

# Sea Turtles



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This document is an abbreviated and adapted form of the Sea Turtle Survival League (Caribbean Conservation Corporation)'s excellent educational resource,

*“Sea Turtle Migration-Tracking & Coastal Habitat Education Program  
– An Educator’s Guide”.*

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**TRAFFIC**



# Differences among sea turtle species

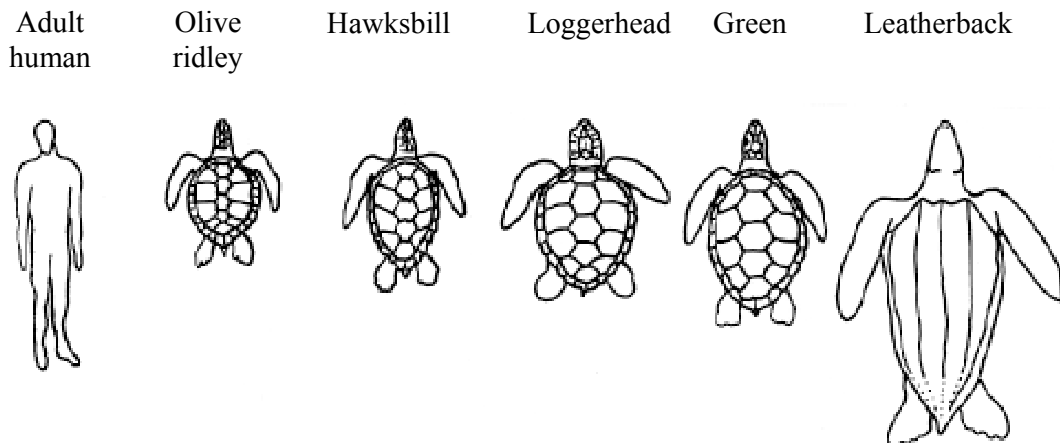
## A few key sea turtle facts

- Sea turtles breathe air
- Sea turtles are reptiles (like snakes and lizards)
- Sea turtles are different to freshwater turtles

## Appearance

Sea turtles come in many different sizes, shapes and colors. The olive ridley is usually less than 50 kilograms, while the leatherback typically ranges from 294 to 589 kilograms! The upper shell, or carapace, of each sea turtle species ranges in length, color, shape and arrangement of scales.

Most scientists recognize seven living species of sea turtles. **Five** of these are found in Vietnam. They are the green turtle, the leatherback turtle, the loggerhead turtle, the hawksbill turtle and the olive ridley turtle.



Species	Nesting interval (number of years between nesting migrations)	Number of clutches laid each nesting season	Average number of eggs in one clutch	Incubation time for eggs (days)
Green	2, 3, or more	3 to 5	115	60
Leatherback	2 to 3	6 to 9	80 (+30 small unfertilized eggs)	65
Loggerhead	2, 3, or more	4 to 7	100 to 126	60
Hawksbill	2, 3, or more	2 to 4	160	60
Olive ridley		2	105	50 to 60

## Sea turtle names

Each sea turtle has both a scientific name and a common name. The scientific name (given in italics) identifies the genus and species, and the common name typically describes some characteristic of the turtle's body.

The **loggerhead**, for example, gets its name from its exceptionally large head. The **hawksbill** turtle gets its name because its narrow head and large beak make it look like a hawk. The Australian **flatback** gets its name because its shell is very flat. The **leatherback** is the only sea turtle without a hard shell. It is named leatherback because its shell is made of a layer of thin, tough, rubbery skin that looks like leather.

Other turtles are named for colors on their bodies. The shell of the **olive ridley** is olive green. The **green** turtle is a little bit trickier. You might think the shell of a green turtle would be green, but it is not. It can have a black, gray, or brown shell. The green turtle is actually named for the green color of the fat under its shell.

Last but not least is the **Kemp's ridley**. This turtle's first name, "Kemp's" was given to it because a man named Richard Kemp helped discover and study the turtle.



Hatchling green turtles emerging from their nest

## Green turtle

(*Chelonia mydas*)

Green turtles are an endangered species around the world. Female green turtles average more than **100 cm** in carapace length, and average about **120 kg** in weight. The largest remaining nesting site for green turtles in Vietnam is in Con Dao National Park.



