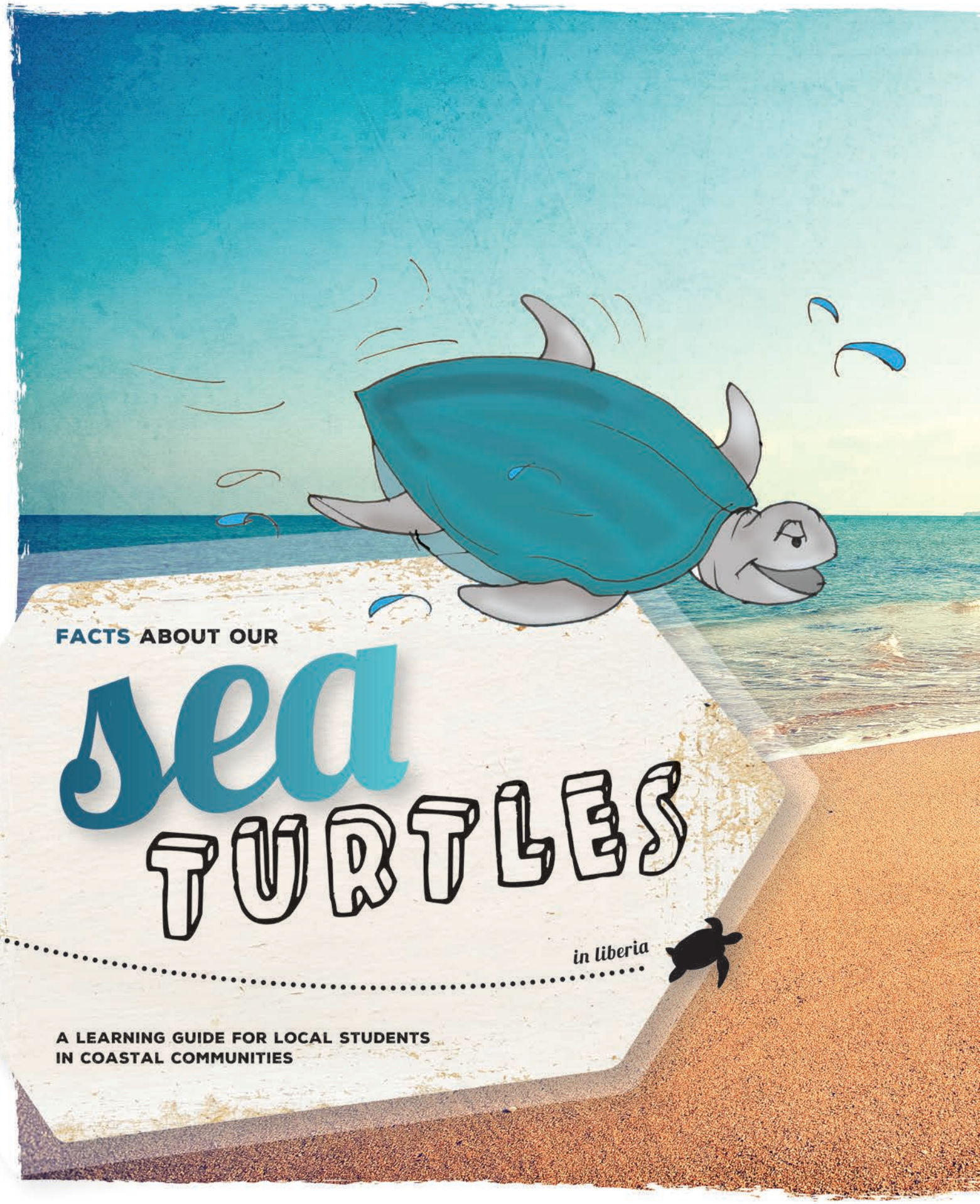

FACTS ABOUT OUR

sea TURTLES

in liberia

A LEARNING GUIDE FOR LOCAL STUDENTS
IN COASTAL COMMUNITIES

SEA TURTLE WATCH
Dedicated to Saving Sea Turtles

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© 2014, Sea Turtle Watch (Liberia). This booklet is to be used for awareness and education purposes only. **Author(s):** Andrew Tokpa, Trokon Saykpa. **Editor(s):** Edward Aruna, Reptile and Amphibians Program - Sierra Leone, Dr. Manjula Tiwari, NOAA, National Marine Fisheries Service, Marine Turtle Ecology & Assessment Program. **Acknowledgements:** This publication has been developed, designed and printed with generous financial support from the U.S. Fish and Wildlife Service, Mohammed Bin Zayed Species Conservation Fund, Rufford Small Grant Foundation (UK), UNDP/GEF Small Grants Programme and the Prince Bernhard Nature Fund (NL). **Images:** Cover: (beach) © Sunny Forest/shutterstock, (texture) © Photocell/Dreamstime, pg 5: (life cycle) © Artisticco/shutterstock. pg 6: (coral) © Jared Shomo/shutterstock. pg 8: © Michael Jensen. pg 9: © Jacques Fretey. pg 10: (large) © mrHanson/shutterstock, (small) © Michael Jensen. pg 11: (large) © Dr Simon Pierce, (small) © Michael Jensen. Illustrations: © Leslie Lumeh (leslielumeh.com), © Sea Turtle Consevancy (STC). **Design:** www.onehemisphere.se.
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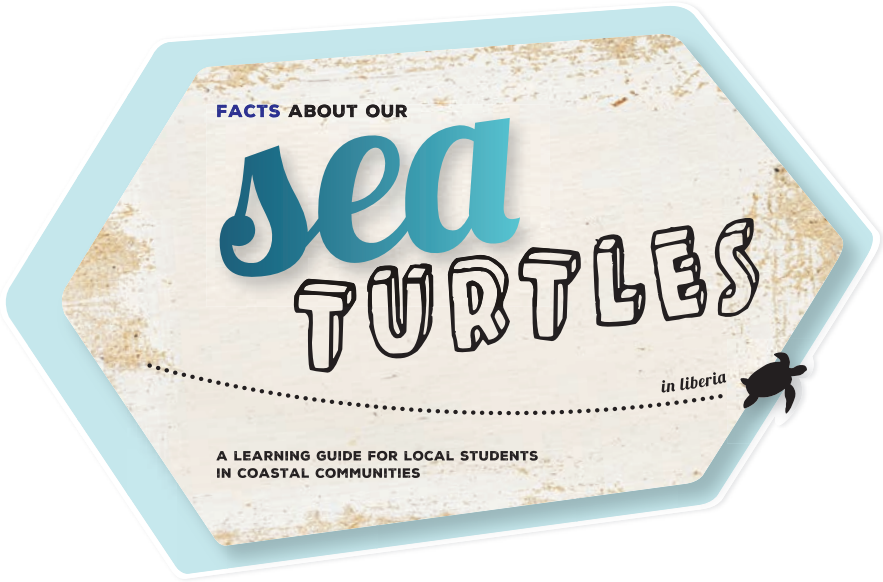

