

the whale shark man

BRAD NORMAN, LAUREATE 2006 ROLEX AWARDS FOR ENTERPRISE
 DRIVEN BY A LOVE OF THE SEA AND THE ELUSIVE WHALE SHARK, AUSTRALIAN NATURALIST BRAD NORMAN HAS CREATED A GLOBAL PHOTO-ID SYSTEM WHICH ENABLES ORDINARY PEOPLE TO HELP CONSERVE IT.

This 38-year-old Australian naturalist has dedicated most of his adult life to the pursuit, identification, understanding and protection of the world's largest fish, *Rhincodon typus*. His vision is to involve thousands of divers and marine tourists worldwide in the photo-monitoring and conservation of whale sharks, significantly enhancing knowledge of this elusive species.

Through 2007-08 Brad is using his Rolex Award money to criss-cross the world to other whale shark sites in Mexico and Mozambique, the Seychelles, Christmas Island, the Galapagos, the Maldives, Taiwan, Thailand, Indonesia, Kenya, Honduras and Belize, training local marine and tourism managers in how to identify and conserve the giant fish.

Australia's Ningaloo Reef in Western Australia is one of the premier spots in the world for watching whale sharks, which are also seen along the Great Barrier Reef. Since his first encounter in 1995 in Ningaloo Marine Park, Norman has striven to uncover all he can about this animal, whose ancestry extends back 400 million years. He also respects the shark's brute power, and has assisted in the drafting of guidelines for divers and tour operators worldwide on how to behave around whale sharks.

Norman's love of the ocean was born on the beaches of Perth, on Australia's Indian Ocean coastline, where he body-surfed as a youngster. This led to diving and, via a science degree, to a deep interest in marine conservation which he's pursued as a researcher and fisheries management consultant. Norman survived hand-to-mouth on sporadic grants, and funded much research himself. Burning the midnight oil, he mounted national and international campaigns for

whale shark conservation, emerging as a global expert on the animal and its needs. He helped authorities develop plans for its protection, wrote scientific reports and information for divers and children.

Following a clue provided by an experienced fisherman, Norman's painstaking research managed to prove that every whale shark has a pattern of white spots on its body as individually distinctive as a human fingerprint. This gave him the idea of using underwater camera images as a practical, non-invasive way to identify individuals. In 1999 he set up ECOCEAN Whale Shark Photo-identification Library on the internet to record global sightings and images.

Despite the growing body of information, there was no easy way to compare shots of whale sharks taken from different angles, under varying conditions. In 2002, US computer engineer and fellow diver Jason Holmberg offered to help organize and automate the ECOCEAN database. He discussed the photo-ID problem with NASA-affiliated astronomer Zaven Arzoumanian, whose colleague Gijs Nelemans pointed out that a technique used by Hubble Space Telescope scientists for mapping star patterns known as the Groth algorithm, could be used to identify whale sharks from the unique patterns of white spots on the shark's hide. It took months of calculations and programming to refine the algorithm for use on a living creature – but in the end they gained a breakthrough for biology: a reliable way to identify individuals in virtually any spotted animal population without tagging or harassing them. More than 500 whale sharks have since been identified and added to the database.

Whale sharks depend on huge bursts of tiny sea life which, in turn, reflect the condition of the oceans and their

