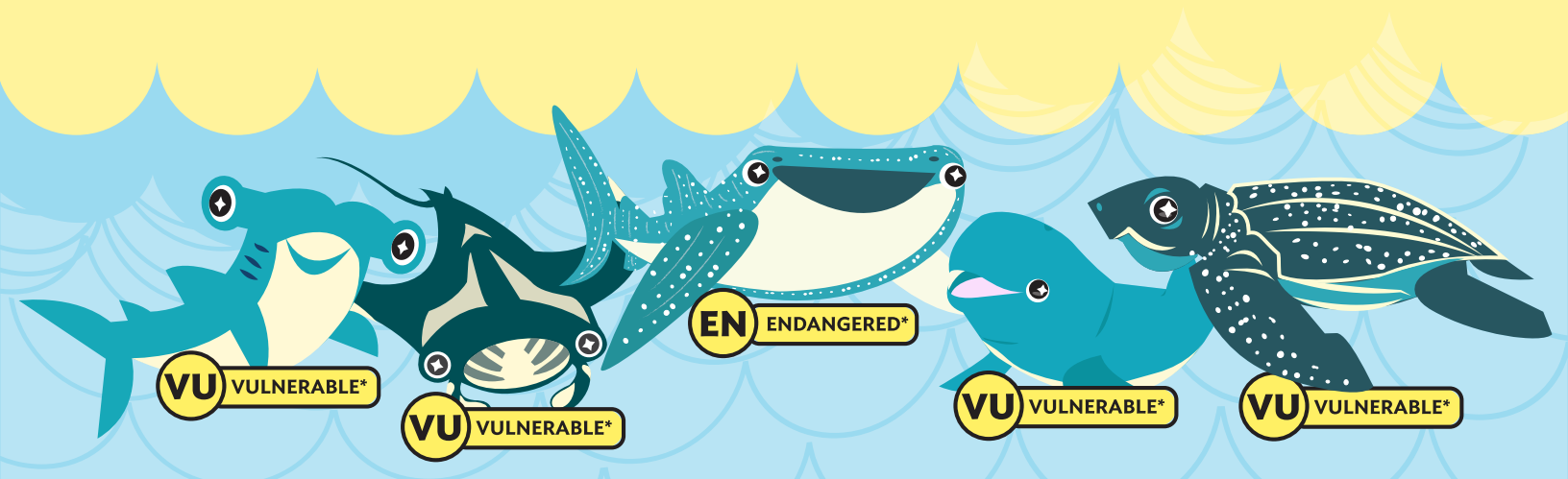
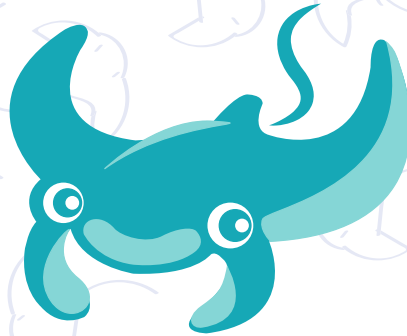




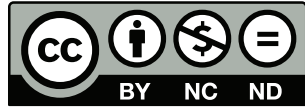
**treasures of the
coral triangle**
MINIGRAPHICS





**treasures of the
coral triangle**
MINIGRAPHICS

I



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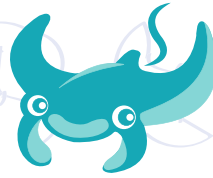
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Feature articles written by Panji Brotoisworo with edits by Raul Roldan. Art created by Dana Salono.

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treasures of the
coral triangle
MINIGRAPHICS

About

The [Treasures of the Coral Triangle Minigraphics](#) series showcases 10 protected marine wildlife in the Coral Triangle. It aims to raise awareness about species at risk.

The series is a bite-size and shareable version of the [Philippine Protected Aquatic Posters](#), it highlights the importance, threats, laws, and practical ways to protect threatened marine species. The series includes one feature article and minigraphics for each animal.

Module 1 features five threatened marine animals namely the whale shark, the manta ray, the hammerhead shark, the leatherback turtle, and the Irrawaddy dolphin.

Who can use it?

Educators, students, science club members, and marine wildlife advocates can use the Treasures of the Coral Triangle Minigraphics series for classroom, or club activities, lectures, and campaigns to increase one's knowledge of marine animals.

How to use it?

Originally designed to raise awareness online, the modules are [available for download](#) and can be used for both online and on-the-ground awareness campaigns.

The module is designed to gamify learning and engage participants through quizzes. There are two questions for each animal. The first question introduces the mystery animal and the second question pertains to the animal's unique attribute or importance.

Contents

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Whale Shark

The Gentle Giant



I am the world's biggest fish.

WHAT AM I?



“Can you guess what I am?”

I only eat small creatures like plankton or shrimp but I can still grow to be the biggest fish in the sea.”

whale shark

the gentle giant



**can be as
heavy as 6 cars**



**eats small creatures
despite being huge**



**endangered
(IUCN Red List)**

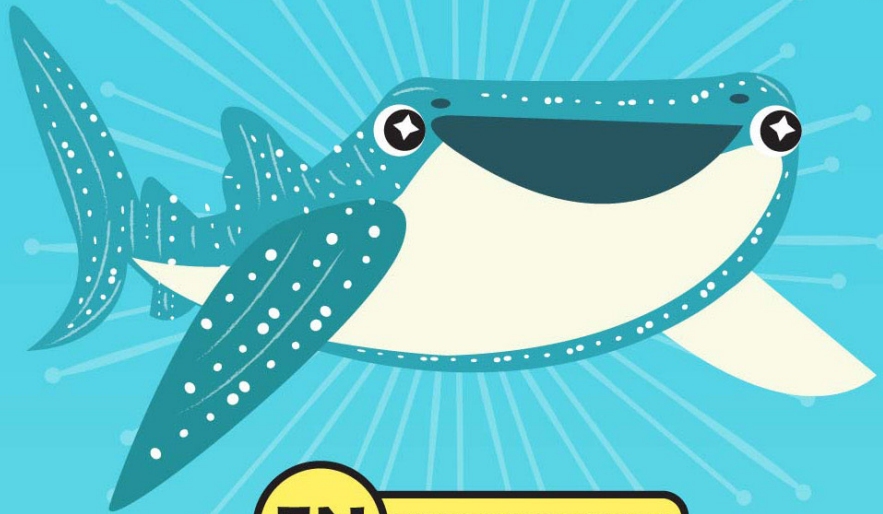
"I'm the whale shark!"