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Supporters

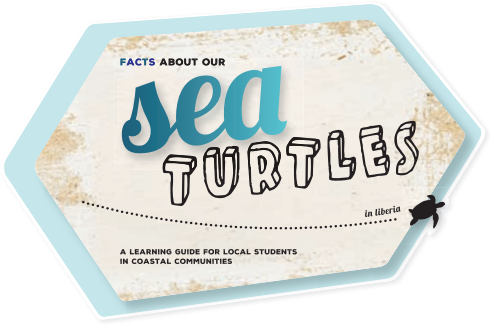
The United States Fish and Wildlife Service is working to protect, restore, and enhance the world's diverse wildlife and their habitats.
www.fws.gov

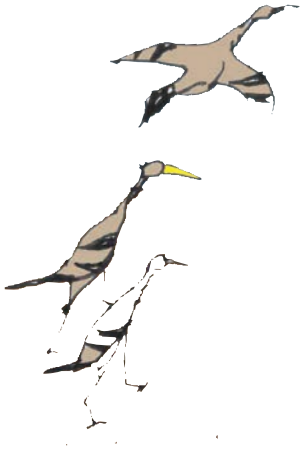
The Rufford Foundation is a charity established specifically for the development of Rufford Small Grants for Nature Conservation (RSGs). The RSG is a UK based charity and it offers Rufford Small Grants for nature conservation projects in the developing world.
www.rufford.org/rsg/

The Mohamed bin Zayed Species Conservation Fund is a significant philanthropic endowment established to provide targeted grants to individual species conservation initiatives, recognize leaders in the field of species conservation and elevate the importance of species in the broader conservation debate.
www.speciesconservation.org

The GEF Small Grants Programme provides financial and technical support to projects that conserve and restore the environment while enhancing people's well-being and livelihoods.
www.sgp.undp.org

The Prince Bernhard Nature Fund was established in 1994 by the late Prince Bernhard of the Netherlands. The Fund's mission is to support small, preferably local initiatives towards the conservation and wise use of nature and our natural resource base. Effectively our Fund aims to help save critically endangered flora and fauna.
www.pbnf.nl



