SEA TURTLE HANDLING GUIDELINES

ABSTRACT

Studies have shown that several anthropogenic activities such as the incidental catch in fishing operations has resulted in the decline of sea turtle population. Among fisheries that incidentally capture sea turtles, certain trawl, gillnets, longline and purse seine fisheries generally pose the greatest threat. To facilitate the mitigation measures recommended to be utilized by these fisheries, this document provides guidance on the identification, handling, and release of sea turtles

BELIZE HIGH SEAS FISHERIES UNIT

BHSFU

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OVERVIEW OF SEA TURTLES[1]

Sea turtles are large, air breathing reptiles that inhabit tropical and sub-tropical seas throughout the world. Their efficient bodies and large flippers make them extremely adapted to sea life. Sea turtles maintain a proximity to land, especially the female species that must come ashore to lay their eggs in the sand. All sea turtles begin their lives on land.

There are seven different species of marine turtles that grace our oceans. While these highly migratory species periodically come ashore to either nest or relax, they spend most of their time in the ocean. Over the years, human activities have threatened the survival of these ancient mariners. Killed for their eggs, meat, skin, and shells, they also suffer from poaching and over exploitation. They also face habitat destruction and accidental capture, known as bycatch in fishing gear and climate change. Nearly all species of sea turtles are classified as either endangered, threatened or critically endangered. For this reason, it is important that we take measures to stop the decline of these beautiful creatures and work towards the recovery of these species.

GENERAL DESCRIPTION

Each species of sea turtle looks and behaves distinctly, but they do have several common characteristics. Their shells consist of an upper part (carapace) and a lower section (plastron). Hard scales (scutes) cover all but the leatherback turtle, and the number and arrangement of these scutes can be used to identify each species. They do not have teeth, but their jaws have modified breaks suited to their diets.

They do not have visible ears but have eardrums covered by skin. They hear best at low frequencies, and their sense of smell is excellent. Their vision underwater is good, but they are nearsighted out of water.

REPRODUCTION

Only females come ashore to nest, males rarely return to land after crawling into the sea as hatchlings. Most females return to nest on the beach where they were born (natal beach). Nesting seasons occur at different times around the world, generally during the warm spring and summer months. Most females nest at least twice during each season; some may nest up to ten times in a season. A female will not nest in consecutive years, typically skipping one or two years.

GROWTH AND DEVELOPMENT

Researchers do not yet know how long hatching sea turtles spend in the open sea or exactly where they go. It is theorized that they spend their earliest, most vulnerable years floating around the sea in giant beds of seaweed, where they do little more than eat and grow. Once a turtle reach 12 to 14 inches in length, they appear at feeding areas in nearshore waters.

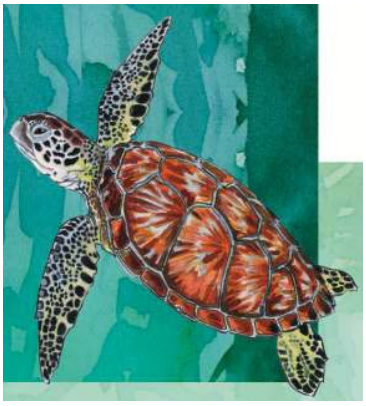
They grow slowly and take between 15-50 years to reach reproductive maturity, depending on the species. There is no way to determine the age of the sea turtle from its physical appearance. It is theorized that some species can live more than 100 years.

[1] www.conserveturtles.org

SEA TURTLE SPECIES

There are seven known species of sea turtles that grace our oceans.

1. GREEN SEA TURTLE – Named for the green color of the fat under its shell - (Scientific name: *Chelenia mydas*)



DESCRIPTION:

They are easily distinguished from other sea turtles because they have a single pair of prefrontal scales (scales in front of its eyes), rather than two pairs as found on other sea turtles. Head is small and blunt with a serrated jaw. Carapace is bony without ridges and has large, non-overlapping, scutes (scales) present with only 4 lateral scutes. Body is nearly oval and is more depressed (flattened) compared to Pacific green turtles. All flippers have 1 visible claw. The carapace color varies from pale to very dark green and plain to very brilliant yellow, brown and green tones with radiating stripes. The plastron varies from white, dirty white or yellowish to dark grey-bluish-green. Hatchlings are dark-brown or nearly black with a white underneath and white flipper margins.

SIZE AND WEIGHT

Adults are 3 to 4 feet in carapace length (83-114 cm), largest of the Cheloniidae family. Adults weigh between 240 to 420 pounds (110-190 kg).

HABITAT AND NESTING

Mainly stay near the coastline and around islands and live in bays and protected shores, especially in areas with seagrass beds. Rarely are they observed in the open ocean. Nest at intervals of about 2 years. They lay 3 to 5 nests per season, approximately 12 to 14 days apart. Lays an average of 100 to 126 eggs per nest. Eggs incubate for about 60 days.

RANGE AND STATUS

Found in all temperate and tropical waters throughout the world. Listed as Endangered (facing a very high risk of extinction in the wild in the near future).

2. LOGGERHEAD TURTLE – Named for its exceptionally large head – (Scientific name: *Caretta caretta*)

DESCRIPTION:

Head is very large with heavy strong jaws. Carapace is bony without ridges and has large, non-overlapping, rough scutes (scales) present with 5 lateral scute. Carapace is heart shaped. Front flippers are short and thick with 2 claws, while the rear flippers can have 2 or 3 claws. Carapace is a reddish-brown with a yellowish-brown plastron. Hatchlings have a dark-brown carapace with flippers pale brown on margins.

