



Marti the Hammerhead Shark

This book tells the story of a young scalloped hammerhead shark's journey from her island home in the Galapagos Islands, Ecuador, to Cocos Island, Costa Rica, a vast journey across the Pacific Ocean.

Along the way, our intrepid shark encounters other marine friends who share the magical but perilous adventure with her. A group of scientists track this incredible journey, hoping to discover more about the migration of species along this ocean 'swimway' that will enable them to protect our brave explorers on future journeys.

Follow the journey of Marti the hammerhead as she ventures into the unknown.

Proceeds from this book will support vital conservation work in Galapagos.



A Galapagos Journey



Marti the
Hammerhead
Shark



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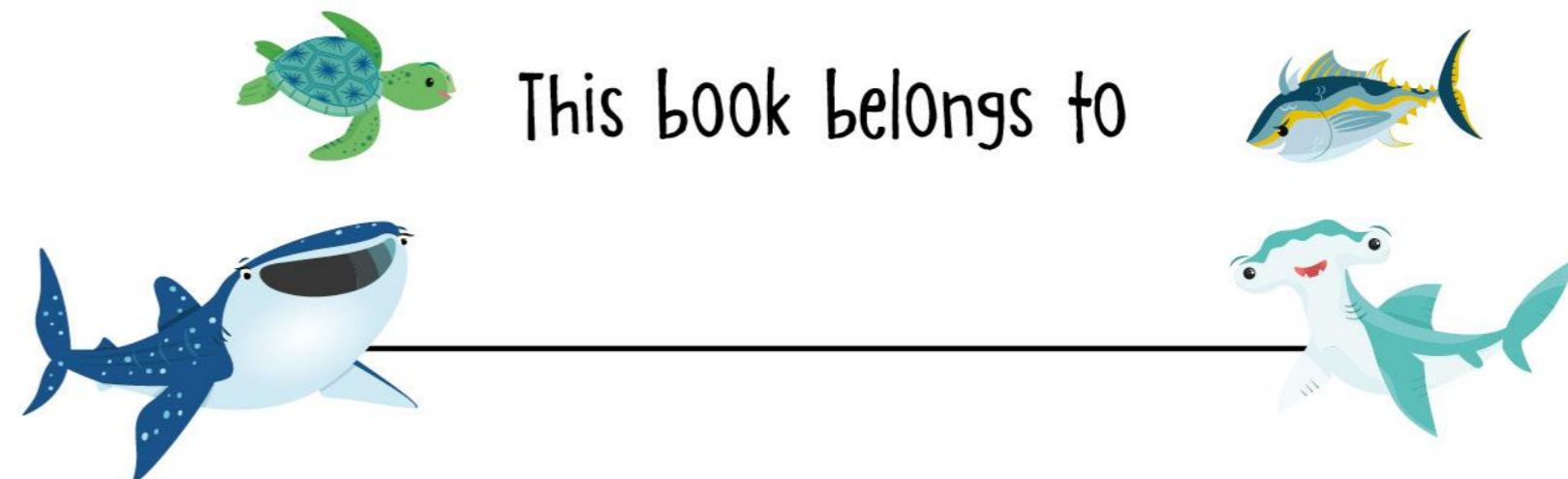


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A catalogue record of this book is available from the British Library.



Early one January morning, the Galapagos sun rises. Rays of sparkling sunlight shine through the **mangrove lagoons** of San Cristobal island.

Creatures appear from hideaways where they spent the long night avoiding **predators**. Colourful sally lightfoot crabs skip along the water's edge. Shoals of small fish dart between roots. An eagle ray drifts slowly by.

Suddenly, a grey shape speeds past in a cloud of dust, chasing a tasty squid. It swiftly turns its hammer-shaped head, swallowing the squid whole; its last meal until twilight returns.

The grey shape is a young shark, a scalloped hammerhead pup called Marti.

The safe lagoons have been her home for nearly four years. They protect her from predators and strong **ocean currents** out at sea.

Marti knows every part of them.



Small lava herons stare into the water, motionless, waiting to catch a fish. Brown pelicans balance their huge bodies on waxy-leaved branches.

Many other marine animals share their **habitat** with Marti.

Blacktip shark pups enjoy the shelter of tangled mangrove roots.