Green turtle nesting

## Leatherback

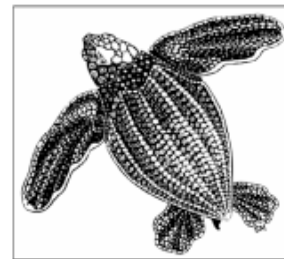
(*Dermochelys coriacea*)

Leatherbacks are critically endangered. The leatherback is the champion of sea turtles. This species grows the largest, dives the deepest, and travels the farthest of all sea turtles. However, VERY few leatherbacks nest on Vietnam's beaches these days...the population appears to have shrunk dramatically.

Mature leatherbacks reach about **1.2 to 2.4 m** in length and weigh from **294 to 589 kg**. The largest leatherback ever recorded was almost 3.0 m from the tip of its beak to the tip of its tail and weighed in at 916 kg.

The leatherback is the only sea turtle that lacks a hard shell. It is named for its large, elongated shell that is composed of a layer of thin, tough, rubbery skin.

Seven narrow ridges run down the length of the carapace, which is typically black with many white spots.



Leatherback hatchling

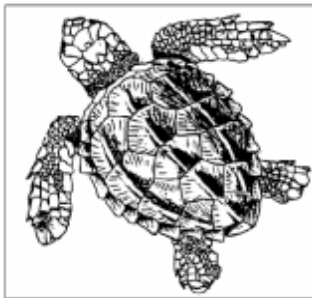


*Female leatherback returning to the sea after nesting*

## Loggerhead (*Caretta caretta*)

Loggerheads have been found migrating or feeding in Vietnam's waters, but they do not appear to have nested here in the last 20 years.

Adult loggerheads weigh up to **158 kg** and have a reddish-brown carapace (upper shell) and a dull brown to yellow plastron (lower shell). Fully grown, a loggerhead's carapace is typically **82 to 105 cm** long.



*Loggerhead hatchling*

## Hawksbill

(*Eretmochelys imbricata*)

Hawksbills are critically endangered. People kill them to get their beautiful shells, which are used to make jewelry and other products.

Once common, hawksbills are now dangerously close to extinction in

Vietnam. Indeed, this species is critically endangered throughout the world.

The hawksbill is one of the smaller sea turtles, measuring **76 to 91 cm** in carapace length and weighing **40-60 kg**. Unlike other sea turtles, the scutes (scales) of hawksbill shells overlap.



*Adult hawksbill*

## Olive ridley

(*Lepidochelys olivacea*)

Olive ridleys are quite small sea turtles. Adults measure around **60 cm** in carapace length and weigh between **35 to 50 kg**. The number of olive ridley turtles in Vietnam is thought to have declined dramatically in recent decades. They are endangered.



## Favourite foods

Different species of sea turtles like to eat different kinds of food. Sea turtles have mouths and jaws that are specially formed to help them eat the foods they like. The **hawksbill** has a narrow head and jaws shaped like a beak. This allows the hawksbill to get food from crevices in coral reefs. They eat sponges, anemones, squid and shrimp.

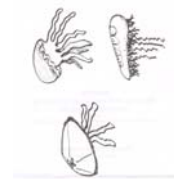


**Loggerheads** are primarily carnivorous and feed mostly on shellfish that live on the bottom of the ocean. They eat horseshoe crabs, clams, mussels, and other invertebrates. Their powerful jaw muscles help them easily crush the shellfish.

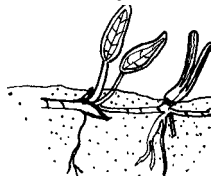


**Olive ridleys** and **Kemp's ridleys** are also carnivorous. Like loggerheads, the ridleys have powerful jaws that help them crush and grind crabs, clams, mussels, and shrimp. They also like to eat fish, sea urchins, squid and jellyfish.

**Leatherbacks** have delicate, scissor-like jaws. Their jaws would be damaged by anything other than a diet of soft-bodied animals. Leatherbacks feed almost exclusively on jellyfish.



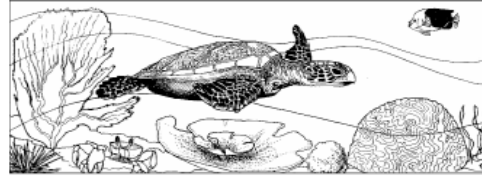
Adult **green** turtles are the only sea turtles that are mostly herbivorous. They eat sea grass and algae. Their jaws are finely serrated which aids them in tearing vegetation.



The Australian **flatback** apparently eats sea cucumbers, jellyfish, mollusks, prawns, bryozoans, and other invertebrates, as well as seaweed.

