Mexico’s
Sea of Cortez
—Where the Wild Things Are

Text and photos by Matthew Meier
Whale shark, whale shark, whale shark! After several unsuccessful hours of searching the bay by small boat, these long-awaited words came as a welcome relief. Only a handful of us had heard the radio call after opting to stay behind and skip the last dive of the trip. The excited skiff driver making the transmission had just dropped off his divers when a 15- to 20-foot juvenile whale shark came up to investigate. An explosion of activity ensued as our remaining few frantically scrambled for snorkel gear and made last second camera checks before jumping into the now returning skiff in hopes of seeing the world’s largest fish up close. For 16 magical minutes we were fortunate to have a very inquisitive youngster exhaust each of us in turn with its oversized version of follow the leader. The whale shark literally chased us in circles at the surface, as we passed the virtual baton, from one snorkeler to the next, in hopes of catching our breath before it came around again.
Sea of Cortez

Bahia de los Angeles
Whale sharks are commonly seen in this area from late July through September, and as this was the first week of October—we were very lucky to have such an interaction. Located on the eastern shoreline of the Baja Peninsula, this large, protected anchorage is also known as the Bay of the Angels and Bay of LA. The entrance to the bay is dotted with 16 separate islands and farther east, across the Canal de las Ballenas (Whales Channel), lays the southern portion of Isla Angel de la Guarda (Angel Island).

Angel Island
The second largest of the Midriff Islands, Angel Island is the northernmost landmass of the archipelago. This rugged, mountainous and uninhabited island is 69km (42.7mi) long, runs northwest to southeast, and contains no freshwater. The arid landscape supports various grasses, succulents and shrubs, along with a variety of birds and reptiles. The Angel Island speckled rattlesnake exists nowhere else, and the cardon cactus—nearly endemic to Baja California—is the world’s largest cactus, growing as tall as 18m (60ft).

Diving the Midriff Islands is accomplished by liveaboard dive boat. Trips typically run Saturday to Saturday from July through early October and include five and a half days of diving plus snorkeling opportunities with whale sharks and other pelagics when possible. Passengers are shuttled from the United States at Phoenix, Arizona’s Sky Harbor International Airport, through the Sonoran desert and the Organ Pipe Cactus National Monument, across the Mexican border and on to Puerto Penasco (Rocky Point), where guests board the boat for their overnight passage, traversing the Sea of Cortez.

We awoke that first morning to glassy sea conditions, while motoring into Refugio Bay, at the northern end of Angel Island.
Over the next two days we would explore several dive sites, rock outcroppings, bays and coves as the crew guided us down the western side of the island. Our first stop was La Muela (Molar Tooth) for a shallow check out dive. Here, we were treated to an array of bluespotted jawfish, living in burrows amid the rocky bottom, several species of stingrays and a fine spotted moray eel. A school of baitfish, corralled by circling barracuda, provided plenty of distraction on our safety stop. For those adventurous souls willing to jump into a cage at night, it is also possible to dive with Humboldt squid. Sadly, whether a product of climate change, over fishing or a simple change in their whereabouts, the squid have become increasingly hard to find.

Sharks are another species that are difficult to locate around the Midriff Islands, and unfortunately, mankind is very much to blame for their absence. From 1985-1995 over 200,000 sharks were killed by fishermen from camps in San Francisco Bay, 50 miles south of Bahia de Los Angeles. Sadly, an equal amount of bycatch was also discarded in the process, and when it was over, the shark population was decimated. We were encouraged to see a couple of sharks swimming at the surface during our trip, and I hope that they make enough of a comeback to consistently be found underwater as well.
Andrea’s Eagle. Our second day of the expedition began with two dives at Andrea’s Eagle, one of my favorite sites—so named for the osprey (fish eagle) nest on the cliffs overhead. Underwater, this rocky pinnacle provided an equal breadth of amazing wide-angle and macro subjects. Male orangethroat pikeblennys were displaying for a mate in the shallows, while a fine spotted jawfish—its head the size of a baseball—hid in a burrow in deeper water. Large aggregates of blue and yellow chromis, Mexican hogfish and king angelfish pulsed above the rocky reef and Cortez angelfish swam through forests of pristine yellow polyp black coral at depth.

El Aquario. After lunch we had two dives at El Aquario, a site with piles of large boulders and abundant marine life. The crevices between the rocks allowed for plenty of hiding places for the various invertebrates and reef fish, while anemones, sponges, hydroids and gorgonians grew on the rocks themselves. A strong current came up for the night dive making macro photography all but impossible.