I'm a gentle giant and people like swimming with me. It was fun at first but sometimes they get too close or play too much. I've seen other whale sharks have cuts and bruises from bad ecotourism. It's #marinemadness!"

whale shark

the gentle giant

“I’m prevent plankton population from blooming!”



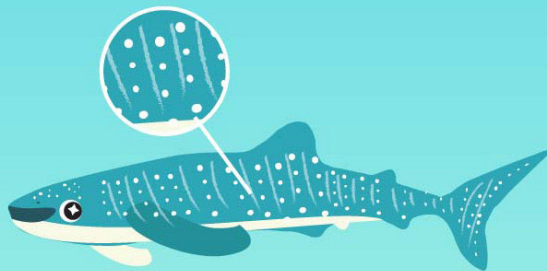
EN ENDANGERED*

*FACING A HIGH RISK OF EXTINCTION IN THE WILD



UNIQUENESS

Biggest fish that can be as heavy as 9000 kg (6 cars!) and as long as 60 ft but eats small animals.



Each whale shark has a unique pattern of spots like how each human has a unique fingerprint.



MAJOR THREATS

- Improper tourism practices
- Hunted for meat, oil, & fins
- Accidentally caught in nets



DO

Support properly managed ecotourism sites.



DON'T

Buy whale shark products.



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Whale Shark: The Gentle Giant

- Scientific name: *Rhincodon typus*
- Docile nature and huge size make them popular ecotourism attraction
- Harmless to humans and feed exclusively on small creatures despite their big size
- Considered endangered by the International Union for Conservation of Nature (IUCN)

Distribution

Whale sharks are nomadic creatures which means that they like to travel and do not like staying in a single location. Tagged whale sharks have been observed to travel [thousands of kilometers](#), travelling from country to country in search of food. They like to live in warm tropical waters and also tend to be found near the water surface where their favorite food – plankton, tiny shrimp and fish, fish eggs, and jellyfish – are abundant.

The animals gather in different [areas around the world](#) which are rich in nutrients to feed on seasonal aggregations of their food. Within the Coral Triangle, popular whale shark diving sites can be found in Cebu tropical krill and baitfishes (Ningaloo Reef, Australia), red land crab larvae (Christmas Island), fish eggs and larvae (Mexico), and shrimps (northern Borneo and Philippines). This suggests that these areas form a portion of the whale shark's critical habitat.

It is present in all Southeast Asian countries in the Coral Triangle which are Indonesia, Malaysia, and the Philippines or the CT3.

Why they are important

Whale sharks help keep the water clean by keeping the plankton population in check. Plankton are microscopic plants and animals that live near the surface of the water, they are an important primary producer in an ecosystem. However, if the plankton populations get too big then it can result in [harmful algal blooms](#) which can block sunlight for marine plants that depend on photosynthesis. When the plankton in these blooms reach the end of their life, they will die off in massive numbers. Their decomposition lowers the oxygen level in the water which suffocates the fish.



[“Oslob Whale Shark” by Klaus Stiefel \(CC BY-NC-ND 2.0\)](#)

Whale sharks are a major ecotourism attraction in many parts of the world such as Donsol, Philippines and Cenerawasih Bay in eastern Indonesia.

They are much more valuable alive than killed for their fins and body parts. In Australia, the conservative value for each living whale shark is estimated at [\\$282,000 Australian dollars](#). Ecotourism practices around whale sharks have created employment for local communities and have boosted local economies. After whale sharks were legally protected in the Philippines in 1998, an average of [7,500 paying visitors were coming to the town of Donsol in Sorsogon, Philippines](#) to encounter whale sharks. Since 2002, more than 300 jobs have been created and over 200 fishermen have gained steady, additional employment as guides and boat operators as a result of whale shark ecotourism.

Biology

Whale sharks can [weigh up to 9,000 kg](#) – that’s like the weight of five to six cars! They reach this size by feeding on small creatures such as plankton,

anchovies, or shrimp. They swim near the surface of the water and open their mouths to take in all the food. The water gets filtered through their gills which acts like a net to catch the plankton while allowing the water to pass through, this is a process known as filter feeding.

Each whale shark has a unique pattern of spots which is easily viewed from above; this is comparable to how each human has a unique fingerprint. This allows researchers to easily identify certain whale sharks and allows us to keep track of their life.

Threats

Demand for whale shark products has made this a very valuable species for hunters; they are hunted for their meat, oils, and fins. There is still a big market for shark fin soup in Asia which can often sell for up to [\\$100 USD per bowl](#). While the fins can be used for food, they are more often used as [trophy displays in restaurants](#) to impress customers due to their inferior taste. By-catch is a threat to them and there have been a lot of instances where they get tangled in purse seines, longlines, and gillnets.

The whale shark's fame makes it prone to harmful tourism practices by tour operators who do not practice proper ecotourism. Bad habits such as feeding or touching them can negatively affect their natural migration, feeding, and reproductive patterns which can have a huge impact on their populations. If tourist interactions are not properly managed, whale sharks can develop diseases from spoiled food given to them, get injured by excited tourists and divers or get [hit by boat propellers](#). The whale shark ecotourism industry in Oslob, Philippines is a controversial site due to it [not following proper practices](#) which also ensure the safety of the whale shark population there.