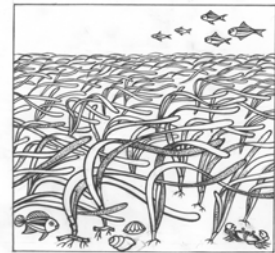
## Habitat preferences

Each species of sea turtle eats, sleeps, mates and swims in distinctly different areas. Sometimes their habitats overlap, but for the most part they each have different preferences.

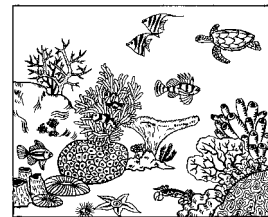


**Loggerheads** prefer to feed in coastal bays and estuaries.

**Green turtles** mainly stay near the coastline and around islands. Green and turtles love to eat seagrass and algae so coastal seagrass beds are one especially important habitat for them.



**Hawksbills** are typically found around coastal coral reefs, rocky areas, and estuaries.



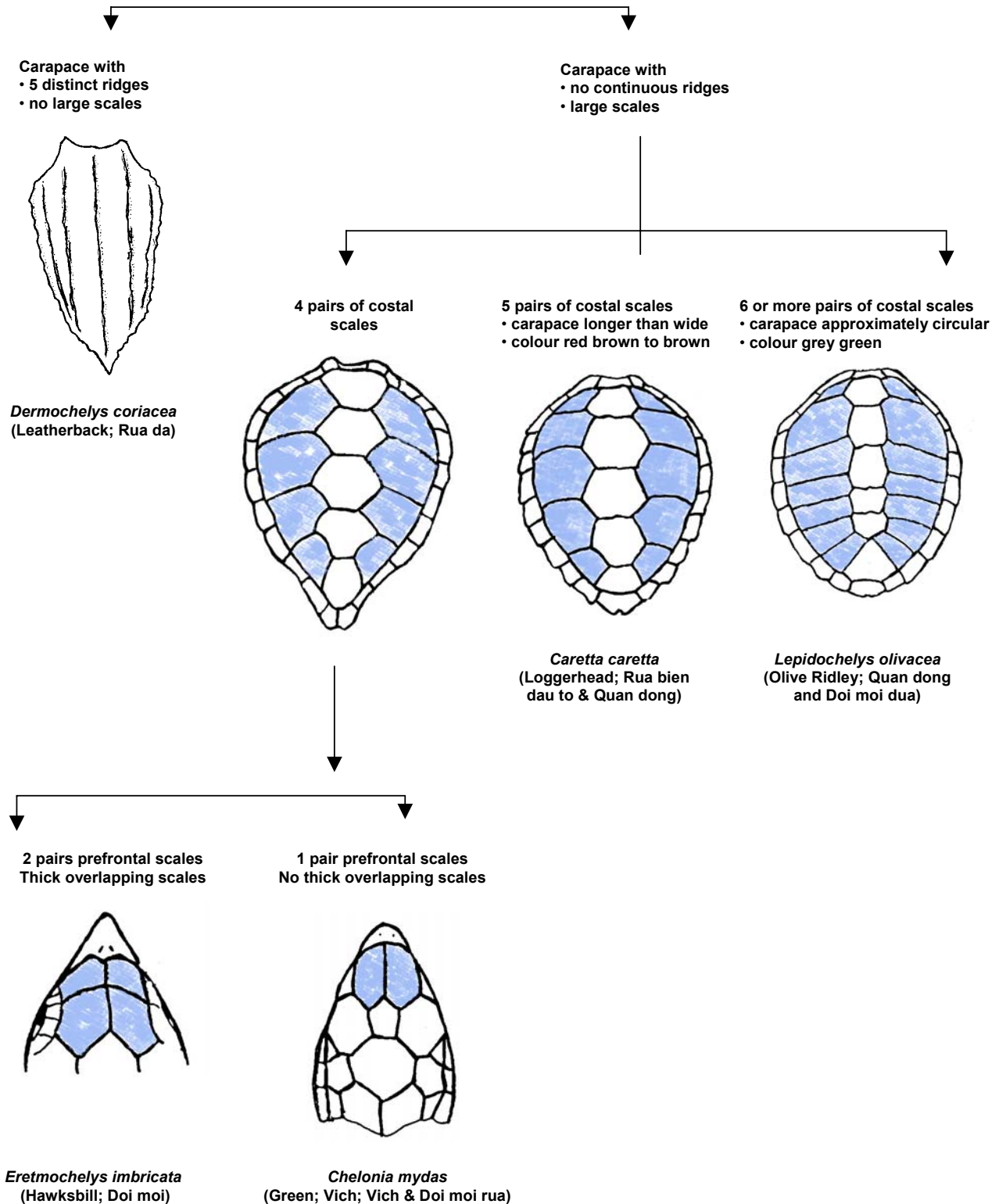
**Olive ridleys** typically forage offshore in surface waters or dive to depths of 150 metres to feed on bottom dwelling crustaceans.