Diving the northern Sea of Cortez can be a bit of a challenge due to the varied conditions dive to dive, but that is also part of the adventure. Water temperature, visibility and current can change from one site to the next, between successive dives and occasionally during the dive itself.

From one dive to another, the lunar tides can produce drift dive conditions and are especially robust during a full moon. These tidal currents also produce upwelling’s that bring nutrients from the depths, which can affect visibility as well as temperature. Amongst the various dive sites, over the week of diving, we experienced a ten-degree difference in temperatures.

San Pedro Martir Island
Overnight, the boat moved south from Angel Island to the island of San Pedro Martir, and we were subsequently serenaded awake by hundreds of brown booby birds fishing for their breakfast.
The early morning was spent frolicking with sea lions at Ravi Junco as they swam circles around each other and us, often hovering above unwitting divers, playing in their bubbles. From there we moved to a rocky pinnacle called El Morro, where a huge school of Pacific creolefish swam by to greet us, followed closely by an aggregation of king angelfish and chromis, and then ultimately more sea lions joined us at our safety stop, posing for photos amidst the sun’s rays.

El Arroyo. That afternoon we dove a site called El Arroyo where deep sand channels separate rock formations and black coral gardens. Countless scorpionfish, in a multitude of colors, dotted the reef, along with several giant hawkfish, tube-dwelling anemones and panamic cushion stars. After dark we returned to Ravi Junco, scouring the large rock formations to find sleeping fish, moray eels and scavenging pinto spiny lobsters.

El Morro II and Shareny. Two more amazing rock pinnacles were explored the following morning at El Morro II and Shareny. Each was covered in gorgonians, hydroids, sponges, black coral and large schools of reef fish. When compared to some of my previous destinations like the Socorro Islands, Cocos or the Galapagos, I found the colors and reef life here much more vibrant. While each of these locations has similar underwater topography and fish species, only the Sea of Cortez had reefs with such vitality and beauty.
The final full day of diving brought even larger numbers of sea lions, both floating in rafts on the surface and swimming en mass underwater. The rafting behavior entails several sea lions floating together at the surface, often raising one or more of their flippers out of the water as a form of thermoregulation. We found many of the usual fish suspects, as we dove two more pinncacles covered with marine life. New additions from the first dive included several finescale triggerfish protecting their nests in the sand and a pair of seahorses was discovered on the last dive of the day.

I skipped that last dive to hike and explore Salsipuedes Island and photograph the hundreds of brown pelicans lining its coastline. I also took advantage of being on dry land, using my tripod to create a panoramic image of the island itself and document several Sally Lightfoot crabs.

At sunset, I was fortunate to silhouette three pelicans on a rock outcropping against a beautiful orange sky reflected in the water’s surface. While disappointed to have
travel

missed the seahorses. I was very pleased with my land excursion and topside shots. The Midriff Islands are remote and isolated, the terrain rugged and the scenery dramatic. Spectacular sunrises are only outshined with brilliant starry nights and the complete lack of light pollution or any sign of civilization. Ours was the only boat we saw for days, and our only companions on the water were the dolphins that played in our wake during transports.

It is hard to put into words the peace and tranquility that comes from being so removed from daily life. The sights and...
The sounds of the Sea of Cortez will remain with me for quite some time, and I very much look forward to my next visit.

The author extends a special thanks to the management and crew of the Rocio Del Mar (Rociodelmarliveaboard.com) for hosting this adventure. The author also thanks Blue Abyss Photo (Blueabyssphoto.com) for assisting with underwater photo gear.

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To see more of his work and to order photo prints, please visit: Matthewmeierphoto.com

Sources:
- Wikipedia.org
- Rociodelmarliveaboard.com
- Seawatch.org/Sea_of_Cortes/Sharks_Death_Camps.php

Images this page from Salsipuedes Island. CLOCKWISE FROM LEFT: Sally Lightfoot crab on rocky shoreline; Flock of brown pelicans taking flight; Three brown pelicans silhouette against an orange sunset sky.