What we can do

Follow proper guidelines when seeing whale sharks in their natural habitats. According to a [campaign poster](#) made by the World Wildlife Fund (WWF), some of the things people should refrain from doing are feeding them, getting too close, using flash photography, and touching them. It is good to research about the ecotourism site before going there to see if other people encountered bad ecotourism practices. The best way to discourage bad practices is to not support them. An example of a sustainable whale shark site would be in [Donsol, Sorsogon](#) which is overseen by the WWF themselves.

- Do not eat shark fin soup, whale sharks can be used for shark fin soup their and their fins are used for display in restaurants to lure customers in.

- Report any sale or capture of a whale shark to your local authorities. Whale sharks are currently a protected species in Malaysia, Indonesia, and the Philippines.

Laws that protect whale sharks in the CT3

Malaysia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Fisheries Act of 1985](#)
- [Fisheries \(Control of Endangered Species\) Regulation of 1999](#)

Indonesia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Indonesia ratified CITES into a Presidential Decree \(No. 43/1978\)](#)

Philippines

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Bureau of Fisheries and Aquatic Resources FAO 193](#)
- [Philippine Fisheries Code of 1998 \(RA 8550\)](#)
- [Wildlife Resources Conservation and Protection Act \(RA 9147\)](#)

Resources

- [Read the online feature.](#)
- [Download the minigraphics.](#)
- [Download the Treasures of the Coral Triangle Modules.](#)

Quiz

If you wanted to create an ecotourism business to share the beauty of whale sharks how would you make sure that your business is not harmful to them?

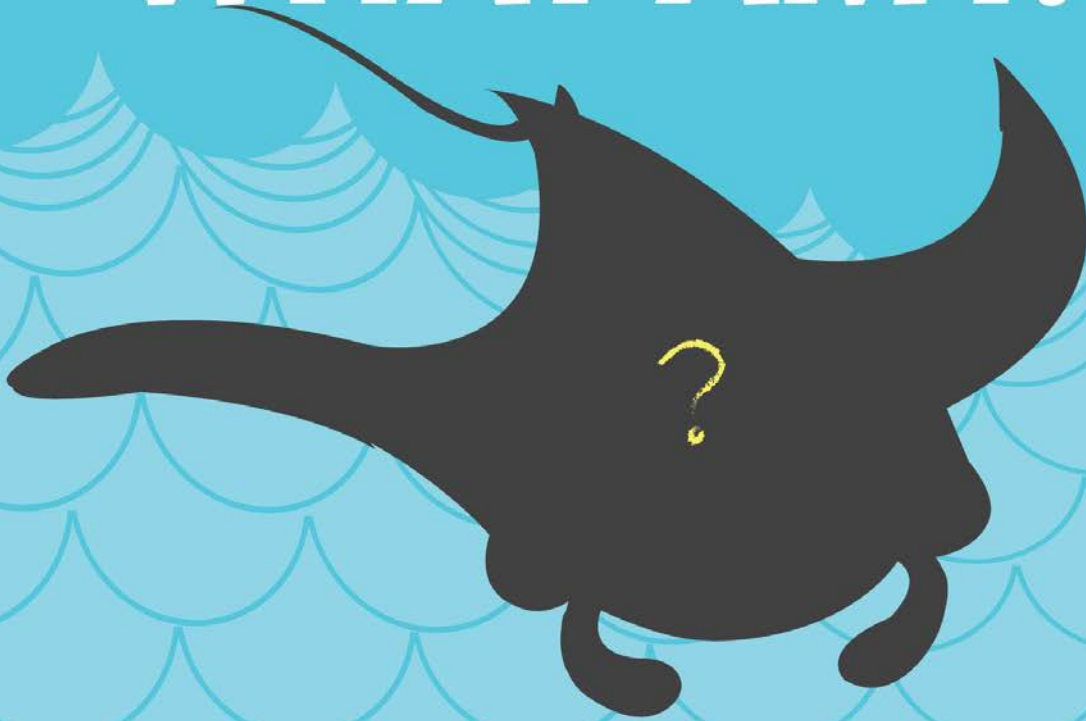
Manta Ray

The Devilfish



I'm the sea's acrobatic devil.

WHAT AM I?



“Can you guess what I am?”

I'm can leap two meters from the water surface like an acrobat!”

manta ray

the devilfish



**gentle and huge,
it has become a
popular tourist
attraction**



**hunted for its
gills and meat for
traditional medicine**



**vulnerable
(IUCN Red List)**

“I’m the Manta Ray!

People in the #CoralTriangle like to swim with me but others want me for my gills and meat. This is #marinemadness! Now I’m more vulnerable to extinction.”

manta ray

the devilfish

“I love plankton and I keep them from over booming!”



*FACING A HIGH RISK OF EXTINCTION IN THE WILD



UNIQUENESS

Biggest of the ray species with a maximum life span of 50 to 100 years.



It can leap as high as 2 meters from the water. The reason why it does impressive acrobatics is still unknown.



MAJOR THREAT

Hunted for its gills and meat which are used for traditional Chinese medicine.



DO

Report any sale of manta ray products to authorities.



DON'T

Buy manta ray products such as leather wallets or belts.



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Manta Ray: The Devilfish

- Genus: *Manta* spp.
- Docile nature and huge size makes them popular ecotourist attractions
- Hunted for its gill parts and its meat for use in traditional Chinese medicine
- Considered to be vulnerable by the International Union for Conservation of Nature (IUCN)

Distribution

Manta Rays are found in warm tropical and temperate waters all over the world but the size of their population isn't exactly known. Within the Coral Triangle, only Indonesia has up to date information on manta ray numbers which number [at around 300](#) while other subpopulations around are estimated to only have less than 1,000 individuals. They often migrate to different areas in search of food and warm water and it has been estimated that they can easily travel [hundreds of kilometers each day](#). They prefer to stay close to the surface of the water because it is where their favorite food, plankton, is located.