**Kemp's ridleys** prefer shallow areas with sandy and muddy bottoms.

**Flatbacks** prefer inshore waters and bays where the water is cloudy.

**Leatherbacks** are mainly found in the open ocean. They catch jellyfish borne along in the ocean currents.

# Identification guide to the marine turtles of Vietnam





***Chelonia mydas***  
(Green; Vích/ Đồi mồi dừa)



***Eretmochelys imbricata***  
(Hawksbill; Đồi mồi)



***Lepidochelys olivacea***  
(Olive Ridley; Quắn đồng)



***Caretta caretta***  
(Loggerhead; Rùa biển dau to  
& Quắn đồng)



***Dermochelys coriacea***  
(Leatherback; Rùa da)

1. The green turtle is most commonly known locally as Vích, although named Doi Moi Dua in some publications
2. The Red Data Book of Viet Nam (1992 & 2000) grouped the olive ridley and the loggerhead together following Eschscholtz, (1829, *Caretta olivacea*), hence, some confusion exists with common names

# A sea turtle's life

Sea turtles are generally solitary creatures that remain submerged for much of the time they are at sea, which makes them extremely difficult to study.



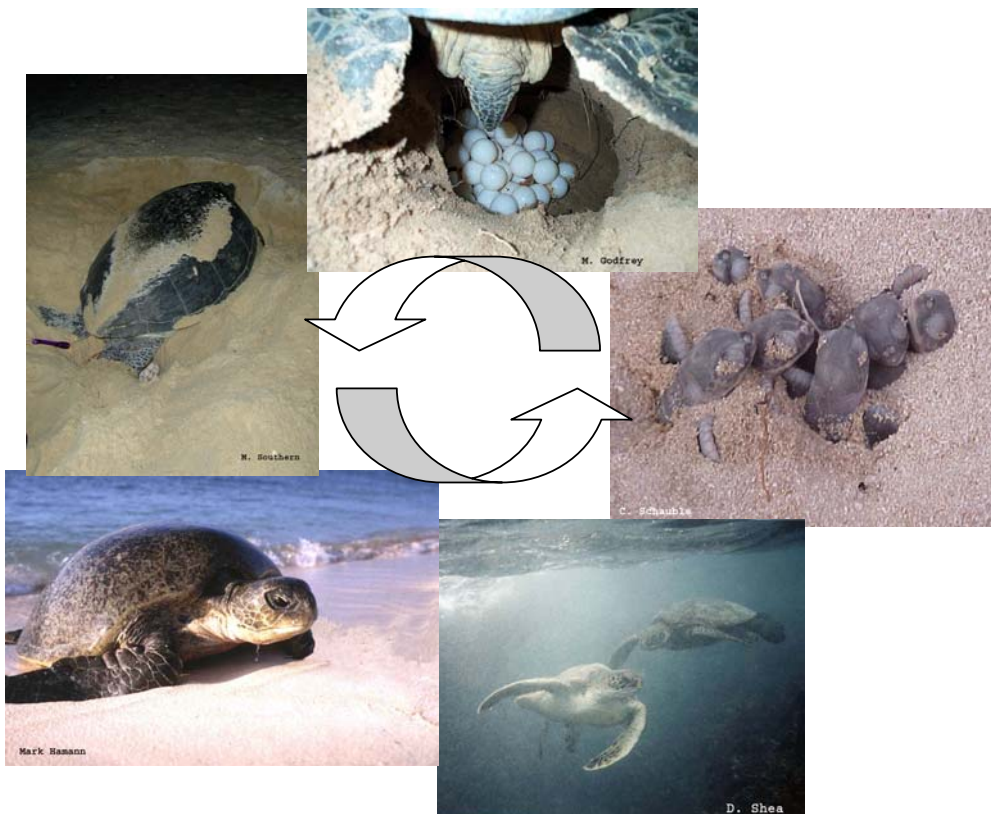
## Daily activities

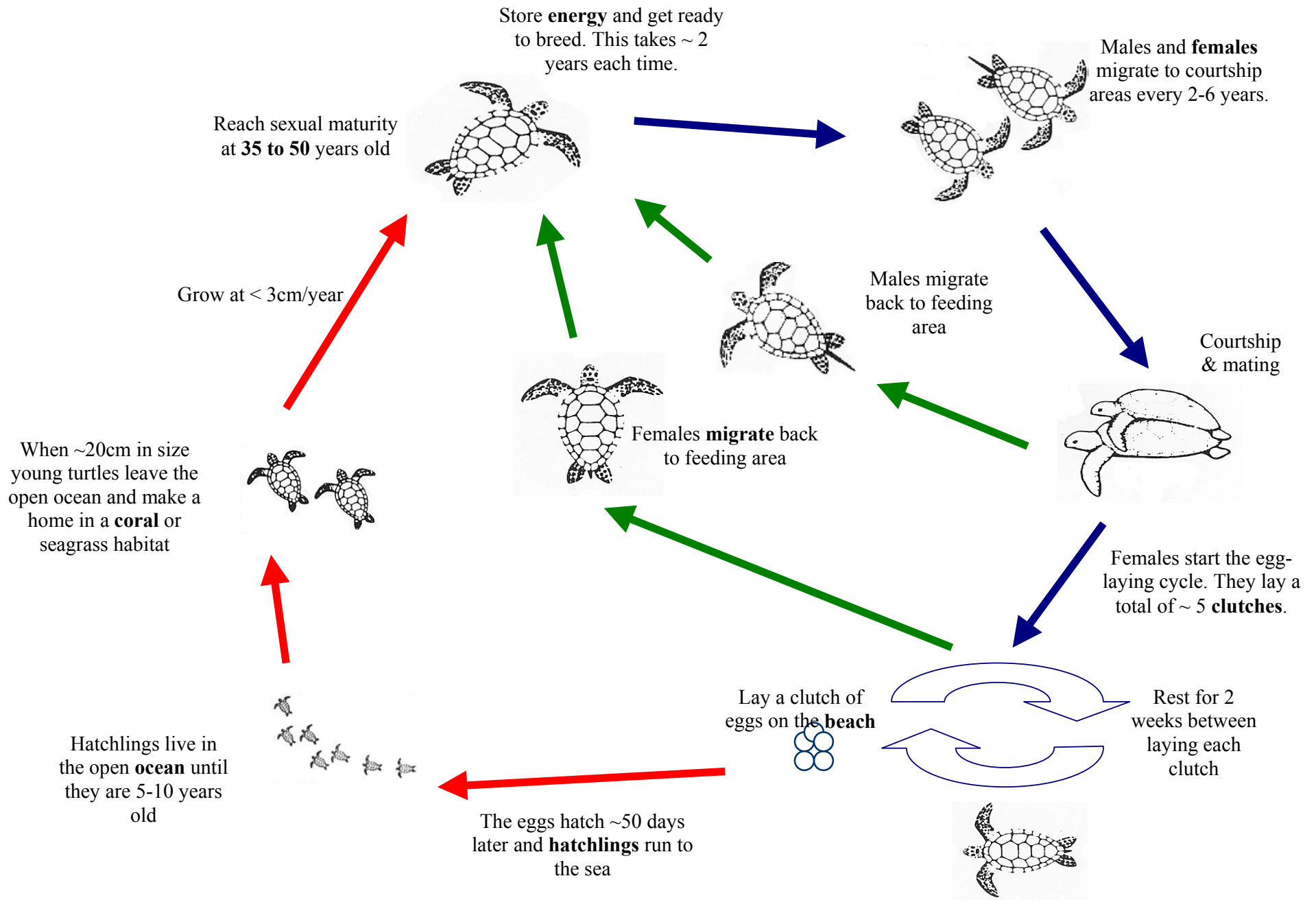
Sea turtles are known to feed and rest off and on during a typical day. Sea turtles can sleep at the surface while in deep water or on the bottom wedged under rocks in nearshore waters. Many divers have seen green turtles sleeping under ledges in reefs and rocks.

Sea turtles have a fascinating life cycle. One that is very different to that of humans! Although there are differences among the life cycles of each sea turtle species, the overall pattern is fairly similar and the general lifecycle of a green turtle is summarized in the diagram on the next page.

**WOW!!!** A sea turtle can migrate hundreds (and occasionally thousands) of kilometres from its feeding ground to its nesting beach...and home again.

That adult females return faithfully to nest on, or near, the beach where they were born makes the feat even more amazing.