Small fish and **invertebrates** feast on fresh **nutrients** washed in on each tide.

Graceful green turtles bask at the surface, resting after a night of laying their eggs on nearby sandy beaches.

A Galapagos sea lion zips around chasing fish.

Soon the lagoon will change. Many of the animals will leave, never to return.



Marti peers through the mangrove branches towards the deep blue ocean. She feels restless and frightened. Other sharks in the nursery feel the same.

It is time to say goodbye to her home. She must leave and enter the mysterious world of the open ocean. Worrying thoughts dance in her mind.

Is she strong enough to battle the stormy ocean currents?


What dangerous predators lurk out there?

Will she be fast enough to escape them?

How will she find enough food during her journey?

Will she be able to find her way?

The urge to leave is too powerful to ignore. She must go.



Marti swims swiftly through the water, moving her powerful tail from side to side. Kicker Rock appears in front of her: a giant rockface rising high into the sky.

Below the waves, swirling **shoals** of fish dodge the jaws of speedy sea lions. Hawksbill turtles munch greedily on colourful coral and sponges.

Blue-footed boobies dive off the Rock like arrows, sharp beaks spearing unsuspecting fish. Magnificent frigatebirds circle overhead, hoping to steal food from other birds.

Marti is startled as a mass of bubbles suddenly rises from underneath. They hit her body.

She can see strange shapes moving among the rocks below. Jets of bubbles stream from each one. Long black fins power them through the water.

Frightened, she swims away to join the other sharks.

What is Marti doing?

Marti is going on a long journey, or **migration**.

Why is she migrating?

Marine animals migrate in search of food or to find a mate.

Where is Marti going?

She is going from the Galapagos Islands, Ecuador to Cocos Island, Costa Rica. They are both in the Eastern Tropical Pacific.

When will she migrate?

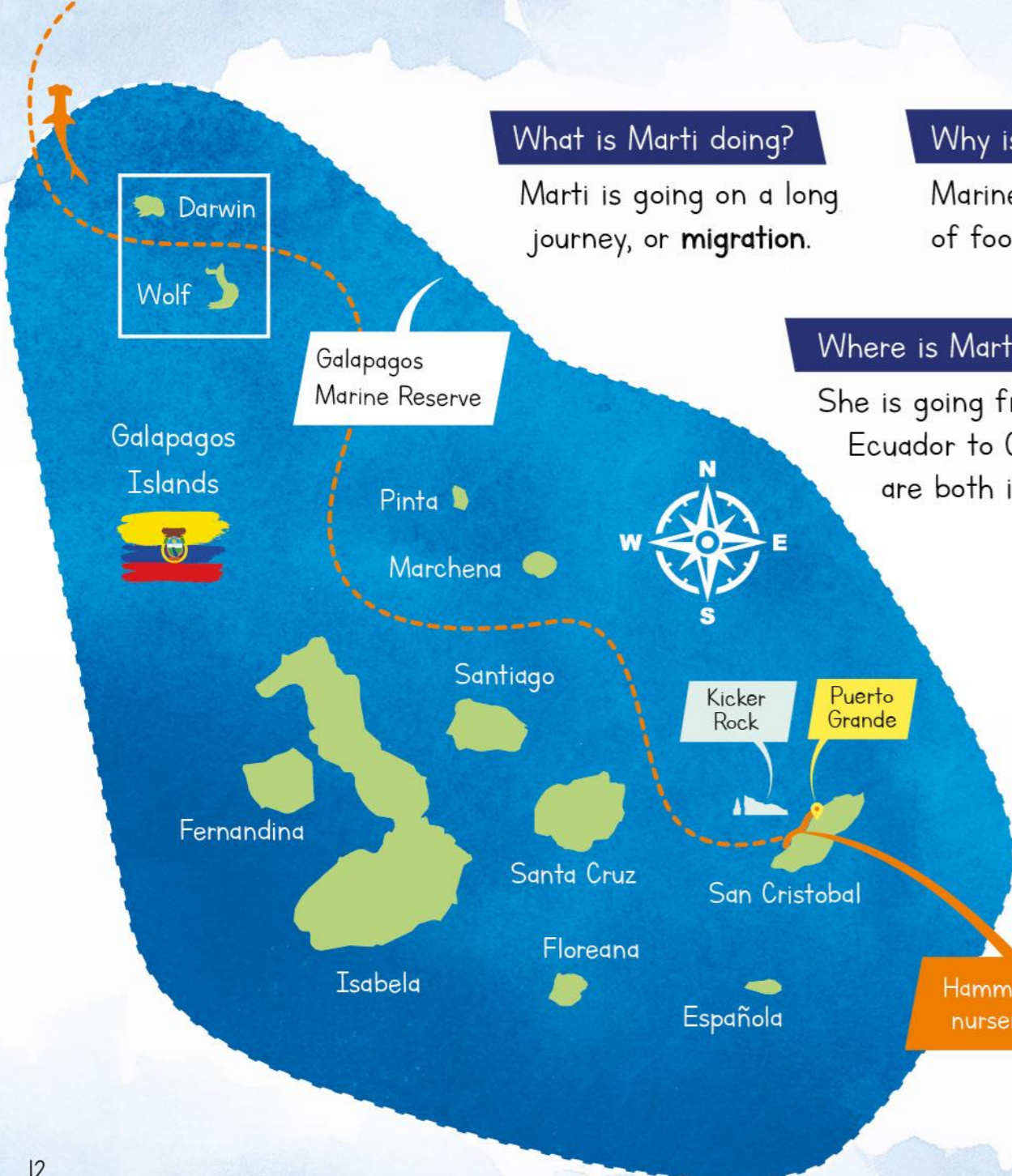
Hammerheads in Galapagos usually begin their migration when the warm season begins in February.