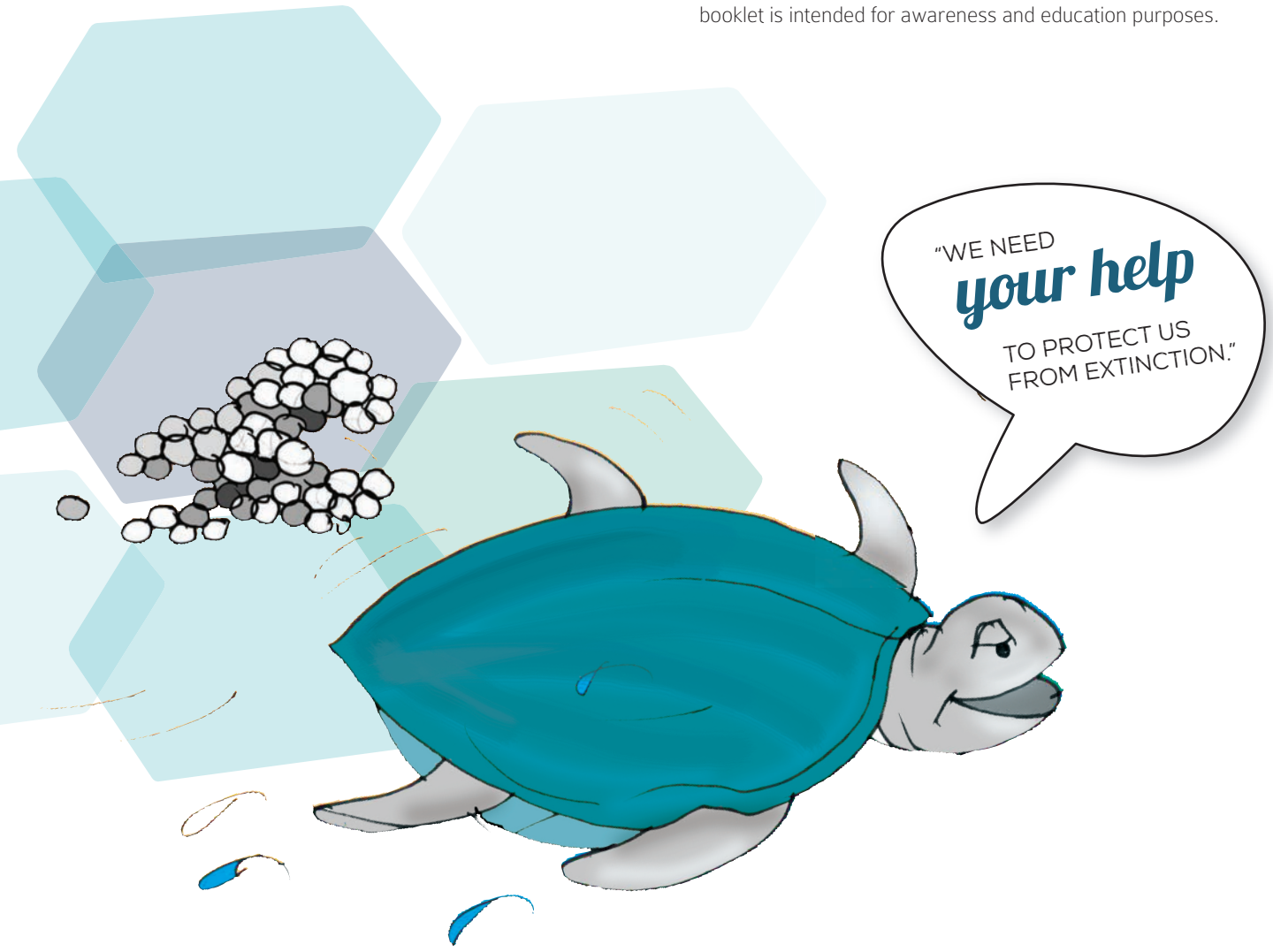


INTRODUCTION

There are seven sea turtle species in the world; they include the leatherback, the green turtle, the hawksbill, the olive ridley, the Kemp's ridley, the loggerhead and the flatback sea turtles. They have existed and travelled in the world's oceans for over 100 million years. Excluding the flatback sea turtles that are found only in Australia, all other species are known to occur in the Atlantic Ocean.

During October through June, many adult female sea turtles come ashore to nest in Liberia. There are records of four sea turtle species nesting on beaches in Liberia and they include the LEATHERBACK, OLIVE RIDLEY, HAWKSBILL and the GREEN Turtles. There are reports of LOGGERHEADS spotted on the beaches in Grand Cape Mount County, but studies have not confirmed the nesting by this species in Liberia.

This booklet will give readers some basic information and facts about the four known sea turtle species nesting on the beaches in Liberia and enable teachers and students to learn about sea turtles. The booklet is intended for awareness and education purposes.



SEA TURTLES

Sea turtles are reptiles known to be living in tropical and sub-tropical oceans around the world. They are air breathing and emerge several times in an hour to take in air. Their shell consists of an upper part known as the carapace, covered with scales or scutes, except for the largest of them all, the Leatherback, and a lower section known as the plastron. The number and arrangement of the scutes on their back is useful in the identification of the species.

Sea turtles come in many different sizes, shapes and colors. They have powerful front flippers that allow them to dive underwater to great depths and swim long distances. The smallest are the Ridleys that are generally less than 100 pounds while the largest are the Leatherbacks that range from 650 to 2000 pounds. They are part of the ocean's ecosystem, so if they were wiped out entirely from the ocean's ecosystem, the system will be negatively impacted and will also affect humans since we depend greatly on the ocean for different natural resources and ecosystem services.