# Nesting, incubation & emergence

## Beach Selection

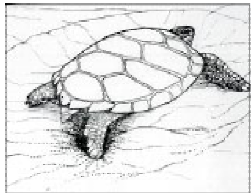
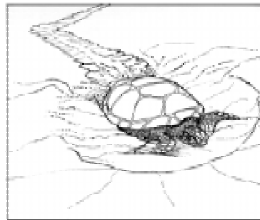
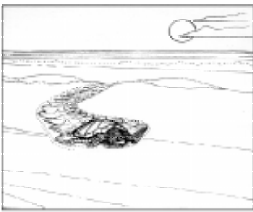
Most female turtles return faithfully to the same beach (or group of beaches) each time they are ready to nest.

## Nesting Behaviour

Only females nest, and it occurs most often **at night**. The female crawls out of the ocean and up the beach. Most females nest at least twice during the nesting season, although individuals of some species may nest only once and others more than ten times. Sea turtles are generally slow and awkward on land, and nesting is exhausting work.

## Constructing the Nest

The female turtle crawls to a dry part of the beach and begins to fling away loose sand with her flippers. She then digs a hole (chamber) for her eggs using her cupped rear flippers as shovels.



## Laying and Burying the Eggs

When the turtle has finished digging the egg chamber, she begins to lay eggs. Two or three eggs drop out at a time, with mucus being secreted throughout egg-laying. Because the eggs are flexible, they do not break as they fall into the chamber.

Nesting sea turtles appear to shed tears, but the turtle is just getting rid of the excess salt that accumulates in her body.

Once all the eggs are in the chamber, the mother turtle uses her rear flippers to push sand over the top. She then begins using her front flippers to refill the body pit and disguise the nest.



*Laying the eggs*



*Covering the nest*

The female then crawls back to the sea to rest before nesting again later that season or before beginning her migration back to her feeding ground. Once a female has left her nest, she never returns to tend it.

## Incubation

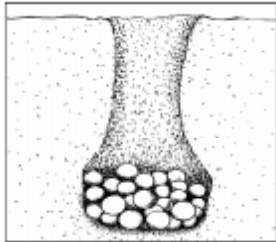
Incubation (development of the baby turtles) takes about 60 days. The temperature of the sand determines how many of the baby turtles (hatchlings) will be male and how many will be female!

## Emerging from the Nest

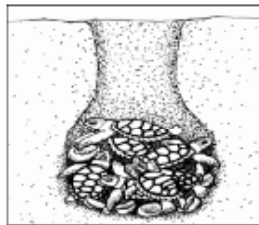
Sea turtle hatchlings break open their shell using a sharp, temporary egg-tooth that falls off soon after birth. Digging out of the nest is a group effort that can take several days.

Hatchlings usually emerge from their nest at night or during a rainstorm when

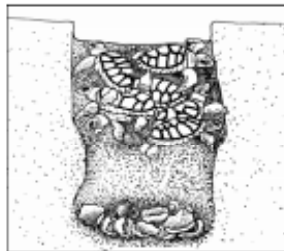
temperatures are cooler. Once they decide to burst out, they erupt from the nest cavity as a group. The little turtles orient themselves to the brightest horizon, and then dash toward the sea. If they don't make it to the ocean quickly, many hatchlings will die of dehydration in the sun or be caught by predators like birds and crabs.



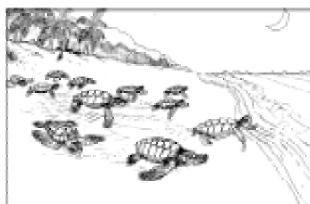
**Eggs incubating in the nest**



**Hatchlings breaking out of the eggs**



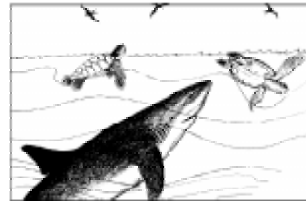
**Hatchlings working their way to the surface**



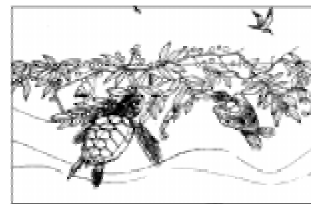
**Hatchlings erupt and head for the water**

Once in the water, hatchlings typically swim several miles off shore, where they are caught in currents and seaweed that may carry them for years before returning to nearshore waters. There are many obstacles for hatchlings in the open ocean. Sharks, big fish and circling birds all eat baby turtles, and they die after accidentally eating tar balls and plastic garbage.

The obstacles are so numerous for baby turtles that only about one in 1,000-10,000 survives to adulthood. Therefore, a population of sea turtles needs to produce a really large number of baby turtles every year just so some will eventually grow up to replace the adults.