They are found in all Southeast Asian countries in the Coral Triangle which are Indonesia, Malaysia, and the Philippines or CT3.

Why they are important

They feed on plankton and help keep the water clean which helps marine plants that depend on sunlight through photosynthesis. [Plankton blooms](#) occur when there are too many nutrients in the water or when there are no predators to eat the plankton.

They provide a sustainable source of income for coastal communities that use them as an ecotourism attraction. It is estimated that the economic value that a single manta ray provides is [\\$1 million USD in income over its life compared to \\$40 to \\$500 when killed for its meat](#). Indonesia has recognized the benefits of manta tourism to the local economy and has completely banned the hunting of manta rays within its exclusive economic zone (EEZ). This has created the [world's largest sanctuary for manta rays](#) that is nearly 6 million square kilometers big and aims to protect its \$15 million tourism industry.



[“Manta ray diving” by Henrik Winther Andersen \(CC BY-NC-ND 2.0\)](#)

Biology

Manta rays belong to the family Mobulidae and they are often confused with mobula rays which are smaller. One of the distinct differences that distinguishes the mobula ray and the manta ray from one another are the cephalopods that are located in front of their mouths. The manta ray has big cephalopods that curl inwards while the mobula ray’s cephalopods are smaller and are straight. The Manta Trust has a [field guide](#) that helps people identify if it’s a manta ray or a mobula ray.

Not much research has been done on Manta rays. Initial research has estimated that Manta rays have a life span of 50 to 100 years and can weigh over 2,000 kilograms. [Their reproductive cycle is slow and they can take up to a year to produce one or two pups after mating.](#)

Manta rays are filter feeders which means they feed on small organisms by filtering the water through their gills, similar to dragging a net through the

water to catch all your food. Their two cephalic lobes or “horns” on the sides of their mouth help direct plankton-rich water into their mouths. These horn-shaped lobes are the reason why mantas are also called “devilfish.” [A single manta can consume about 60 pounds of plankton and small fish each day.](#)

Manta rays are known to leap completely from the water but they are not the only species of rays to do this, mobula and eagle rays have also been observed to leap from the water. There are numerous guesses as to why they do this – to impress females, to help control parasites, to escape predators, or as a means of communication with other mantas. But up until now, it is not known why manta rays do it.

Threats

Demand for their gill and meat for use in traditional Chinese medicine is one of the primary reasons for their overfishing. There is also a demand for their skin which is marketed as exotic leather in products such as wallets or belts. However, [some studies and even some practitioners themselves admit that gill plates are not effective medicine.](#)

Manta rays are often caught accidentally as by-catch or are tangled in fishing lines. They can get tangled in nets and by the time they can be rescued they are dead or significantly weakened, sometimes manta rays are able to break free but still have the net attached to them. This can cause injury because they manta ray can continue to grow but the net can cut into the manta ray’s skin. When these lines get caught around the cephalic fins and head, they trap the manta ray and cause it to drown. [Many manta rays die from loose fishing nets and pollution.](#)

Mantas are also affected by climate change. Rising sea temperatures disrupt the plankton’s natural ecological cycles and plankton feeders like the manta rays will find it more and more difficult to find adequate food supplies. Loss of coral reefs through climate change or pollution can hurt the mantas because it is one of their favored habitats; there is abundant food and there is the presence of cleaning-fish species such as wrasses, damselfish, and angelfish which help keep their skin clean and healthy.

What we can do

- Do not buy manta ray products which can include leather made from manta ray skin, food products from their meat, and traditional medicine using their gills.
- Report and share illegal sale or capture of manta rays to the authorities and social media. Malaysia does not have any legal protection for manta rays, but environmental groups are pushing for their legal protection.

Laws that protect manta rays in the CT3:

Indonesia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Indonesia ratified CITES into a Presidential Decree \(No. 43/1978\)](#)
- [Decree Number 4/KEPMEN-KP/2014](#) (Document in Indonesian declaring full protection for Manta Rays under Indonesian law)

Malaysia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)

Philippines

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Bureau of Fisheries and Aquatic Resources FAO 193](#)
- [Wildlife Resources Conservation and Protection Act \(RA 9147\)](#)

Resources

- [Read the online feature.](#)
- [Download the minigraphics.](#)
- [Download the Treasures of the Coral Triangle Modules.](#)

Quiz

What can happen to the marine ecosystem when all the manta rays disappear?