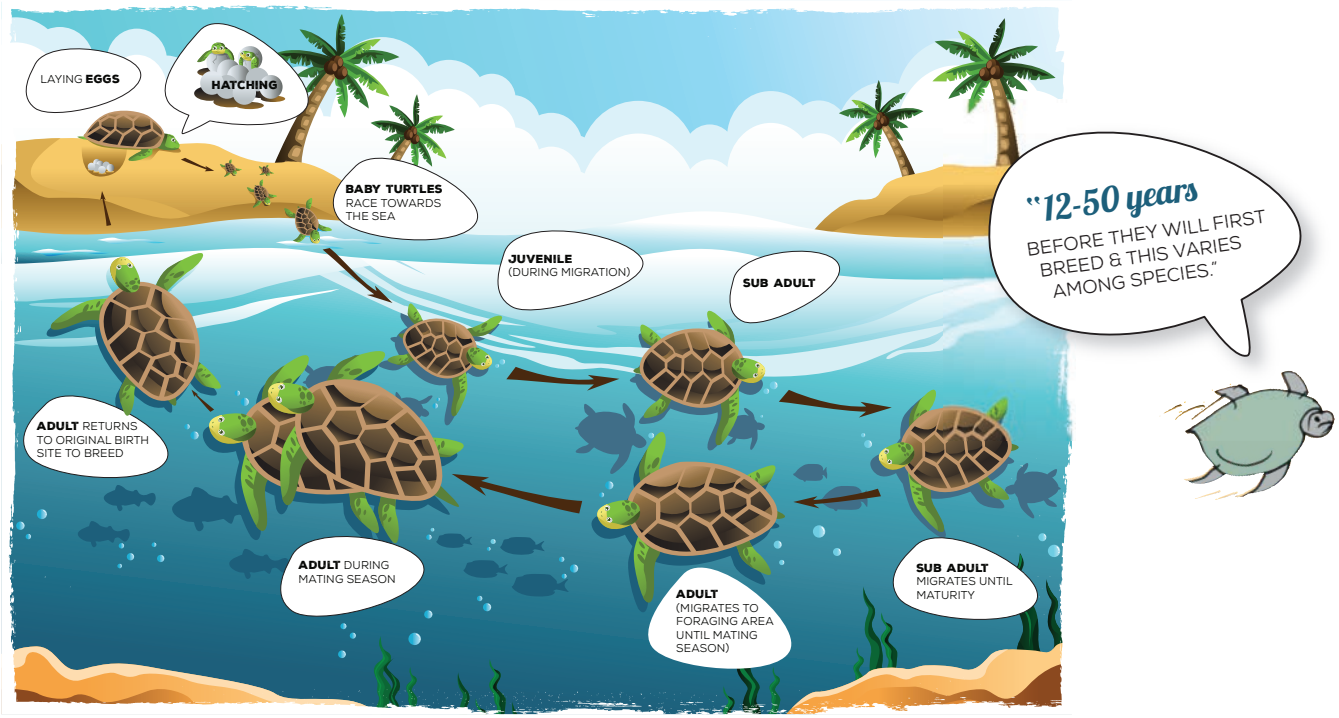
Among the oldest creatures on earth are sea turtles. They have really remained unchanged for over 100 million years and have long travelled our oceans. However, they face an uncertain future due to intense human impact particularly for the demand of their eggs, meat and carapace. Because humans are destroying their feeding and nesting environments, there is a serious doubt about the future of the remaining sea turtle populations. If we do not help to protect them now, they may be lost forever or extinct from the face of the earth.

Sea Turtle Life Cycle:

Sea Turtles live in the ocean and it is only the female turtles that come to the beach to nest after series of mating; the males don't. When the females emerge to nest on beaches, they look around for the most convenient place for nesting. Interestingly, some sea turtles nest in differently places on the beach. For example, the leatherback, green turtle, olive ridley and loggerheads nest on open sandy areas while the hawksbills venture into vegetated areas around the beach. Once the appropriate site for nesting is identified, the turtle digs a pit of about 2ft, deposits between 80 - 150 eggs and covers the pit with her flippers. When she is finished, she covers the eggs, disguises the nest site, and goes back to the ocean. They often come to shore several times in a nesting season to do this again. The number of eggs laid and incubation periods usually vary per species. Turtles are part of the reptile species that do not take care of their eggs and young.

When sea turtle eggs hatch, the hatchlings quickly find their way to the ocean where they feed for several years until they become adults. There are different numbers of years which hatchling of each species spends out at sea. We refer to those years as the "lost years" as there isn't sufficient information about them. It takes a long time for sea turtles to reach adulthood. According to scientific studies, it can take up to 12-50 years before they will first breed and this varies among species. When they have become full-grown, both the males and females swim close to the shore to mate. Amazingly, females often return to the same beach on which they hatched to lay their own eggs. Like some other reptiles, the temperature of the sea turtle nest determines the sex of the hatchlings. Warmer temperatures produce more females while cooler temperatures result in more males. All hatchlings are faced with lots of threats from the moment they emerge from their nests. Only a few reach adulthood.

A Sea Turtle's life cycle



FACTS ABOUT OUR sea TURTLES in liberia

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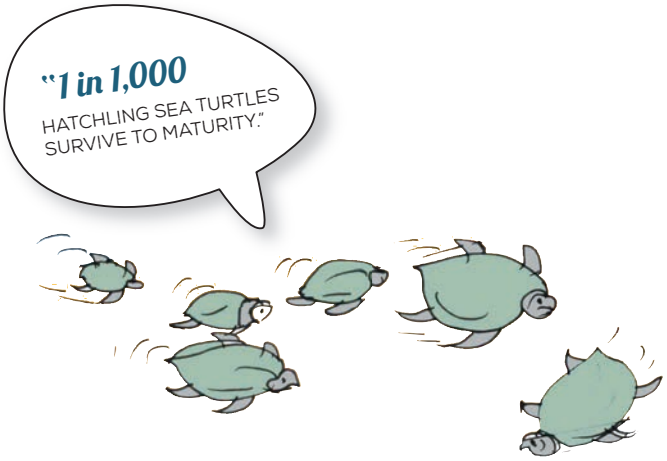
WHY SEA TURTLES ARE ECOLOGICALLY IMPORTANT?