**Many animals eat hatchlings in the water**



**Hatchlings eat and drift in sargasso seaweed**

After several years of floating around the ocean, the young turtles are big enough to venture back into coastal waters. They spend their juvenile years eating and growing in coastal habitats until they are adults and it is their turn to mate and nest.

When they are fat and healthy enough to begin reproducing both males and females leave their feeding grounds and **migrate** (swim) to a nesting beach close to the one where they were born. Incredibly, they may swim thousands of kilometres to get there!!

After reproducing they will return to their feeding ground homes again. This periodic migration will continue throughout their lives.

# Studying migration

To fully protect sea turtles throughout their lives, we must find out more about their migratory patterns and their behaviour in the water.

## Flipper tagging

Researchers use several methods to determine where and when sea turtles move around. One of the simplest methods involves placing a small, harmless **metal tag** on one of the turtle's flippers when she comes ashore to nest. Each tag includes a coded number and a message asking people to return the tag to a certain address if it is found.



*Specially designed tagging pliers are used to apply numbered metal tags to the turtle's front flippers. Now it can be identified whenever it is seen or caught.*



© C. Schauble

*Tags have a return address on the back so the information can be posted to the right place if the turtle caught again.*

## Satellite tags

Scientists have recently begun utilizing satellites to track sea turtles in the open ocean. First, a small **satellite transmitter** is attached to the back of an adult or juvenile sea turtle.

Orbiting the Earth (i.e. in space) are satellites that can detect the signals coming from the transmitters. When a turtle goes to the surface of the ocean to take a breath a signal is sent from the transmitter on its back. A passing "Argos" satellite will hear the signal and send information about where the turtle is back to scientists on Earth. In this way, researchers in the city can keep track of turtles swimming in the ocean hundreds or thousands of kilometres away.

After 8-10 months, the transmitter stops working and eventually falls off the turtle. By monitoring a number of turtles, scientists can learn where the turtles from a particular place (e.g. Phu Quoc Island) go to nest and what route they use to get there.

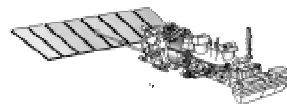


A satellite tag is glued to the turtle © C. Schauble



© K. Pendoley

The turtle is released



A satellite picks up signals from the turtle and keeps track of where it moves



A researcher receives the information from the satellite by computer and makes a map of the path the turtles has travelled

# Threats to sea turtle survival

Each year thousands of hatchling turtles emerge from their nests along the Vietnamese coast and enter the South China Sea. Only an estimated one in 1,000 - 10,000 will survive to adulthood. The natural obstacles faced by young and adult sea turtles are staggering, but it is the increasing threats caused by humans that are driving them to extinction.

## Natural threats

In nature, sea turtles face a host of life and death obstacles to their survival. Predators such as monitor lizards, crabs, and ants raid eggs and hatchlings still in the nest. Once they emerge, hatchlings make bite-sized meals for birds, crabs and a host of predators in the ocean.



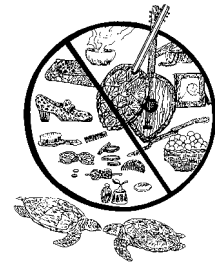
## Human-caused threats

In addition to their natural predators, sea turtles face a great many serious threats from human activities.

### Trade

In many cultures around the world, people still harvest sea turtles and their eggs for food (often illegally). Turtle products, such as jewelry made from **hawksbill turtle shells**, create a direct threat to sea turtles. Turtle shell jewelry and souvenirs

are still illegally available in shops and markets in Vietnam, and are frequently bought by domestic and international tourists.



### Pollution

Pollution can have serious impacts on both sea turtles and the food they eat. A disease (fibropapillomas) now killing many sea turtles may be linked to pollution in the oceans. Pollution can also kill the food of sea turtles. Rubbish can entangle or trap turtles.

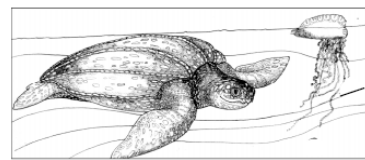


*A green turtle with fibropapilloma disease, note the ugly lumps around its neck*

© C. Schauble

### Ingestion of Debris and Plastic

Thousands of sea turtles die from eating or becoming entangled in rubbish each year. Rubbish, particularly plastic bags thrown overboard from boats or dumped near beaches and swept out to sea, is eaten by turtles and becomes a deadly meal.