Hammerhead

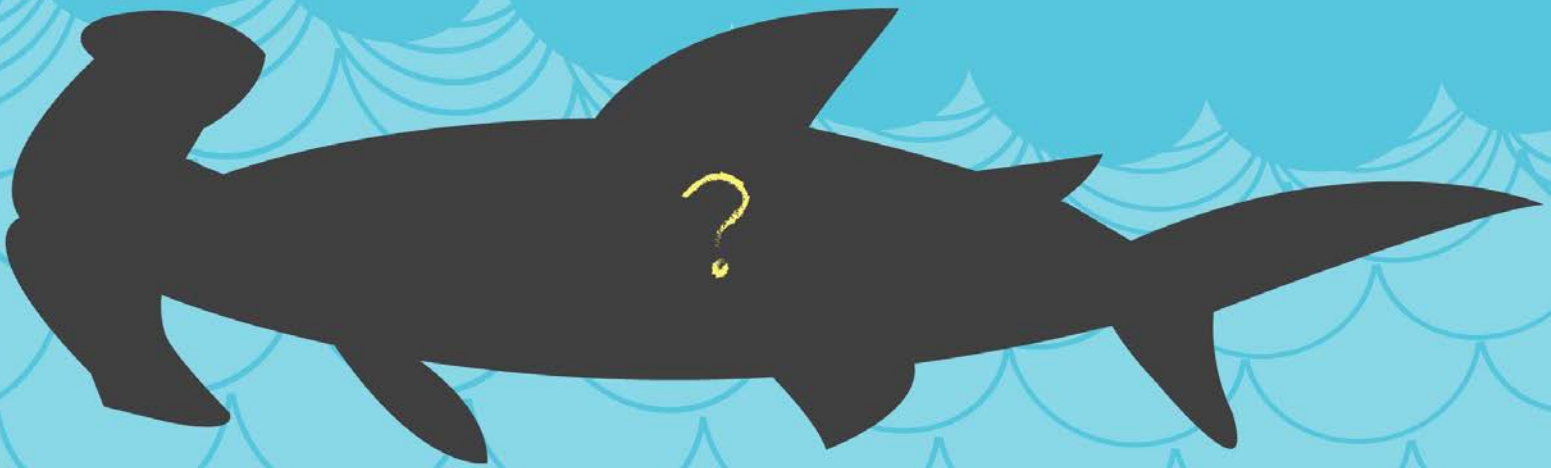
Shark

The Hunter



I am the hunted hunter.

WHAT AM I?

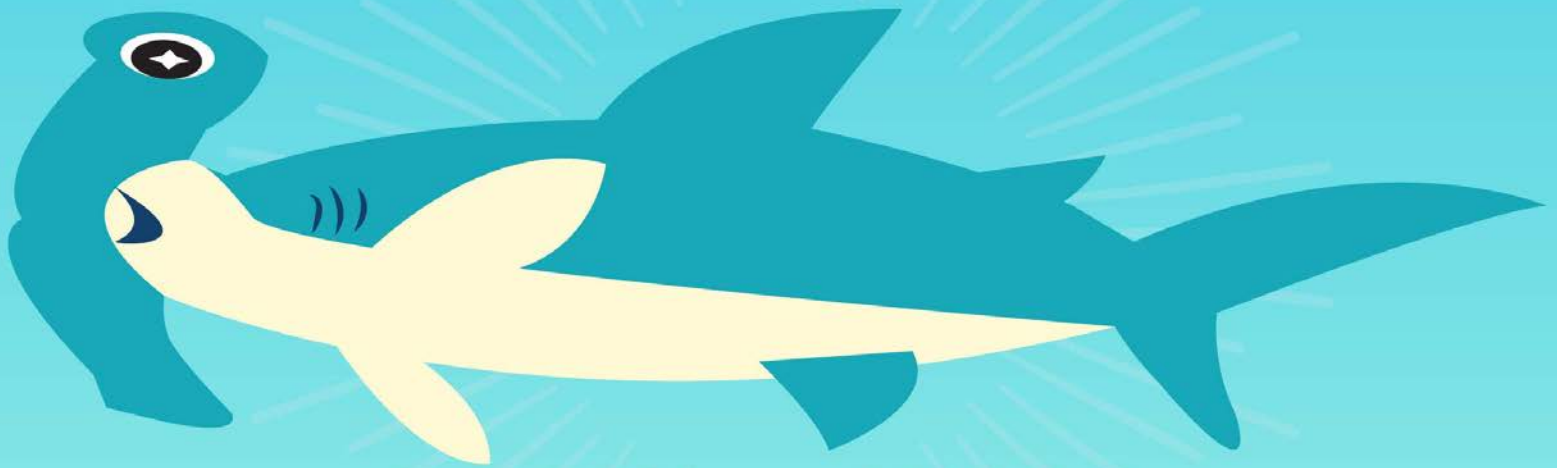


“Can you guess what I am?”

My unique head shape helps me sense my food. No fish can hide in the water!”

hammerhead shark

the hunter



**its flattened head
allows for better
hunting**



**the shark fin trade
has wiped out its
population**



**vulnerable
(IUCN Red List)**

“I’m the hammerhead shark!”

I’m one of the best hunters of the in the #CoralTriangle! But I’m also hunted for my fins. They say it’s for soup and traditional medicine. Most of the time, people cut off my fins and just throw me back into the water to drown. It’s #marinemadness!”

hammerhead shark

the hunter

“I’m an apex predator who keeps the food chain intact!”



*FACING A HIGH RISK OF EXTINCTION IN THE WILD



UNIQUENESS

The hammerhead shark’s wide head has more sensory organs for better hunting. It can sense magnetic fields which help the shark travel long distances and detect prey.



The position of its eyes on the edges allows for a 360 degree view of the world.



MAJOR THREATS

It is hunted for shark fin trade. After its fins are cut off, the shark is tossed back to the sea and drowns shortly afterwards.



DO

Spread awareness about the plight of the shark.



DON'T

Buy shark products such as fin, meat, and medicine.



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Hammerhead Shark: The Hunter

- Genus: *Sphyrnidae* spp.
- Easily identified due to their unique head which is shaped like a flattened hammer
- The wide shape of its head allows for more sensory organs which makes the hammerhead shark an effective ocean hunter.
- Three out of 9 hammerhead species can be found in the Coral Triangle, they are all considered vulnerable and endangered by the International Union for Conservation of Nature (IUCN).

Distribution

The hammerhead shark species are found in tropical and temperate waters all over the world. Out of all the hammerhead sharks, only the great hammerhead is considered to be nomadic. This means that they do not like to stay in a single location and they like to travel to different places in search of food and warmer waters. However, it is observed that they prefer to remain [within the underwater continental shelf and do not like being in the open ocean](#).

Hammerhead sharks can be found in all Southeast Asian countries in the Coral Triangle which are Indonesia, Malaysia, and the Philippines or the CT3.