Sea turtles play an important role in ocean ecosystems. They maintain sea grass beds and coral reefs. The adult green sea turtles forage on sea grass. Sea grass needs to be constantly cut short to help it grow across the sea floor. Sea turtles act as grazing animals that cut the grass short and help maintain the health of the sea grass beds. Sea grass beds provide breeding and developmental grounds for numerous species of fish, shellfish and crustaceans. Turtles also help to balance the ocean's food webs and facilitate nutrient cycling from water to land.

Socio-economic importance of turtles

Sea turtles have also provided an important source of food and protein to coastal communities for centuries, as well as been a source of income. Sea turtles also form important components of many cultures worldwide and can hold great significance for the local population. As sea turtle populations have decreased, they have become a valuable eco-tourism attraction in many countries, and also flagship species to help protect the oceans and coral reefs.



THREATS TO SEA TURTLES

Collection of eggs

Humans dig up many sea turtle nests for their protein needs or for selling. Turtle eggs are of importance in many coastal communities, and have traditionally been eaten for many years. Egg collection has passed sustainable limits in many other countries and this has resulted in decreased nesting turtle populations.

Catching turtles for human consumption and the illegal trade in turtle shells

Hunting of sea turtles for meat was widespread but with the decreased sea turtle populations and global conservation bans, the practice has been minimized in many countries. However, many other countries continue to hunt for sea turtles legally and illegally due to the long-standing traditions and fisheries. This is also true in many coastal communities in Liberia.

Turtles are also hunted for their shells, which fetch the much-needed income for most locals. However, if a country is a signatory to the Convention on International Trade in Endangered Species (CITES), the international trade in turtle meat, shell and eggs is illegal. Liberia and other countries in the world are signatories to the CITES treaty.

Destruction of nests by animals

Raccoons, dogs, crabs and birds are also known to eat turtle eggs. A large proportion of eggs laid are either eaten or disturbed, thus preventing their development into hatchlings.

Fisheries bycatch

Turtles can easily get caught in fishing nets, which may cause injury and death by drowning. In Liberia, artisanal fishermen killed many sea turtles especially the Leatherback, caught in their fishing nets. In some countries around the world, the fitting of Turtle Exclusion Devices (TEDs) in shrimp nets, which has a trap door that allows the turtle to escape but keeps the fish in the net, is a positive step to reducing bycatch.

Pollution

Accidental and deliberate discard of fishing gear means that there are a huge number of nets and hooks floating in the oceans around the world. Many turtles may get hooked or caught on these, and ultimately drown if they are unable to reach the surface to take their next breath. This is also a problem in Liberia.

Loss of nesting sites

Turtles return to the same beach on which they themselves hatched to lay their eggs. Construction of buildings and development of tourist resorts on nesting beaches can reduce the space for nesting and also increase the likelihood of disturbance from humans.

Artificial lighting on nesting beaches

Turtles use light to direct themselves to and from the sea – the oceanic horizon at night is brighter than the land horizon as the sea reflects more moon and starlight. Artificial lights from villages and building developments may disorient both adult turtles and hatchlings. If the disorientation leads them a distance away from the sea, it may result in them getting exhausted and dying before they return to the sea and may increase the chances of predation.

Climate change

Climate change has the potential of threatening the future of sea turtle populations. Climate change will impact sea turtle populations and their environment —the coral reefs, seagrasses, nesting beaches, etc. It has been proved that sex determination is temperature dependent. This means an increase in sand temperature will lead to a change in the ratio of male to female turtle hatchlings being produced.

Disease

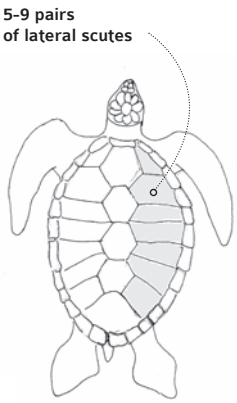
Many types of diseases have been observed in sea turtles. Recent reports of a rise in the occurrence of fibropapillomas, a tumorous disease that can kill sea turtles, is believed to be caused by pollution.

MEET THE Big 4 sea TURTLES in liberia

(LEPIDOCHELYS OLIVACEA)

OLIVE RIDLEY SEA TURTLE

1



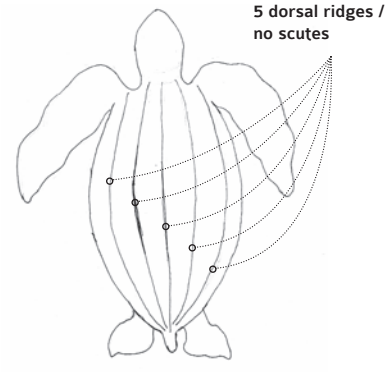
Olive Ridleys are the smallest of the sea turtle species found in Liberia. They can grow to be 62-70 cm (2 to 2.5 feet). The shell (carapace) of the ridley is olive colored and fairly heart-shaped and undersurface is a greenish white. Their head is quite small and carapace is bony without ridges and has no large scutes (scales) present. The Olive ridley carapace has 5 or more lateral scutes and is nearly circular and smooth. Its hatchlings are black when wet with greenish sides. The Olive ridley feeds on shrimps, crabs, mollusks, fish and tunicates. They come to the beach to lay eggs 2 times each season and their eggs are as much as 110 which take 52 to 58 days to develop. Olive ridleys live in tropical and subtropical waters of the Pacific, Indian and Atlantic Ocean.