California sea lion barking while floating at the water’s surface near San Pedro Martir Island, its flippers out of the water to regulate body temperature.
History Mexico was home to the Maya and Aztec people, along with several other ancient American civilizations, before Spain conquered and colonized the country in the early 16th century. For three centuries, Mexico was administered as the Viceroyalty of New Spain before gaining its independence in 1821. The Mexican War of 1846 and the Mexican-French Intervention saw Mexico lose a large portion of its territory in the early 19th century. Mexico's territory was locked between the United States to the west and the Caribbean and Guatemala in North America to the east and the North Pacific Ocean to the north. The Sea of Cortez is located between the Baja California Peninsula, one of the longest peninsulas in the world, and mainland Mexico. The sea is 700 miles (1,126km) long and between 30 to 150 miles (48 to 241km) wide, with a mean depth of 2,684 feet (818m). It contains 37 islands, most of which are found on the peninsular side of the gulf. One of the largest is Isla Angel de la Guarda (Angel Island). The Gulf of California is a UNESCO World Heritage Site.

Climate The Northern Sea of Cortez has a dry and arid climate that is hot in the summer months from May to October and milder in winter from November to May. Air temperature can range from 80°F to 100°F in summer months and 60°F to 95°F in winter. Water temperature can range from 72°F to 85°F in summer and often fluctuates depending on currents. A 3mm to 5mm wetsuit is recommended for diving.

Economy Mexico has a free market economy containing a mixture of industry and agriculture. Their per capita income is one third that of the United States and roughly 50% of the population lives below the poverty line. Imports from the United States have increased from 7% to 12% since the implementation of the North American Free Trade Agreement (NAFTA) in 1994 and more than 90% of Mexico’s trade is under free trade agreements. In the recent global economic downturn, Mexico’s GDP dropped 6.2% in 2009, it rebounded with positive growth of 5.6% in 2010 and slowed to roughly 4% in 2011 and 2012. A comprehensive labor reform was signed into law in November 2012 in hopes it would prioritize structural economic reforms and competitiveness.

Currency Mexican Peso (MXN) U.S. Dollars and international credit cards are widely accepted at tourist destinations. Exchange rates: 1EUR=16.77MXN; 1USD=12.65MXN; 1GBP=19.48MXN; 1AUD=11.70MXN; 1SGD=10MXN

Population Mexico has a population of 116,220,947 (July 2013 est.)—the majority of which are Roman Catholic. The capital, Mexico City, is the second largest urban agglomeration in the Western Hemisphere at 19.319 million. Conversely, the Midriff Islands in the Sea of Cortez are mostly uninhabited.

Language Spanish is the official language of Mexico, but there is still a small portion of the population that speaks indigenous and other regional languages. English is widely spoken in tourist areas.

Travel/Visa A passport is required for entry into Mexico. Visas are not required for U.S. citizens but may be necessary for travel from other countries. Phoenix, Arizona’s Sky Harbor International Airport (PHX) is the most convenient for boarding a liveaboard boat to the northern Sea of Cortez. Shuttles run between Phoenix and Puerto Penasco (Rocky Point) where guests board the boat for their transit down to the Midriff Islands.

Voltage 110 volts, with U.S. standard 2- and 3-prong plugs are available on the liveaboard dive boats.

Cuisine Mexican cuisine has a mixture of indigenous and European influences, mainly Spanish. Native corn, beans and chili peppers are staples, to which are added beef, pork, chicken and seafood, dairy products, herbs and spices. The food is tied to local conditions and culture and varies greatly by region. Corn is the most common starch and is the most convenient for boarding. The menu on the liveaboard boat includes a variety of local dishes, fresh fish, fruits and vegetables and American style breakfasts.

Tipping A 10-15% tip is customary for shuttle drivers, dive guides and boat crew members, as well as wait staff in restaurants.

Driving Vehicles travel on the right side of the road. An international driver’s license is accepted for renting a car, and you may also be able to use your home country’s. The roads are generally paved and in good condition, though not necessarily well marked.
Fish vendor discovered selling meat at roadside market. Local environmental groups outraged by slaughter.

The Gangetic river dolphin, India’s national aquatic animal, is being slaughtered for its meat in the state of Assam. A fish vendor was discovered to be selling dolphin meat at a roadside market in Lezai-Kalakhowa in Assam’s Dibrugarh district. A local woman photographed the vendor and informed wildlife activists of Nature’s Beckon and Irab Kirab regarding the incident.

Following outrage by environmental groups, police registered a case and have photographed the vendor and informed them of the matter. The vendor was apprehended.