Why they are important

The hammerhead sharks, like most sharks, are considered to be apex predators. They are at the top of the food chain and they prevent populations of other species from overpopulating and disrupting the balance of the ecosystem. Hammerhead sharks also remove sick and weak members of different prey populations; [thus preventing the spread of diseases and ensuring that only healthy fish remain](#).

Loss of a shark species in a local marine ecosystem means that different species may overpopulate which can cause the food chain to collapse.



"Hammer from Cocos Island, Costa Rica" by Barry Peters (CC BY 2.0)

Biology

Hammerhead sharks are known to have a strong sense of sight and smell, and can detect electrical or magnetic fields. The position of the eyes on the edges of the wide head allow for a 360 degree view of the world around them and the head of a hammerhead shark contains several thousand sensory organs called the [Ampullae of Lorenzini](#). These are specialized pores that can detect electrical fields created by their prey and are useful for finding one of their favorite foods – rays – that try to hide by burying themselves in the sand. The wide head of a hammerhead shark is also used to [hold rays in place by pinning them against the sea floor](#) while the shark can feed on the ray itself.

Hammerhead sharks reproduce once a year and produce 12 to 15 pups. The Great Hammerhead shark is known to produce 20 to 40 pups.

Even though hammerhead sharks live in the water, they need to be constantly moving in order to keep [oxygen-rich water flowing over their gills to avoid](#)

[drowning](#). Unlike other fishes, sharks do not have swim bladders that can give them buoyancy. They use their large pectoral fins to move them up and down the water column. Their large liver also contains a lot of oil which is lighter than water and helps given them additional buoyancy when swimming.

Threats

The demand for shark fin for food is [pushing them to extinction](#); a lot of sharks that are caught for the shark fin trade are often caught just to have their fins cut off while the rest of the shark is untouched. They are tossed back into the sea without the capability to swim and drown shortly afterwards. Hammerhead sharks are also prone to being accidentally caught in fishing gear and end up as by-catch. They are often caught by commercial fishermen who are using longlines. Sharks will often drown before fishermen are able to release them back into the water.

Demand for shark cartilage for use in medicine is also putting sharks at risk; [it is believed that shark cartilage has cancer fighting properties because there is a belief that sharks do not get cancer](#). This is the myth that is fueling the shark cartilage industry; there have been several cases where sharks have been found with cancerous tumors. Harvesting of sharks for their cartilage, liver and fins are adding to the decimation of the world's shark population. It is estimated that 100 million sharks are killed every year around the world, a number that far exceeds what many populations need to recover.

According to a report done on shark utilization by the World Wildlife Fund (WWF), fishermen primarily focus on [three hammerhead sharks within the Coral Triangle](#). The scalloped hammerhead (*Sphyrna lewini*) and the great hammerhead (*Sphyrna mokarran*) are both listed as endangered while the smooth hammerhead (*Sphyrna zygaena*) is listed as vulnerable.

What we can do

- **Do not eat shark fin soup.** Demand for shark fin soup is one of the primary reasons for the overfishing of sharks. The fins themselves are relatively tasteless but are considered to be an important part of the dish.
- **Do not use medicine that is made from shark cartilage.** Research has also failed to find any direct benefit of consuming shark cartilage to fight cancer or arthritis. Spread awareness about myths surrounding the benefits of shark cartilage in order to prevent more shark deaths.
- **Inform the authorities of illegal hunting or sale of hammerhead sharks.** Hammerhead sharks are protected in all CT3 countries (Indonesia,

Malaysia, and the Philippines). Share the information on social media to raise awareness about illegal shark meat in local markets.

Laws that protect hammerhead sharks in the CT3

Indonesia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Indonesia ratified CITES into a Presidential Decree \(No. 43/1978\)](#)
- Shark sanctuary in Rajat Ampat in West Papua

Malaysia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- No federal law but Sabah has state laws protecting sharks

Philippines

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Cebu Provincial Ordinance 2012-05](#)
- [Philippine Fisheries Code of 1998 \(RA 8550\)](#)
- [Wildlife Resources Conservation and Protection Act \(RA 9147\)](#)

Resources

- [Read the online feature.](#)
- [Download the minigraphics.](#)
- [Download the Treasures of the Coral Triangle Modules.](#)

Quiz

What would be an example of an ecosystem collapse once the sharks are gone?

Leatherback Turtle

The Tough Voyager



I am a sea turtle with no shell.

WHAT AM I?



“Can you guess what I am?”

**I’m definitely one-of-a-kind! I’m the only sea turtle without a hard shell.
Instead, I have tough skin on my back that protects me.”**

leatherback turtle

the tough voyager



**biggest sea turtle and
the only one with a
tough skin on its back
instead of a shell**



**hunted for its meat
and eggs**



**vulnerable
(IUCN Red List)**

“I’m the leatherback sea turtle!

Of all marine turtles, I travel the farthest and swim the deepest! My favorite food is jellyfish. A lot of times, I mistake floating plastic for jellies. It’s fatal and sends me to my demise. It’s #marinemadness!”

leatherback turtle

the tough voyager

“I eat jellyfish and prevent them from overpopulating!”



VU VULNERABLE*

*FACING A HIGH RISK OF EXTINCTION IN THE WILD



UNIQUENESS

The largest marine turtle and only species with hard leatherlike skin on their backs.



Leatherbacks are the most migratory of all sea turtles and travel across the Atlantic and Pacific oceans. They can also swim up to 1200 m deep—deeper than any sea turtle.



MAJOR THREATS

- Plastic pollution
- Poaching of eggs and meat
- Accidentally caught in nets



DO

Choose to buy products that use less plastic packaging.



DON'T

Release balloons into the air because they end up in the sea and turtles mistake them for jellyfish.



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Leatherback Turtle: The Tough Voyager

- Scientific name: *Dermochelys coriacea*
- The biggest species of turtle
- Only species of turtle without a hard shell, they just have tough skin on their back
- The population as a whole is considered vulnerable by the International Union for Conservation of Nature (IUCN), however the Western Pacific subpopulation is considered to be critically endangered.