2

(DERMOCHELYS CORIACEA)

LEATHERBACK SEA TURTLE

The ***Leatherbacks*** are the largest of the sea turtle species. They can grow to be 130 to 183cm (4 to 6 feet long). They can swim everywhere and are the only turtle species known to be active in water below 40 degree Fahrenheit. They are called the champion of all sea turtles. The Leatherbacks have no scutes (scales) on their head nor do they have scales on their carapace like other sea turtles. The carapace of the leatherback is soft and leathery with seven ridges running front to back. They are bluish black all over except for their plastron (bottom shell), which is white. They feed almost exclusively on soft-bellied animals and their favorite food is jellyfish. They have a deeply notched upper jaw and can weigh up to 2,000 pounds. The Leatherbacks can be found in open oceans. They nest 4 to 7 times in a season and their eggs will usually develop in about 65 days.

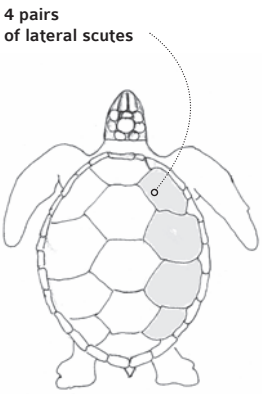


MEET THE Big 4 sea TURTLES in liberia

(CHELONIA MYDAS)

GREEN SEA TURTLE

3



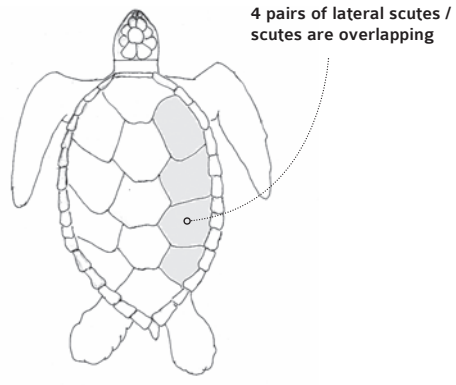
The ***Green Turtles*** are the second largest of all sea turtles species. They can grow up to 3 to 4 feet in carapace length (83 – 114 cm) and can weigh up between 239 to 872 pounds. They are named because of the green color of the fat under the shell and have only four lateral scutes. When the Greens are smaller, they eat worms, young shellfish, aquatic insects, sea grasses and algae; whereas when they grow into adult, they feed almost exclusively on seagrasses and algae. Because their jaws are saw-like, it enables them to tear vegetation. The Green turtles stay mostly near the coastline and around islands and can live in the lagoons, bays and protected shores, especially in areas with sea grass beds. They nest between 3 to 5 times per season at an interval of 2 to 4 years. On the average, they lay up to 115 eggs in each nest and their eggs get developed in about 60 days. The Green turtle hatchlings are dark-brown or nearly black with a white underneath and white flipper margins. They are found in all temperature and tropical waters throughout the world.

4

(ERETMOCHELYS IMBRICATA)

HAWKSBILL SEA TURTLE

The ***Hawksbills*** are one of the smaller sea turtles species but are usually larger than the Olive and Kemp's Ridleys. They have a narrow head and hawk-like mouth and have four lateral scutes like the Green sea turtles except the scutes of their carapace are over-lapping. They have a carapace like an egg-shape and their flippers have 2 claws. The color of a Hawksbill's carapace is orange, brown or yellow and their babies (hatchlings) are mostly brown with light marks on the scutes. The Hawksbill can go up to 3 feet in carapace length (71 – 89 cm) and can weigh between 101 and 154 pounds. They eat sponges, sea anemones, squid and shrimp. They live typically around coastal reefs, rocky area and lagoons and can nest at an interval of 2 to 4 years and 3 to 6 times per season. The Hawksbill on average lays about 160 eggs in each nest and take up to 60 days to develop. They are the most tropical of all sea turtles and can be found in tropical and subtropical waters of the Atlantic, Pacific and Indian Oceans.



FACTS ABOUT OUR

sea TURTLES

in liberia

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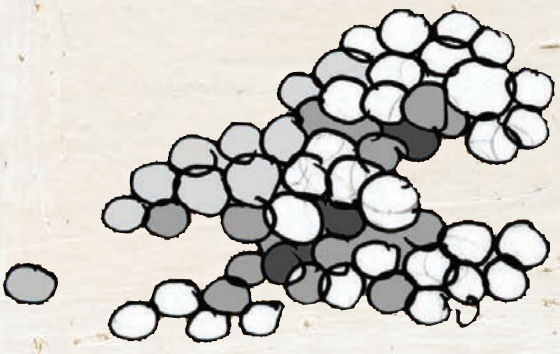
QUICK IMPORTANT FACTS:

- Sea turtles are reptiles.
- Sea turtles have a hard shell that protects them like a shield; this upper shell is called a 'carapace'.
- Sea turtles also have a lower shell called a 'plastron'.
- Sea turtles have existed for around 215 million years.
- Like other reptiles, sea turtles are cold blooded.
- The largest sea turtle is the leatherback; it can weigh over 900 kg! (2000 lb)
- Sea turtles lay eggs.