Will she return?

Yes. Marti will make these **seasonal migrations** every year between Galapagos and Cocos. She will leave in February and return by July. When she returns, she will not go back to the lagoons, but will stay around the islands of Darwin and Wolf.

How does she know when to go?

We are not sure. Scientists think it may be when the waters begin to get warmer. We still have many things to discover about their lives.





Leaving Kicker Rock behind, Marti begins her epic adventure. She passes Santa Cruz island and tiny Pinta island.

A colossal sunfish glides through the water past her. As it reaches the surface it turns onto its side. Its flat body soaks up the sun's warm rays.

Marti swims further and further until she reaches the top of the Archipelago.

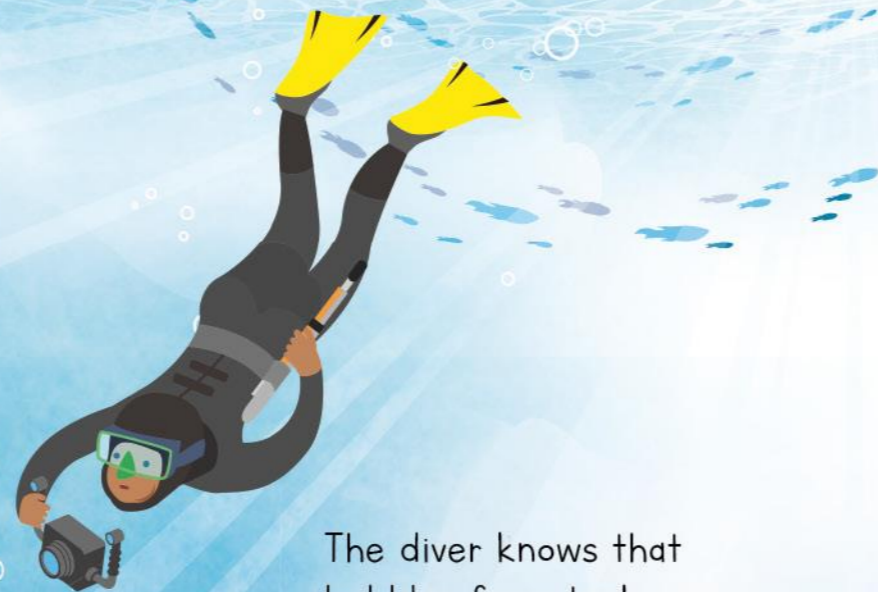
She forgets her hungry belly and tired muscles as she reaches Darwin's Arch. What a sight! Before her lies the most spectacular scene – an underwater oasis of sharks.

