extinction in the future. This is due to the high value of Whale Shark flesh in parts of Asia, and the apparent decline in catch rates in at least one fishery¹.

Protection

Whale Sharks are protected by national law in the waters of Belize, Honduras, India, Maldives, the Philippines, the western coast of Australia, the eastern coast of the United States⁷, and as of July 2007 in Taiwan as well. The species received Appendix II listing at the 12th meeting of the Conference of Parties (12COP) of CITES held in Chile in November 2002⁹. They are listed on Appendix II of the Conservation of Migratory Species (CMS), also known as the Bonn Convention, and included as a highly migratory species in Annex I of the United Nations Convention on the Law of the Sea (UNCLOS)⁶.

Research in progress

Research into Whale Shark ecology, biology and behaviour is difficult and expensive to conduct. However, there are currently satellite tagging programmes in Australia and on the Belize Barrier Reef. Photo-id is also being conducted in Utila, Bay Islands, Honduras.

What you can do

- Join the Shark Trust (www.sharktrust.org)
- Follow the Whale Shark code of conduct (www.whalesharkproject.org)
- Get involved with photo-identification (<http://www.whalesharkproject.org/prospectus.asp?siteid=3&content=23&curpage=3>)
- If you are a diver, become a Whale Shark specialist diver (<http://www.whalesharkproject.org/prospectus.asp?siteid=2&content=22&curpage=2>)



Satellite Tag © Rachel Graham

References

This fact sheet draws heavily on the Whale Shark species account written by Brad Norman for the IUCN Shark Specialist Group status report. Other important sources of information were:

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