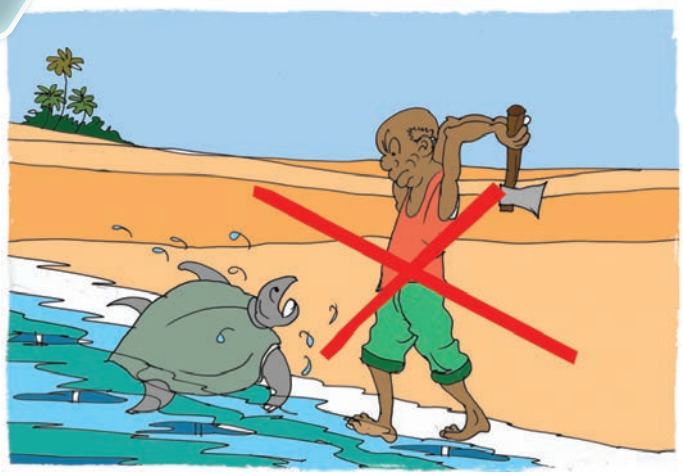


- In sea turtles, the temperature determines if the egg will develop into a male or female; lower temperatures lead to a male while higher temperatures lead to a female.

- Sea turtles lay eggs in the sand and leave them to hatch on their own. The young sea turtles make their way to the top of the sand and scramble to the water while trying to avoid predators.
- Sea turtles have special glands, which help remove salt from the water they drink.
- On land, sea turtles are very slow movers (having a giant shell doesn't help!).
- All sea turtles in Liberia are endangered and are protected by Law.

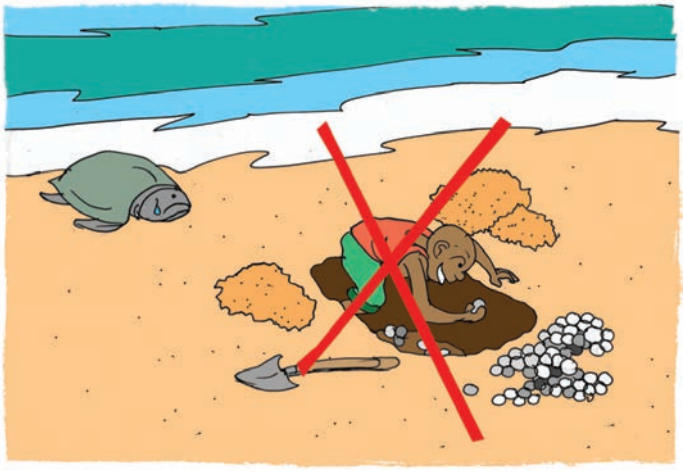
THE do's & DON'TS TO HELP SEA TURTLES SURVIVE

Pass by quietly or mark a sea turtle nest, if you see a Sea Turtle nesting on your community beach. Protect the nest from all threats...



DON'T Kill, injure or abuse a Sea Turtle. Sea Turtles are our Ocean friends. Protect them.

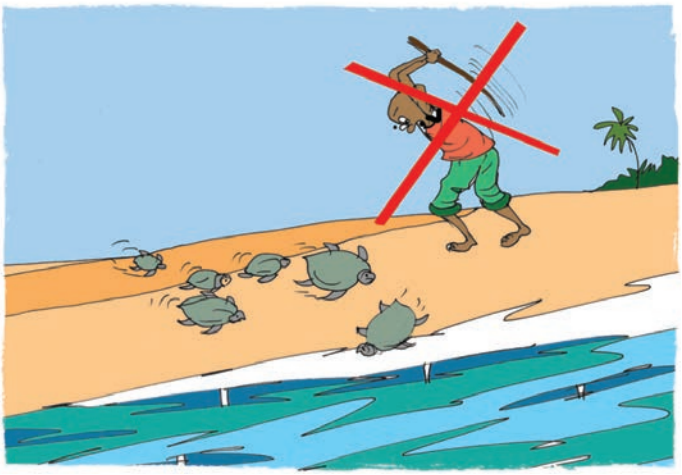
Report to a monitor, your Town Chief, Elders or any Law Enforcement Officer, if you see a nesting sea turtle on your beach or saw someone digging out a nest or selling sea turtle meat on the market...



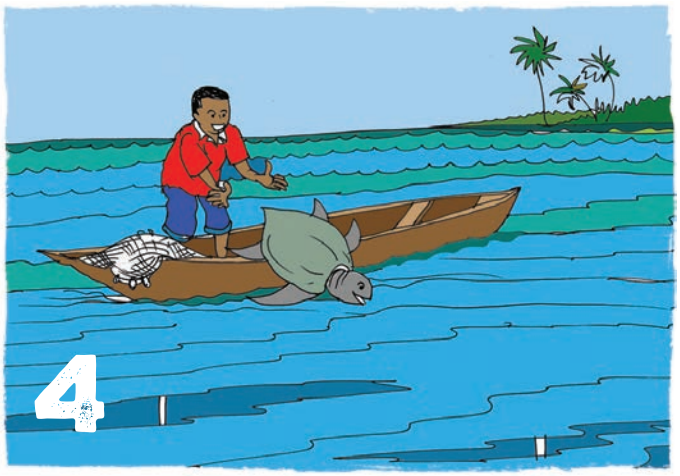
DON'T Dig out a Sea Turtle Eggs. Sea Turtles need our help to survive. Report anyone you see digging out a Sea Turtle Nest.

THE do's & DON'TS TO HELP SEA TURTLES SURVIVE

Safeguard the returning hatchlings by driving away crabs, birds or any other threats from their paths...



DON'T Kill the hatchlings or pick them up when they have emerged and are heading for the ocean.