Distribution

Leatherback turtles are found all over the world in tropical and temperate waters. They are highly migratory and cross both the Atlantic and Pacific Oceans but they travel long distances to return to the beach where they hatched to lay their eggs. It is not unusual for some leatherback turtles to travel [around 6,000 kilometers just to lay their eggs](#). Pacific leatherbacks migrate from nesting beaches in the Coral Triangle all the way to the California coast to feed on the abundant jellyfish every summer and fall.

They are generally found in the open ocean and can be found in all Coral Triangle countries in Southeast Asia which are Indonesia, Malaysia, and the Philippines or CT3.

Why they are important

Without leatherback turtles, jellyfish populations would increase and cause harm to the ecosystem because the jellyfish compete with fish for plankton. They also harm/kill fish (especially those cultured in cages) with their poisonous stingers and clog fishing nets. Places such as the Mediterranean, the Gulf of Mexico and the waters off Japan are already experiencing jellyfish blooms. Jellyfish is actually [the main diet for leatherback turtles](#) as their mouths are not designed to eat anything hard.

Turtles can provide coastal communities with an ecotourism opportunity through turtle conservation. [Turtle Island Park in Malaysia](#) has an ecotourism program which includes watching turtle lay eggs, watching the transfer of turtle eggs into secure hatcheries, and watching the hatchlings being released into the sea. The catch is that these turtles cannot be held for too long because

newly hatched turtles are in a frenzied mode which allows them to swim for 2-3 days nonstop. This initial burst of energy helps baby turtles reach open waters which are safer for them.

Biology

On average leatherback turtles weigh up to 500 kilograms and measure around 1.8 meters but the largest leatherback turtle that was ever recorded was 900 kilograms and was 3 meters long from the head to the tip of the tail. Female leatherback turtles reach sexual maturity between the ages of 6-10 years old and from then on will mate every 2 – 3 years.

Leatherback turtles are the biggest species of turtles and are well known for lacking a hard shell on their back and instead have tough rubbery, “leatherlike” skin protecting them.

When these turtles nest, [they can lay up to 100 eggs](#). Some eggs will not hatch because some eggs do not have yolks, only a small percentage of these potential hatchlings can survive until adulthood.

Threats

The western pacific subpopulation is considered to be [critically endangered](#). Pollution, especially plastic bags, is a major threat to turtles because of their resemblance to the turtle’s favorite food, jelly fish. The ingestion of plastic can kill turtles by blocking their digestive system or piercing their gut wall, and can cause problems through the release of toxic chemicals into the animals’ tissues.

Like other sea turtles, leatherbacks are dependent on beaches for nesting. [Uncontrolled coastal development](#), and sea level rise have either destroyed or disturbed nesting areas around the world. If their old nesting area is no longer available due to physical barriers or the presence of too many people, turtles will look for another beach which may not be suitable for nesting. Once their eggs are laid, their eggs are also under threat from poachers and feral animals that dig up their eggs and use them for food.

Some ecotourism organizations may hold the turtle eggs for too long in order to wait for more tourists. If the turtles are not released within [2 to 3 days of their hatching](#), they will lose their initial energy and the chance for them to reach open water diminishes.

The leatherback’s slow reproductive cycle makes it especially vulnerable to the effects of overfishing and pollution. They are often caught as by-catch



[“Leatherback Sea Turtle” by Alastair Rae \(CC BY-SA 2.0\)](#)

in fishing nets (e.g. [longlines meant for other species](#)). Turtles can hold their breath for a maximum of two hours but they often drown or are dying by the time fishermen bring the net up. Their eggs are also harvested by poachers to be sold and eventually eaten.

What we can do

- **Conduct research about turtle hatchery programs before deciding to support them.** Find reviews or news about whether or not the program is truly effective in raising awareness for sea turtles. This can include maintaining distance from the turtle during nesting and making sure they release the turtle hatchlings on time.
- **Make sure your trash goes in the trash can.** Pollution on the land can still have a chance to reach the ocean. When trash reaches the ocean they will create a toxic environment and the plastic bags might be mistaken for jellyfish by the turtles.

- Report and share any sale of sea turtle meat or hunting to the authorities and social media. They are legally protected in all CT3 countries.

Laws that protect leatherback turtles in the CT3

Indonesia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Indonesia ratified CITES into a Presidential Decree \(No. 43/1978\)](#)
- Government Regulation No. 7 of 1999

Malaysia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Fisheries Act of 1985](#)
- State of Sabah prohibits exploitation of marine turtles and their eggs

Philippines

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Philippine Fisheries Code of 1998 \(RA 8550\)](#)
- [Wildlife Resources Conservation and Protection Act \(RA 9147\)](#)
- [DENR Administrative Order 2004-15](#)

Resources

- [Read the online feature written.](#)
- [Download the minigraphics.](#)
- [Download the Treasures of the Coral Triangle Modules.](#)

Quiz

Collecting turtle eggs and releasing the baby hatchlings to the sea is a popular ecotourist attraction. How can we make sure that the event does not harm the baby turtle's chance at survival?

Irrawaddy

Dolphin

The Smiling One



I am Southeast Asia's beakless dolphin.

WHAT AM I?



“Can you guess what I am?”

I’m a rare and unique beakless dolphin. I navigate the seas by using sound! I’m well known for my smile.”

irrawaddy dolphin

the smiling one



**uses sonar to
swim and hunt
for food**



**the only dolphin in
Southeast Asia
with a flexible neck
and no beak**



**vulnerable
(IUCN Red List)**

“I’m the Irrawaddy dolphin!

Sometimes it’s difficult to live in the #CoralTriangle. Dynamite fishing hurts my sensitive hearing and it’s hard to swim around. It’s #marinemadness”

irrawaddy dolphin

the smiling one

“I prevent fish from overpopulating!”