Hundreds of hammerheads circle the deep ocean currents. Silky and Galapagos sharks are amongst them.

Marti's sense of excitement grows as she joins the increasing school of sharks. They have a long journey ahead.

A diver suddenly appears in front of Marti. He has approached in the blind spot at the front of her head.

She quickly turns to swim away, alarmed by his sudden appearance. She doesn't feel the tag being swiftly attached to her dorsal fin.



The diver knows that bubbles from tanks scare sharks. He has learned to free-dive and can hold his breath underwater!

What has just happened?



Marti has just been fitted with a special tag. It allows scientists to track her movements and migration route.

Why is Marti being tagged?

Parts of the Eastern Pacific, including the Galapagos Islands and Cocos Island, are **Marine Protected Areas (MPAs)**. Animals in these areas are protected from fishing activities and **by-catch**.

When they leave MPAs, animals are no longer protected from these threats.

Scientists want to learn more about the migratory route of Marti. They want to protect her and other migratory species.

Attaching **acoustic** and **satellite** tags to animals allows the scientists to track their position. Signals from tags are sent to receivers on the sea bed or in space!



Scientists hope to protect their migratory routes by creating a special 'swimway.' It will stretch from Galapagos all the way to Cocos.



Near the protection of Darwin's Arch, Marti spots a dark shadow in the distance. It grows bigger and bigger as it approaches, filling the whole ocean before her. She freezes. What could it be?

A cavernous mouth opens wide, sucking hundreds of tiny **plankton** in one large mouthful. It is a whale shark – the biggest fish in the ocean! Marti has heard stories of these majestic giants and their mysterious appearance every year in Galapagos.

Beautiful white spots cover its body. She knows each whale shark has its own unique spot pattern – a shark 'fingerprint!' Gazing up as it swims overhead, she decides to follow. She is curious to learn more about the giants of the sea.

The whale shark, Lucia, notices the small hammerhead following her. She slows to let it swim alongside her, knowing it is beginning its first migration.

The sun sets in the glowing orange sky. Marti leaves the safety of Galapagos behind, swimming side by side in the shadow of her new protector.

Lucia has migrated between Galapagos and Cocos Island many times. On this occasion, she is happy to have company. She can help guide young Marti on her journey.

As the last speck of land disappears over the horizon, a faint sound echoes through the water. A beautiful song swirls on the ocean currents.

"It is the song of the humpback whale," Lucia explains. "Males are calling from hundreds of miles away on their journey to warmer waters." The soothing sound follows them.



A flash of silver suddenly zooms past, leaving behind a trail of bubbles. Another streak of silver appears as they swim into a shoal of yellowfin tuna.

"Tuna are one of the fastest fish in the sea," says Lucia. "They can grow bigger than you are now! Sadly, there are not many left."

Marti watches in disbelief as the tuna circle around a shoal of fish. They gobble up every single one.



A smaller tuna called Tulio speeds off towards a young turtle ahead. It glides peacefully through the water.

Tulio playfully leaps high out of the water as Tico the turtle surfaces to breathe. Tulio's body flashes silver in the sun before disappearing below the waves in a big splash.



Soon they are swimming together; marine travellers on an epic adventure.

Spectacular underwater mountains guide the travellers closer to Cocos Island. Marti swims ahead excitedly to join Tulio who is showing off his strong sprint muscles and speed.

As she tells tales of adventure to Tico, Lucia notices a familiar sight in the distance. She pauses. A look of alarm crosses her face. She has seen those nets before. She knows what tragedy they can bring.

