



Researchers take identification photos of a whale shark

Text by Georgina Wiersma
Photos by Peter Verhoog

Underwater photographer Peter Verhoog of the Dutch Shark Society is on a mission—a mission to save sharks. He wants to raise awareness for sharks and their fate among a wide audience. One of the ways to do this is to show people not only the beauty of sharks but also shark behaviour and their sometimes worldwide migration and feeding patterns.

Marine conservation is almost never a national matter; migratory species can cross many borders, and regulations have to span more than one nation to protect a species. The whale shark is a highly migratory and cosmopolitan tropical and warm temperate species. It is established that the whale shark occurs in an astonishing number of countries—124 countries worldwide.

This shark is the world's largest

fish, with a maximum recorded length of 16 meters and a mouth that can be 1.5m wide. Its life cycle is poorly understood. Populations appear to have been depleted by targeted harpoon fisheries in Southeast Asia and perhaps incidental capture in

other fisheries. Its flesh is eaten, but their fins are more valuable; in the markets in the Far East, one fin from a whale shark can sell for over US\$15,000, the total from one single shark can exceed US\$60,000. Its normally low abundance make this species vulner-

able to commercial fishing.

Why tracking?

Whale sharks have become a species listed as "vulnerable" on the IUCN Red List. Its life history is largely unknown. Tracking individual sharks is therefore a valuable

practice, being it by photo ID or tags.

In 2012, Peter Verhoog visited Djibouti, a true 'hotspot' for juvenile, predominantly male whale sharks. From mid October to February, plankton blooms develop in an enclosed bay near

Djibouti town called the Goubet al Kharab (Devil's Cauldron). This bay is visited by whale sharks year round, but the number of shark is much higher during the plankton bloom. This aggregation has been studied for a number of years, and confirms that whale sharks



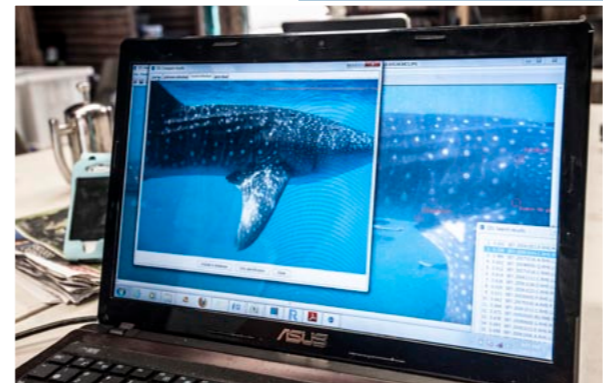
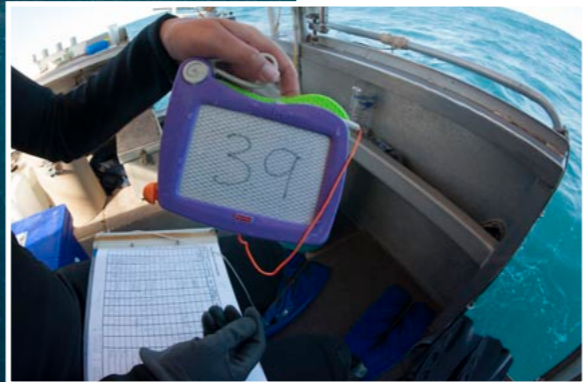
Gatherings of the Gentle Giants



shark tales



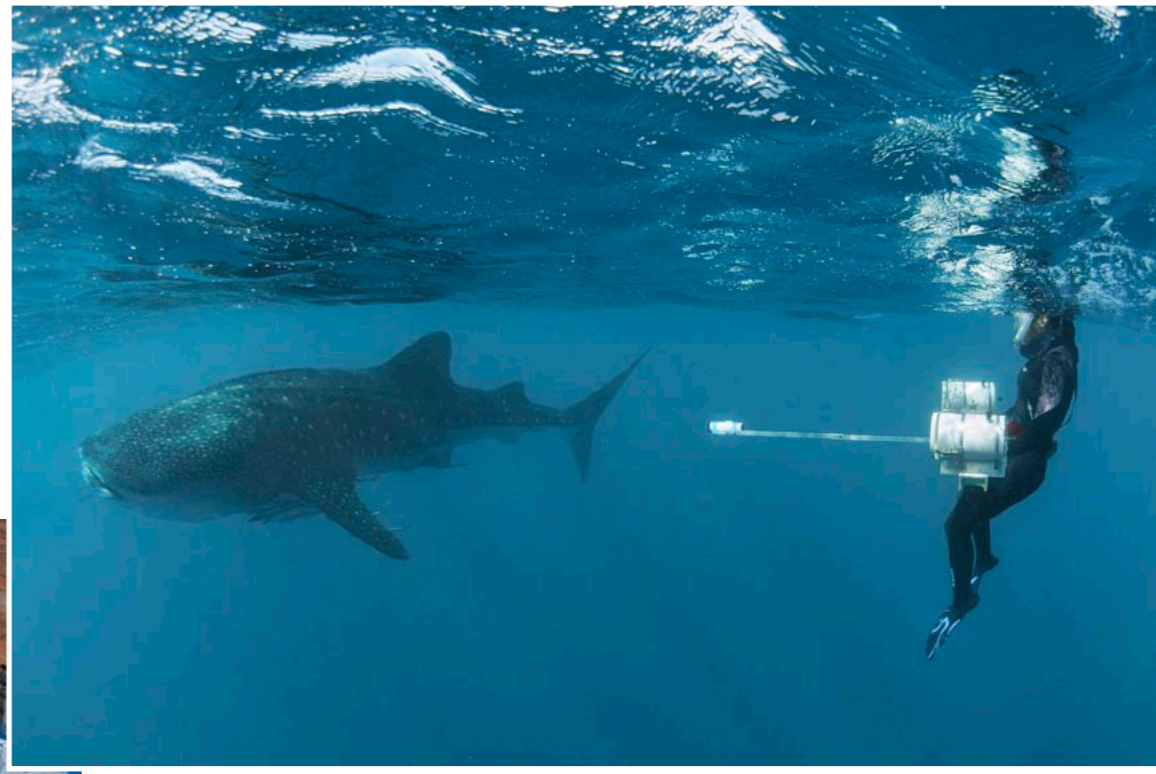
Collection of plankton (left); Researchers tag and sample whale shark (right); The number of each whale shark is photographed for each ID shot and sample taken (below left inset); Comparing ID photos on screen (below right inset)