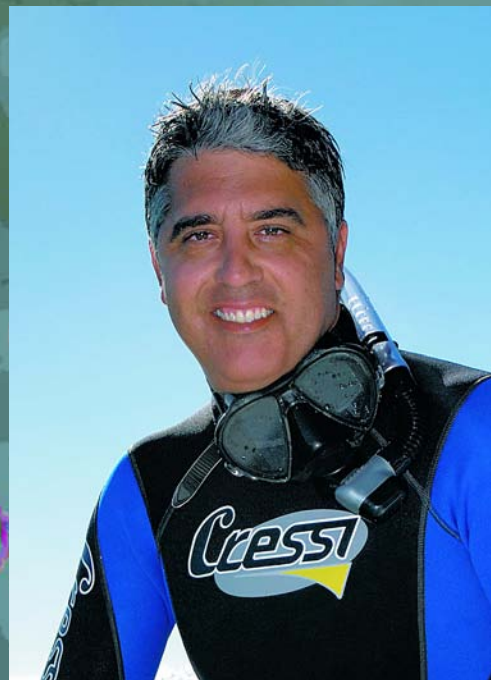
FIRST RECORDED IN 1828, ONLY 350 whale-sharks were sighted in the next 150 years. Growth in dive tourism has brought a surge in sightings, yet the whale shark remains elusive, and the World Conservation Union (IUCN), which engaged Norman to assess the species, has it as 'vulnerable' to extinction. Few countries protect it.

Though diving as deep as 1,500 metres, it often swims conveniently near the surface, its economical 3-5 kmh cruising speed is perfect for observation. Its placid temperament also makes it safe compared with other big sharks. It's never been known to attack humans.

The whale shark is one of only three filter-feeding sharks using gill rakers to scoop up krill (shrimp), small fish and other tiny ocean life as its sole source of sustenance. Tagged individuals have been tracked for 13,000 kilometres across the Pacific, and 3,000 kilometres in the Indian Ocean. It has an uncanny instinct for locating food concentrations. It's sighted at more than 100 places around the globe yet almost nothing is known of its abundance, breeding habits or habitat preferences. It has few natural enemies, though orcas and predatory sharks may attack young whale sharks. But now it's suffering from the insatiable human appetite for seafood – its flesh, fins and body parts sell in Asian fish markets for \$US18 a kilo or more.

bio-productivity. Since they travel thousands of kilometres to collect food, their demographics can serve as an indicator of ocean health and of human impact on it.

This is high, planet-scale science. But individual divers worldwide can now follow Norman's simple guidelines for photographing whale sharks and log their images, activities and locations on the ECOCEAN site. On ECOCEAN their photos are automatically catalogued, compared and, if possible, identified as belonging to a known shark. Each new



: REPORT BY JULIAN CRIBB



encounters°



image helps Norman compile a global map of where whale sharks live and their migratory patterns. Contributors receive notice by email of all past and further sightings of 'their' shark. The images are helping to build a global picture of the abundance, health, range and fluctuations of the whale shark population. As Norman points out, it gives people a direct stake in whale shark stewardship.

With the Rolex Award money, Brad Norman is devoting two years full-time to training local authorities, tourism operators and 20 research assistants around the Pacific, Atlantic and Indian oceans to observe, record and protect whale sharks. In this way he will develop whale shark photography as a

significant tool for conservation. He plans also to explain to those who hunt this shark there's more to be gained by leaving it alive. Ningaloo's whale sharks draw more than 5,000 visitors a year mainly from April to June, generating ecotourism worth an estimated US\$10 million. A live whale shark earns far more than a dead one. And this big, beautiful and charismatic animal is a perfect flagship for the health of the oceans.

Contact Brad Norman on
0414 953 627 or
brad@whaleshark.org
www.whaleshark.org



CHECK THIS OUT!

Can you ID a whaleshark?
www.whaleshark.org shows you how. And
let us know all about it at
www.divetheblue.net/forums

THE ROLEX AWARDS FOR ENTERPRISE recognise great achievements, encouraging a spirit of enterprise in visionary individuals who advance human knowledge and well-being. The Awards are presented every two years in Science and Medicine, Technology and Innovation, Exploration and Discovery, the Environment and Cultural Heritage. A project may be submitted in almost any field of endeavour provided it contributes to the betterment of humankind and is ongoing. Anyone, of any age, from any country or background, may apply. For more information visit: www.rolexawards.com or Australian residents can contact: Professor Julian Cribb, FTSE 02 6242 8770 or 0418 639 245 jcribb@work.netspeed.com.au