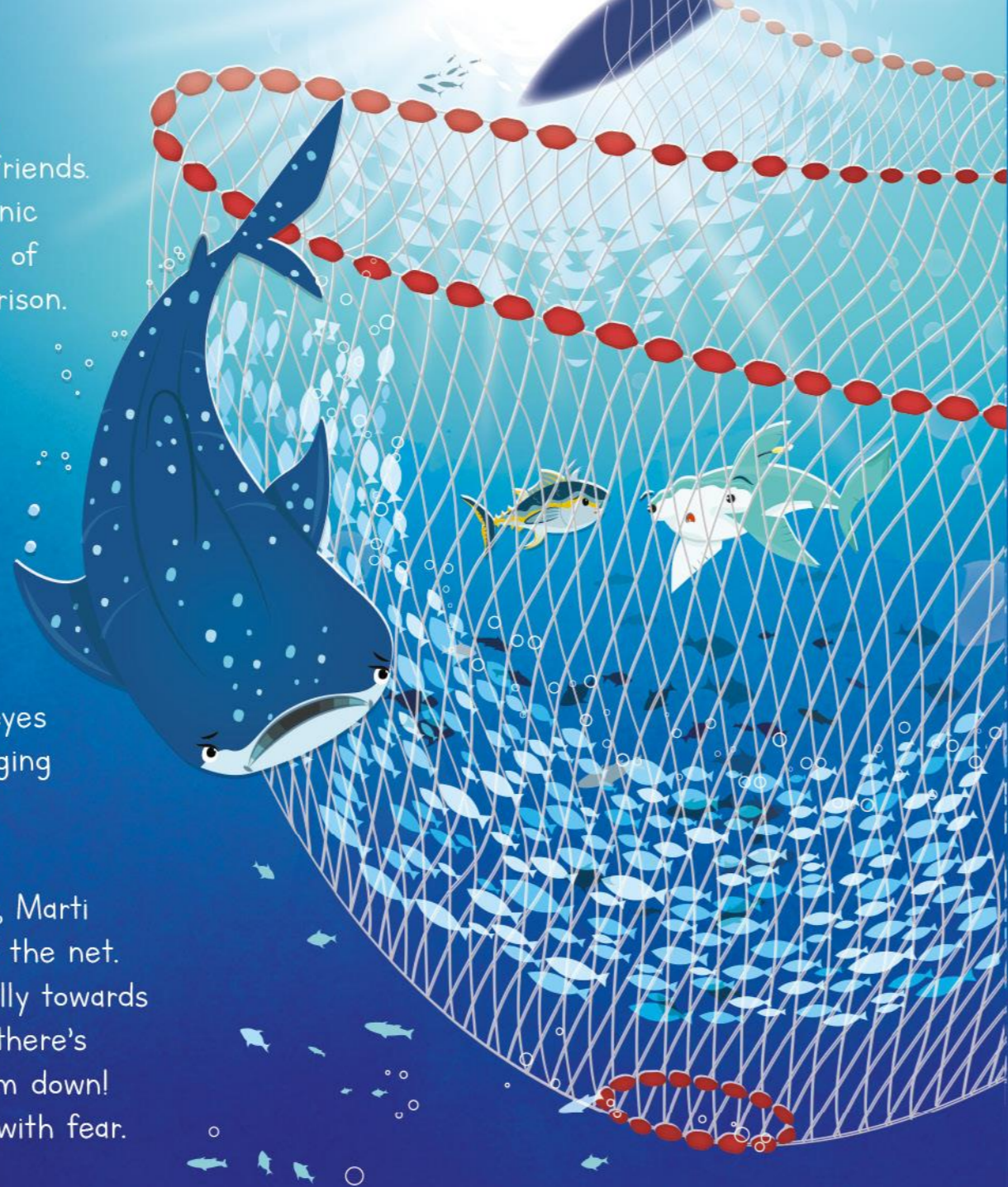
Lucia remembers calling to her whale shark friends. It was too late. They hadn't heard her warning and had swum straight into disaster, trapped in the huge nets of an industrial fishing boat. Lucia never saw them again.

Feeling angry, she realises she cannot let this happen again. Marti and Tulio will not be captured.

Lucia powers her immense body through the water towards her friends. They are trapped! Bubbles of panic cloud the ocean. Terrified shoals of fish struggle against their net prison.

Think slowly, Lucia tells herself. There must be a way out. She remembers! Her whale shark friends had tried to swim to the bottom of the net before it closed shut. Marti and Tulio must do the same! She begins to swim down, looking into the eyes of her terrified friends, encouraging them to copy her movements.

Despite the panic and confusion, Marti spots Lucia on the other side of the net. She sees her swimming frantically towards the sea bed. She peers down – there's a gap! Of course, they must swim down! She turns to Tulio. He is frozen with fear.