*Leatherbacks feed on jellyfish, but can die by eating discarded plastic bags that look like jellyfish*



*Picking up rubbish is good for turtles*

# Conservation of sea turtles

## Commercial fishing

Each year, hundreds, if not thousands, of turtles become entangled in fishing nets and drown. **Turtle Excluder Devices (TEDs)** can be placed in fishing nets to help save turtles. TEDs let the turtle escape from the net. Turtle Excluder Devices (TEDs) are not used at all in Vietnam yet, and thousands of sea turtles continue to die in gill nets and trawl nets along the Vietnam coast.



*Checking nets regularly can save turtle lives*



## Artificial Lighting

Nesting turtles once had no trouble finding a quiet, dark beach on which to nest, but now they must compete with tourists, businesses and coastal residents for use of the beach. Vietnam's beaches are rapidly being lined with seaside factories, houses and hotels.

Lights from these developments discourage females from nesting and cause hatchlings to become disoriented and wander inland, where they often die of dehydration or predation.



## Coastal defenses (armoring)

Coastal defenses include structures such as sea walls, rock revetments and sandbags that are installed in an attempt to protect property from erosion. These structures often block female turtles from reaching suitable nesting habitat and accelerate erosion on other parts of the beach.



To truly protect sea turtles around the world, many different countries and cultures must cooperate and share responsibility. International laws and agreements, research, and the work of dedicated organizations, communities and individuals each must play a part.

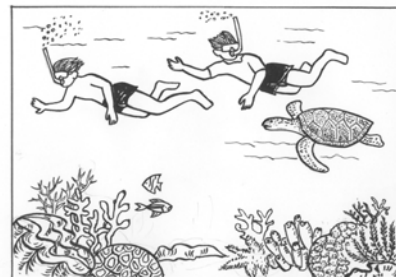


Feeding and nesting areas must be protected.



**It is illegal to harm, harass, eat or kill any sea turtles, hatchlings or their eggs in Vietnam.**

**It is also illegal to sell turtles or their products in Vietnam, to send them to other countries, or to import them.**



*Sea turtles are wonderful parts of nature*

## Why should you care if sea turtles go extinct?

A plant or animal becomes extinct when the last living individual of its species dies, causing it to vanish from the earth forever. If there is ever a time when the last green turtle on earth dies, then never again will this magnificent creature grace our world.



© Steve Turek

Species have been going extinct for millions of years; it is a natural part of the evolutionary process.

Today, however, species are going extinct because of abrupt changes brought about by **humans**. Habitat destruction, pollution and over-consumption are causing species to decline at a rate never before seen in history. This loss of species is eroding the diversity of life on earth.



Much can be learned about the condition of the planet's environment by looking at sea turtles. They have existed for over 100 million years, and they travel throughout the world's oceans. Suddenly, however, they are struggling to survive - largely because of things people are doing to the planet's oceans and beaches. But what does this mean for the human species? It is possible that a world in which sea turtles cannot survive may soon become difficult for humans to live in too?

If, we learn from our mistakes and begin changing our behavior, there is still time to save sea turtles from extinction. In the process, we will be saving one of the earth's most mysterious and time-honored creatures. We might just be saving ourselves too.

# What you can do to save sea turtles

- **Never** buy sea turtle products (jewellery, ornaments), eggs or meat.
- **Dispose of your rubbish correctly** – keep the waters and the beaches clean!
- **Spread the word!** Teach your friends and family about sea turtles and their habitats.
- Support the establishment of **Marine Protected Areas** so turtles and their homes can be looked after.
- Support the introduction of **Turtle Excluder Devices (TEDs)** into all trawling nets.
- Join, or start, a **community group** that conducts beach clean-ups or other environmental activities (e.g. public awareness campaigns)
- Show your support for **government enforcement** officers (customs, fisheries) who protect sea turtles, and for fishers and developers who take action to reduce their impacts on turtles.



## IF YOU CATCH A SEA TURTLE OR SEE A DEAD ONE



Check whether it has metal flipper tags... IF IT DOES write down the following information

1. The **tag numbers** from each tag. The tag number is written in large lettering on the front of the tag. Usually they take the form of two letters followed by a series of numbers.
2. The **return address** from the back of the tag – this address maybe even be in another country!
3. The **place** where the turtle was seen or originally caught.
4. The **date** the turtle was seen and/or caught.

Send *one copy* of this information (or the tags themselves if the turtle is dead) to

Marine & Coastal Program  
IUCN Vietnam  
Villa 44/4 Van Bao Street  
IPO Box 60  
Hanoi 10 000

and *another copy* to your local Fisheries Resource Protection Department (FRPD) office.

**RELEASE THE SEA TURTLE  
BACK TO THE OCEAN**