*FACING A HIGH RISK OF EXTINCTION IN THE WILD



UNIQUENESS

The only dolphin species in Southeast Asia with no beak, can bend its neck, and can spit water from its mouth.



Its ability to spit water is thought to be a way to herd fish.



MAJOR THREATS

- It can be accidentally caught in nets and drown.
- Its highly sensitive ears make it vulnerable to dynamite fishing.



DO

Report any instance of dynamite fishing to the authorities.



DON'T

Support ecotourism sites that are improperly managed.



treasures of the
coral triangle
MINIGRAPHICS

CTI-SEA

Coastal and Marine Resources Management
in the Coral Triangle - Southeast Asia

IN PARTNERSHIP WITH



PSYSC™

Irrawaddy Dolphin: The Smiling One

- Scientific name: *Orcaella brevirostris*
- Only dolphin species in Southeast Asia with no beak and a flexible neck which means that they can look up, down, left, and right without having to turn their entire body
- Uses echolocation to navigate and hunt for food such as small fish
- The entire population is considered to be vulnerable by the International Union for Conservation of Nature (IUCN). However there are critically endangered subpopulations in different countries such as the Philippines and Malaysia.

Distribution

Irrawaddy dolphins are rare and they primarily live in the waters of Southeast Asia. They can also be found between eastern India all the way to Indonesia and the Philippines. They prefer to live close to the shore and in rivers and can live in both freshwater and saltwater environments.

Surveys have shown that different subpopulations number less than 100 in numerous areas. Within the Coral Triangle, subpopulations in the [Malampaya Sound](#) region (Palawan, Philippines) and the [Mahakam River](#) (West Kalimantan, Indonesia) are considered to be critically endangered. For instance, a recent survey conducted by the World Wildlife Fund (WWF) in 2001 in Malampaya Sound showed only [77 dolphins](#).

Why they are important

If you see a lot of dolphins in an area, then it generally means that the local ecosystem is healthy enough to support them. [They are apex predators](#) that make sure that the populations of their prey remain healthy and do not grow too big, which can disrupt the food chain. They help maintain their ecosystem by having a diet of fish, mollusks, and aquatic crustaceans such as crab and shrimp.

Irrawaddy dolphins provide income for coastal communities through ecotourism. They are well recognized for [their “smiling” faces and are known for their ability to spit water](#) which is thought to be used as a way to herd fish.

Biology

The Irrawaddy dolphin is unique when it comes to dolphin species as it has a flexible neck and unlike the traditional image that dolphins have, Irrawaddy dolphins do not have a beak but have a stubby rounded face instead. Their dorsal fin is also short, blunt, and triangular. [More images of irrawaddy dolphins here.](#)

Not much is known about the Irrawaddy's mating habits. Initial research from some Irrawaddy populations in India has found that they have a [slow rate of reproduction](#). They reach sexual maturity between the ages of 4 to 9 and they produce only a single calf in every 2 to 3 years. This makes them vulnerable to threats such as pollution and accidental drowning in fishing nets because their populations are small and they reproduce very slowly.

Irrawaddy dolphins have excellent hearing, their habitats are often murky and unclear which makes it hard to navigate using their eyes so they use [echolocation to navigate through the waters](#). They make sounds which bounce off objects enabling to avoid obstacles and locate prey.

Threats

Irrawaddy dolphins are sensitive to coastal development because they prefer to stay close to the shore or in rivers. Developments such as residential areas or resorts can increase their vulnerability to pollution, being accidentally caught as by-catch in fishing nets and being hit by boats.

Their highly sensitive hearing can be injured by fishermen who use dynamite fishing, [a destructive fishing practice](#). Dolphin strandings have been known to occur in areas where fishermen practice dynamite fishing, without their sense of hearing Irrawaddy dolphins will have a hard time navigating the waters, catching prey, or interacting with members of their pod. In the Philippines, one of the reported strandings in 2014 was suspected to be [caused by dynamite fishing](#) due to the dolphin having acoustic trauma from the loud blasts.

What we can do

- **Report any instance of dynamite fishing to the authorities.** Fishermen often recycle bottles for use in dynamite fishing, they can be visually identified because they often have a fuse sticking out of the top. When you are on the coast, dynamite fishing can be heard by faint or distant booms.
- **Do not support improperly built coastal developments.** You can conduct research on coastal developments such as residential areas or



[“Irrawaddy Dolphin” by Stefan Brending \(CC BY-SA 3.0\)](#)

resorts before deciding to stay there, try reading reviews or any news about whether or not the developments are environmentally friendly. Improperly managed coastal developments can increase the amount of pollution and boat impacts for the dolphins and other marine life.

Laws that protect irrawaddy dolphins in the CT3

Indonesia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Indonesia ratified CITES into a Presidential Decree \(No. 43/1978\)](#)
- [Act No. 5 of 1990 \(Conservation of Living Resources and their Ecosystems\)](#)

Malaysia

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)

- [Fisheries Act of 1985](#)
- [Fisheries \(Control of Endangered Species\) Regulation of 1999](#)

Philippines

- [Convention on International Trade in Endangered Species of Wild Fauna and Flora \(CITES\)](#)
- [Philippine Fisheries Code of 1998 \(RA 8550\)](#)
- [Wildlife Resources Conservation and Protection Act \(RA 9147\)](#)
- [Bureau of Fisheries and Aquatic Resources FAO 185-1](#)

Resources

- [Read the online feature.](#)
- [Download the minigraphics.](#)
- [Download the Treasures of the Coral Triangle Modules.](#)

Quiz

Echolocation is very important to the Irrawaddy dolphin. How do they use it and what can happen when their hearing is damaged by dynamite fishing?

**Dive into #marinemadness!
Get to know the treasures
of the #CoralTriangle!**