Marti pushes him with her scalloped head, guiding him towards the bottom of the net. The gap is getting smaller and smaller. Tulio squeezes through. It is too small for Marti's wide head!

Marti hears the calls of her friends. With a final rush of determination, she hurtles towards the small gap. She turns onto her side as she reaches it. Her tail flicks as the hole in the net snaps shut. She has made it!



As the nets lift higher, Tulio's relief turns into shock. He realises his shoal is captured. There is nothing he can do.

The friends continue their journey towards Cocos. They feel lucky to have escaped and take special care of Tulio, who is still deeply upset from the loss of his shoal.

As they near Cocos, a sense of excitement builds. A magnificent underwater world appears before them!

A rainbow of colours and bright corals sparkle in the crystal-clear water. Huge shoals of tropical fish swim alongside silky and hammerhead sharks. Some sharks slow down and turn onto their side. They enjoy being cleaned by smaller fish, who nibble on irritating parasites on their skin.

Tiger sharks stealthily cruise the reef, searching for animals that make easy prey.

Now the friends relax in the safety of Cocos. They feast on the plentiful food and enjoy the company of others. Soon it will be time to move on. As more hungry tiger sharks arrive, Tico will leave for the shores of Malpelo in Colombia. Tulio will explore the open ocean once more, finding a new shoal to race with.

When Lucia leaves for the rich waters of Peru, Marti spends more time with her new Cocos friends. At night she heads into deeper waters, bravely dodging fishing lines to feed on squid.

As the season changes Marti will become restless again. She will be ready to make the return journey. Her adventures will begin again. In years to come she will be ready to have pups of her own. The information provided from the tags on Marti and other sharks will help scientists to make their journeys safer in the future.

The Cocos-Galapagos swimway

In 2006, scientists working in the Galapagos Islands teamed up with those working at Cocos Island in Costa Rica, and elsewhere in the region, to form a network called MigraMar.

They have spent the last decade trying to understand the movements of sharks, turtles and other threatened marine migratory species, so that governments can design better protection.

One of their most important findings is that several species of shark and turtle move between the protected areas of Cocos and Galapagos, along a chain of underwater mountains which connects them, called the Cocos Ridge.

MigraMar, supported by Galapagos Conservation Trust, are working with partners and the governments of Ecuador and Costa Rica to design a swimway that will protect threatened species from getting caught by industrial fishers as they migrate between the two protected areas.



Tags

It isn't just Marti that has been tagged by scientists to find out where she goes. Whale sharks like Lucia, and turtles like Tico are also tagged. Both whale sharks and turtles are usually given satellite tags.

On whale sharks they are attached to their dorsal fins which allow scientists to see where they go, but also how deep they dive.

On turtles they are attached to the back of their shells. The tracks show scientists where they go between nesting and feeding areas.



Species fact files



Hello, I am Tulio the yellowfin tuna, or atún de aleta amarilla in Spanish.

My conservation status is *Near Threatened*. I can grow to 2.1m and live for 4-5 years.

Did you know?

I am a top predator and one of the fastest fish in the sea. This is because I have special blood vessels that keep my body warmer than the chilly ocean, so I can swim at super speeds!



Hello, I am Tico the Galapagos green turtle, or tortuga verde in Spanish.

My conservation status is *Endangered* and I am native to Galapagos. I can grow up to 1.5m and live for more than 80 years.

Did you know?

The females of my species leave the sea to make their nests. Sometimes they return to the same beach where they hatched. They can lay between 100 and 200 eggs!



Hello, I am Marti the scalloped hammerhead shark, or tiburón martillo in Spanish.

My conservation status is *Critically Endangered* and I am native to Galapagos. I can grow to over 3m and live for around 30 years.

Did you know?

I am a very social shark. I enjoy swimming with my friends in huge **aggregations**, sometimes there can be 500 of us! I communicate by using my body, I like to shake my head and spin my body around whilst swimming – shark dancing!



Hello, I am Lucia the whale shark, or tiburón ballena in Spanish.



My conservation status is *Endangered*. I am an annual visitor to Galapagos, but I don't stay there. I can grow up to 12-15 m and live for 100 years.

Did you know?

I am the world's largest fish! Each year I journey to Galapagos along with my female friends. I am proud to be ovoviviparous. This means I produce eggs that hatch inside me. One of my friends was once found with 304 young inside her – impressive!