The Gangetic Dolphin Research and Conservation Initiative called Aaranyak, stated that the population of the Gangetic river dolphin in the Brahmaputra, the species is found around 2,000. During summer, when the water level of the Brahmaputra rises, dolphins tend to migrate upstream to the tributaries and smaller rivers. This is the time they are caught by fishermen. Apart from the Brahmaputra, the species is found in its tributaries Kuli and Subansiri, said Wakid.

The Gangetic river dolphin (platanista gangetica) was declared the state aquatic animal by the Assam government in 2008. Anyone found killing or possessing any part of the animal can be imprisoned for one to six years and fined no less than Rs 6,000.

Highly endangered, the freshwater Gangetic dolphin, or Susu, grows to a maximum length of eight feet and weighs about 100kg. Residing in one of the world’s most densely populated regions, the species is threatened due to habitat loss resulting from the creation of dams and irrigation projects. ■ SOURCE: TIMES OF INDIA

Disturbing increase in St. Lawrence beluga deaths

Researchers concerned by increase in beluga calf mortality. World’s southernmost beluga population under threat.

A disturbing increase in dead beluga whale calves washing up on the shores of the St. Lawrence River are concerning Quebec marine biologists. In 2012, researchers associated with Tadoussac-based marine mammal research group, the Groupe de recherche et d’éducation sur les mammifères marins (GREMM), discovered 17 dead beluga calves either drifting or washed a shore. According to GREMM’s scientific director Robert Michaud, that’s a record.

For years, the population was considered to be stable but Michaud worries it may now be on the decline. Based on data dating to the early 1980s, fewer than three dead baby belugas washed up on shore each summer. “Since 2005, we’ve seen an increase in the mortality of calves [and] a new kind of mortality in females—a lot of females are dying in neonatal conditions, either just before, during or after giving birth,” Michaud said. “For now, we have no simple explanation to account for [this increase]. We don’t know either what will be the impact of this mortality on the recovery of this population,” he added.

Researchers rely on data collected by Fisheries and Oceans Canada to monitor the beluga population via aerial surveys. However, cuts to the federal department’s budget have left holes in the data. Before that, the surveys were conducted every three or four years, dating back to 1988. Researchers are still waiting for the analyses of data collected in 2009 and there have been no surveys since.

“When we are tracking a small endangered population, we want to be able to detect significant change in the population,” Michaud said. “If something is going wrong with the population, we should be able to detect that rapidly. Not five, ten years afterwards.”

Due to the closure of the DFO ecotoxicology lab, researchers will not have access to data from a program monitoring the impact of contaminants on the health of belugas. “What will be the impact on the belugas?” Michaud asked. “Unless we’re able to monitor every component of the ecosystem, we won’t be able to answer that.”

Approximately 1,000 beluga whales reside in the St. Lawrence River near the mouth of the Saguenay River. The world’s southernmost dwelling belugas are an isolated population, far from their nearest neighbours in northern Quebec. Nearly exterminated by the 1950s, they only became protected in the late 1970s. ■ SOURCE: CBC NEWS

Beluga whale at the Vancouver Aquarium

SOURCE: TIMES OF INDIA

Beluga whale at the Vancouver Aquarium

SOURCE: CBC NEWS
Plastic ingestion on the rise

Around the world, endangered green sea turtles are swallowing more and more dangerous plastic, according to a recent study. The Australian study published in the journal Conservation Biology showed that ingestion of man-made debris by six of the world’s seven species of sea turtles, all of them classified as vulnerable or endangered, has increased significantly since the 1980s.

“We found that for green sea turtles, the likelihood that they classified as vulnerable or endangered, has increased significantly since the 1980s. "We found that for green sea turtles, the likelihood that © MEDASSET/MARINE PHOTOBANK has nearly doubled in the last 25 years," said the study’s lead author, Qamar Schuyler, from the University of Queensland. “Specifically for green turtles, it does appear that they are eating a lot more debris than they used to.” By reviewing scientific literature since 1985 on sea turtles ingesting rubbish in the sea, researchers found that the probability of a green sea turtle eating debris rose from 30 percent in 1985 to 50 percent in 2012. The amount of refuse consumed by leatherback sea turtles has also increased since the first data was recorded over a century ago.