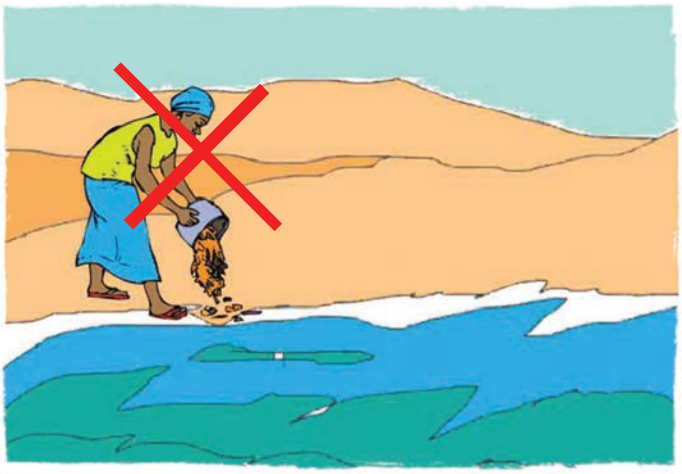


Release any sea turtle caught in your fishing nets; Sea Turtles are protected by law in Liberia...

DON'T Sell Sea Turtle meat or eggs in the market.

DON'T Use a very bright light (flashlights) or use firework on the beach at night during the nesting season, which starts in October of each year.

Setup you own community monitoring team and inform **Sea Turtle Watch (0886563875)** or **Save My Future Foundation (0886552618)** for a meeting with your group.



DON'T Leave dirt or waste such as plastic bags or fishing nets on your beach or even throw them in the water. Sea turtles may eat a plastic bag, thinking that it is a jellyfish and as a result they will die.

GLOSSARY

Breeding	The mating and production of offspring by animals.
Bycatch	Species caught secondary to the target species being fished for such as sea turtles being caught in long-line swordfish fisheries.
Carapace	A shell on the back of the sea turtle.
Clutch	A single batch of eggs laid by a sea turtle.
Coral Reefs	A ridge of rock in the sea formed by the growth and deposit of coral.
Ecosystem	A community of plants, animals and smaller organisms that live, feed, reproduce and interact in the same area or environment.
Endangered Species	A species that is considered to be facing a very high risk of extinction in the wild.
Extinction	The end of an organism or of a group of organisms, normally a species.
Fibropapillomas	Both internally and externally, a benign cauliflower-like tumor grows on the soft and hard tissues on the sea turtles. This is a disease caused by a virus, and is commonly found in juveniles and sub-adults.
Flagship Species	A species selected to act as an ambassador, icon or symbol for a defined habitat, issue, campaign or environmental cause.
Habitat	A place where species get what they need to survive: food, water, cover, and/or a place to raise young.
Hatchlings	The newborn of animals that develop and emerge from within hard-shell eggs such as reptiles.
Juvenile	An immature, non-reproducing sea turtle.
Maturity	The state, fact, or period of being mature (adulthood).
Migration	The seasonal movement of animals from one region to another.
Plastron	The part of the shell that is on the belly of the turtle.
Predation	An interaction where a predator (an organism that is hunting) feeds on its prey (the organism that is attacked).
Reptiles	Are cold-blooded vertebrates of a class that includes snakes, lizards, crocodiles, turtles, and tortoises. They are distinguished by having a dry scaly skin, and typically laying soft-shelled eggs on land.
Scutes	Are bony plates or shield-like scales found on sea turtles or other animals such as crocodiles and even some birds.
Seagrass	Found in coastal waters of most of the world's continents. They are the main diet of adult green turtles and provide a habitat for many other species.
Turtle Excluder Device (TED)	A device used in shrimp trawling nets that allows sea turtles to escape if accidentally caught.

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iv. Indian Ocean Community Conservation Handbook – Marine Turtle Conservation (www.livewiththesea.org)
v. National Oceanic and Atmospheric Administration (NOAA) – Education Resources (www.education.noaa.gov/Marine_Life/Sea_Turtles.html)

WWW.**SEATURTLEWATCHLR.ORG**

THE **SEA TURTLE WATCH** (LIBERIA) IS WORKING DIRECTLY WITH OTHER INTERNATIONAL AND LOCAL NGOS TO BUILD AN ALLIANCE WITH THE RESPONSIBLE GOVERNMENT AGENCIES AND COASTAL COMMUNITIES IN AN EFFORT TO SAVE SEA TURTLES AND THEIR HABITATS IN LIBERIA.

Mission: Sea Turtle Watch (Liberia) was founded in 2009 to save sea turtles from imminent extinction through community-based programs and development.

Our partners

The Save My Future (SAMFU) Foundation is a local NGO working to promote partnerships with environmental organizations, the Liberian government and communities to ensure a sustainable management of Liberia's natural resources.
www.samfufoundation.org

The Reptiles and Amphibians Program - Sierra Leone is the gateway to reptiles and amphibians of Sierra Leone. RAP-SL has realized that reptiles and amphibians are not so much studied in Sierra Leone except sea turtles and that majority is within the local data deficient species group.
www.rapsl.org

The Environmental Protection Agency of Liberia is an autonomous regulatory agency, mandated to ensure the integration of environmental concerns overall, in national planning, environmental protection and conservation of the Republic of Liberia.
www.epaliberia.org

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