Glossary

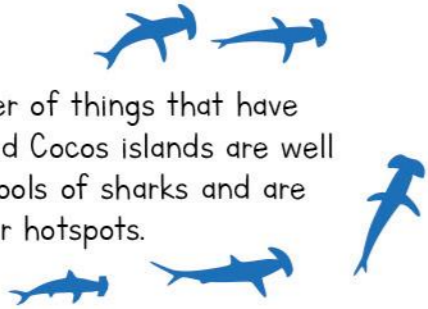
Acoustic tags

Acoustic tags are special tags fitted to an animal. They send and record signals to a receiver. Data from the tag is collected by scientists.



Aggregation

An aggregation is a cluster of things that have come together. Darwin and Cocos islands are well known for their huge schools of sharks and are called aggregation sites or hotspots.



Archipelago

An archipelago is a group of small islands, such as Galapagos.



By-catch

By-catch is when animals are accidentally caught in fishing nets and gear that are used to catch other species. Animals such as turtles, whales, sharks and dolphins often get caught in them.



Dorsal fin

The dorsal fin is on the back of a fish and some marine mammals. Its main purpose is to help stabilise the animal in the water.



Habitat

A habitat is the environment in which an organism lives, including biological and physical characteristics.



Industrial fishing boat

An industrial fishing boat is one that is equipped for large-scale fishing. They can catch many different species using different methods.



Invertebrates

Invertebrates are animals without a backbone. Marine invertebrates include species such as jellyfish, corals, sea anemones, starfish and crabs. Some invertebrates have evolved a hard shell or exoskeleton.



Mangrove lagoon

A mangrove lagoon is an area of salt water that is protected from the sea by mangrove trees. It is an important habitat for many young sea creatures. The trees provide protection from large predators who can't move in between the tree roots.



Migration

Migration is the movement or journey of species from one place to another, usually for feeding or finding a mate.



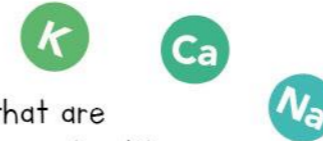
Marine protected area (MPA)

A Marine Protected Area is an area that offers protection to marine animals.



Nutrients

Nutrients are substances that are needed for growth and staying healthy. Proteins, vitamins and minerals are nutrients.



Ocean current

An ocean current is a continuous movement of ocean water from one place to another. A current is formed by wind, gravity of the moon and water temperature.



Plankton

Plankton are small or microscopic organisms that drift and float in water. Many animals have adapted to feed on plankton, including whale sharks.



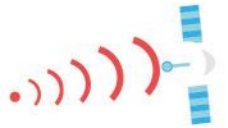
Predator

A predator is an animal that kills and eats other animals.



Prey

Prey is the name given to an animal that is hunted and killed by another.



Satellite tags

Satellite tags are special tags fitted to an animal. They send and record signals by satellites in space. For marine animals, the signal is sent when the animal nears the water's surface. Data from the tag is collected by scientists.

Seasonal migration

Seasonal migration is the movement of species from one place to another at different times of the year.



Shoal

A shoal is a large group of fish swimming together.



How you can help



If you are in Galapagos, you can record the sharks and turtles you see using the Shark Count app. You can download the app from sharkcount.org

Choose sustainable fish! Make sure you buy your fish from responsible fishers.



If you can't reuse it, always put your rubbish in a waste or recycling bin, so that it does not end up in the ocean.

DISCOVERING GALAPAGOS

Discover more about Galapagos species using our online resources via the Discovering Galapagos website discoveringgalapagos.org.uk

Galapagos Conservation Trust is the only UK charity focused solely on the conservation of the Galapagos Archipelago.

We support impactful Science & Conservation programmes such as protecting the endangered sharks of Galapagos. We also deliver community outreach across the Archipelago through our Education & Sustainability programmes.

By buying this book, you are helping us to provide 1000 books for children in Galapagos under 11 years old.

Thank you for your support!



To find out how you can get involved to support conservation in Galapagos, please visit our website galapagosconservation.org.uk or follow us on social media – we're on Facebook, Twitter and Instagram.