Plastic debris can kill animals that eat it by blocking their stomachs or puncturing their intestines, leading to starvation and death. Ingested plastics can also release toxins, which are inherent in the plastic or absorbed while floating in the ocean, into an animal’s system. "The animal may not die of that right away but it may impact things like their reproductive cycle and that has longer-term consequences," said Schuyler. Turtles that have eaten a lot of plastic were not always washing up on the shores of the most populated or polluted areas, according to the data. This means the sea turtles were eating debris from places farther away from where they were found, said Schuyler. She added that the finding suggested a global response was needed in order to combat the problem. "What we really need to look at is a large scale movement to stop debris entering the oceans." Data collected as far back as 1900 was examined in the research, which included the analysis of 37 studies published between the years of 1985 and 2012, and showed that turtles in all regions were ingesting debris, plastic being the most common. The researchers stated in the study, "Our results show clearly that debris ingestion by sea turtles is a global phenomenon of increasing magnitude." SOURCE: PHYS.ORG

Why do female loggerhead sea turtles always return to their place of birth?

Scientists are trying to understand why turtles return to their birthplace after long distance migrations. Using molecular tools from GEOMAR Helmholtz Center for Ocean Research it was found that males and females adopt different strategies: females are faithful to their place of birth, males are less selective and mate with a multiple locations.

The Royal Society B: Biological Sciences hypothesizes that females from different places have different immune genes, suggesting that returning home is linked to advantages in parasite resistance. To address the question, GEOMAR focused on the world’s third largest nesting population of loggerhead sea turtles found in the Cape Verde archipelago. This archipelago is composed of numerous islands; here, the scientists collected tiny skin samples from turtles on four different islands for analysis. Using genetic tools they found that the female loggerheads not only return to Cape Verde to breed, but also show a remarkably accurate ability to return to reproduce at the place of their birth. This behavior has some advantages: a certain region in the turtle’s genome is responsible for fighting parasites and diseases, the so-called histocompatibility complex.

At the same time, always returning to the same area may lead to mating with relatives. However, the study found that males counteract this inbreeding risk by being less selective in choosing their mating places. The study suggests that it is important not to lose any of the nesting colonies, as each location provides important genetic adaptation for survival of the entire population.
How did the turtle get its hard shell?

For years, it has been a mystery, but researchers have made new findings that bring to light how the turtle's hard shell was formed.

Millions of years ago the sea turtle's unique shell evolved, and the key to unlocking the mystery lies with an ancient fossil of an extinct reptile in South Africa, researchers said. This fossil is helping to bridge a gap of 30 to 55 million years.

Called Eunotosaurus africanus, the ancestor of today's turtle is estimated to be about 260 million years old and has major differences to other fossil relatives recently discovered.

Although a hundred years have passed since Eunotosaurus was discovered, new research published in the journal Current Biology has just analysed anew the differences between it and other turtle fossils.

Skeleton of Eunotosaurus
Made up of about 50 bones, the turtle's shell is formed by the fusing together of the ribs, shoulder bones and vertebrae. The formation of modern-day turtle shells can be seen in the developing embryo. First the ribs widen, then the vertebrae broaden, then an outer layer of skin grows on the edge of the shell.

"The turtle shell is a complex structure whose initial transformations started over 260 million years ago in the Permian period," said Dr Tyler Lyson of the Smithsonian Institution and Yale University and lead author of the study. "The shell evolved over millions of years and was gradually modified into its present-day shape."

A 210-million-year-old turtle fossil was found with a fully developed shell. However, another fossil found in China (Odontochelys semitestacea), which was 10 million years older, had a carapace that was not fully formed.

A major difference is that the ribs of the modern turtle are modified into the protective shell, whereas those of the ancient Eunotosaurus were mostly unmodified ribs.

"Eunotosaurus is a good transitional fossil found with a fully formed shell," said Dr Lyson. "One of the direct consequences of forming a protective shell by broadening and locking their ribs is that turtles cannot use their ribs to breathe," said Lyson. "Instead turtles have developed a unique abdominal muscular sling that wraps around their lungs and organs to help them breathe."

The importance of the findings was highlighted by assistant professor Judith Cebra-Thomas of the department of biology at Millersville University in Pennsylvania, not one of the authors of the study.

"The turtle shell is considered an evolutionary novelty, which means that there are no closely analogous structures in related animals," said Cebra-Thomas. "That leads to the notion that such things cannot occur through normal evolutionary processes. But, when you examine it in detail, you can see the series of steps, each of them explainable through small changes that gradually add up to the novel structure."

SOURCE: BBC
Shark tales

Gatherings of the Gentle Giants

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 vulnerable 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...
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 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);
shark tales

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, whole 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’

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