the Marine Conservation Society of the Seychelles to identify sharks by taking photos of the spots on their left and right sides. These spots are like fingerprints, and every shark has a unique pattern that can be identified with special matching software. All other markings, like scars, are documented as well. It is also noted, which fish species accompanies the whale shark, as this gives an indication about the route they have taken—close to

reefs, or through the open ocean.

Conservation photography is different
For a conservation photographer, it is just not 'done' to interfere with research. The latter is the most important part and main goal of any research expedition, and contrary to any 'tourist' expedition, the photographer



Researcher records whale shark length with special stereo measuring device (above); Scientists lower device at night to catch krill and process tissue samples for genetic research (left); PhD student Lara Marcus examines samples (far lower left); Fin identification photo (far left center);

aggregate in certain areas rich in nutrients to feed on seasonal aggregations of tropical krill and bait fishes. They just follow their food, and depending on the type of plankton, the numbers rise and fall.

A team of volunteers snorkels with the sharks, and supports the research team of



shark tales

Whale sharks feeding together (right);
 Researcher puts out a net to catch plankton (below);
 The whale shark's gaping mouth during feeding (lower left)



is the last in line to approach the animals. And you have to work incredibly fast, as the last person to approach an animal, you are very often confronted with just the tail.

It was an exciting trip, with large numbers of whale sharks—

391 in the first week, 319 in the second week and 370 in the third week. The research team also fished for plankton, took ID pictures and skin samples and tagged a number of sharks. Since 2010, the sharks are measured using laser photo-grammetry.



Verhoog documented all procedures, and all his pictures can be used freely by researchers, students and non-profit organizations.

Moving on to Australia

In April 2013, Verhoog joined doctor Mark Meekan of the Australian Institute of Marine Science on his yearly trip to Ningaloo Reef, another whale shark hot spot.

Adult whale sharks turn up at Ningaloo every year from about March through to the end of July.

But where do they go afterwards? Meekan is determined to find out. He has been attaching tracking devices and cameras to the whale sharks, which have revealed some startling facts.

During his research, a spotter plane searches for whale sharks, and informs the team about their location. Tag data has revealed that whale sharks seem to head out in different directions. Some go to Southeast Asia, others swim up north to Indonesian waters, and some head for the open ocean. During their journeys,

whale sharks can travel 30 kilometers a day and make deep dives to over 1,000 metres.

And one tag, attached at Christmas Island in 2008, was even collected at the home of a fisherman, who found it collecting turtle eggs on a beach and had taken back to the village. Thanks to Google Earth, an assistant of Mark Meekan paid him a visit and collected the tag. It was probably ripped off by a predator.



Of the two, whale sharks prefer the plankton on the right—it has more worms and is 'richer'





Since whale sharks are shallow swimmers, they are often hit by boats (above); A harpoon is used by a scientist to take a sample of the 10cm-thick skin (left)

And for a research expedition, failure is just not an option. There is no repetition possible; every shot must be perfect immediately, with good exposure and sharpness.

All pictures were made with available light and a shutter speed of at least 1/250 sec. This was necessary to avoid blurred photographs due to movement. Verhoog also made

a clip of Meekan tagging a whale shark.

And though this was not a luxury trip for the faint-hearted, it had one major advantage—the opportunity to work with whale sharks all week and contribute to marine conservation. For more information, visit Dutchsharksociety.org or [Facebook.com/dutchsharksociety](https://www.facebook.com/dutchsharksociety). ■



Whale sharks have gill slits, which filter the water

The AIMS research on whale sharks is collecting knowledge about the movements of sharks in the Indian Ocean after they visit well-known aggregation sites in Australian waters like Ningaloo Reef and Christmas Island.

During the research trip Peter and the team slept in an old sheep barn infested with bats. The team went out daily, taking ID pictures, tagging sharks and fishing for plankton. Weather did not exactly cooperate; on most days, the waves were high, and the wind was strong. Some days, going out was impossible. But the sight

of the whale sharks and the good spirits of the AIMS team made it all worthwhile.

ID-ing again

One of Peter's tasks during this expedition was again to make ID pictures of as many sharks as possible and to make some underwater footage. To make sure that each picture, each second of footage and each tissue sample was from the same whale shark, there was a sign with a number for each shark, that was shot as well.

The food that whale sharks prefer, the plankton, can ruin many shots.



Whale sharks come to the shallows