SIZE AND WEIGHT

Adults are typically 2.5 to 3.5 feet in carapace length (80-110 cm). Adults weigh between 155 and 375 pounds (70 -0 170 kg).

HABITAT AND NESTING

Prefer to feed in coastal bays and estuaries, as well as in the shallow water along the continental shelves of the Atlantic, Pacific and Indian Oceans. Nest at intervals of 2 to 4 years. They lay 3 to 6 nests per season, approximately 12 to 14 days apart. Lays an average of 100 to 126 eggs per nest. Eggs incubate for about 60 days.

RANGE AND STATUS

Found in all temperate and tropical waters throughout the world. Listed as Endangered (facing a very high risk of extinction in the wild in the near future).

3. HAWKSBILL TURTLE – Named for its narrow head and hawk-like beak – (Scientific name: *Eretmochelys imbricata*)

DESCRIPTION

The hawksbill is one of the smaller sea turtles. Head is narrow and has 2 pairs of prefrontal scales (scales in front of its eyes). Jaw is not serrated. Carapace is bony without ridges and has large, over-lapping scutes (scales) present and has 4 lateral scutes. Carapace is elliptical in shape. Flippers have 2 claws. The carapace is orange, brown or yellow and hatchlings are mostly brown with pale blotches on scutes.

SIZE AND WEIGHT

Adults are 2.5 to 3 feet in carapace length (71-89 cm). Adults weigh between 101 to 154 pounds (46-70 kg).

HABITAT AND NESTING

Typically found around coastal reefs, rocky areas, estuaries and lagoons. Nest at intervals of 2 to 4 years. Nests between 3 to 6 times per season. Lays an average 160 eggs in each nest. Eggs incubate for about 60 days.

RANGE AND STATUS

Most tropical of all sea turtles. Tropical and subtropical waters of the Atlantic, Pacific and Indian Oceans. Listed as Critically Endangered (facing an extremely high risk of extinction in the wild in the immediate future).

4. LEATHERBACK TURTLE – Named for its unique shell, which is composed of a layer of think, tough, rubbery skin, strengthened by thousands of tiny bone plates that makes it look leathery – (Scientific name: *Dermochelys coriacea*)

DESCRIPTION

Head has a deeply notched upper jaw with 2 cusps. The leatherback is the only sea turtle that lacks a hard shell. Its carapace is large, elongated and flexible with 7 distinct ridges running the length of the animal. Composed of a layer of thin, tough, rubbery skin, strengthened by thousands of tiny bone plates, the carapace does not have scales, except in hatchlings. All flippers are without claws. The carapace is dark grey or black

with white or pale sports, while the plastron is whitist to black and marked by 5 ridges. Hatchlings have white blotches on carapace

SIZE AND WEIGHT

4 to 6 feet (130 – 183 cm). The largest leatherback ever recorded was almost 10 feet (305 cm) from the tip of its beak to the tip of its tail and weighed in at 2,019 pounds (916 kg). Weight is 660 to 1,100 pounds (300 – 500 kg).

HABITAT AND NESTING

Primarily found in the open ocean, as far north as Alaska and as far south as the southern tip of Africa, though recent satellite tracking research indicates that leatherbacks feed in areas just offshore. Known to be active in water below 40 degrees Fahrenheit, the only reptile known to remain active at such a low temperature.

Nest at intervals of 2 to 3 years, though recent research has indicated they can nest every year. Nests between 4 to 7 times per season, with an average of 10 days between nesting. Lays an average of 80 fertilized eggs, the size of billiard balls, and 30 smaller, unfertilized eggs, in each nest. Eggs incubate for about 65 days. Unlike other species of sea turtles, leatherback females may change nesting beaches, though they tend to stay in the same region.

RANGE AND STATUS

Most widely distributed of all sea turtles. Found worldwide with the largest north and south range of all the sea turtle species. With its streamlined body shape and the powerful front flippers, a leatherback can swim thousands of miles over open ocean and against fast currents. Listed as Vulnerable in 2013 (facing a high risk of extinction in the wild in the immediate future) by the International Union for Conservation of Nature and Natural Resources.

5. **KEMP'S RIDLEY SEA TURTLE** – Named Kemps after Richard Kemp, who helped discover and study the turtle. No one is sure why its called ridley, possibly due to having similar nesting behavior as the olive ridley – (Scientific name: *Lepidochelys Kempii*)

DESCRIPTION

There are no sources in the current document.

Head is moderate and triangular in size. Carapace is bony without ridges and has large, non-overlapping scutes (scales) present. Carapace has 5 lateral scutes and is very rounded. Front flippers have 1 claw, while the rear flipper has 1 or 2 claws. Adults have a dark grey green carapace with a white or yellowish plastron, while the hatchlings are jet black.

SIZE AND WEIGHT

Adults measure around 2 feet (58 – 66 cm) in average carapace length. Adults weigh between 70 and 108 pounds (32 – 49 kg).

HABITAT AND NESTING

Prefer shallow areas with sandy and muddy bottoms. Kemp's ridleys nest more often than other species, every 1 to 3 years on average. They also nest in mass synchronized nestings called arribadas (Spanish for "arrival"). Only the olive ridley also nests this way. Kemp's ridley nest 2 – 3 times each season. They lay an average of 110 eggs in each nest and the eggs incubate for about 55 days.

RANGE AND STATUS

Adults are mostly limited to the Gulf of Mexico. Juveniles range between tropical and temperate coastal areas of the northwest Atlantic Ocean and can be found up and down the east coast of the United States. Listed as Critically Endangered (facing an extremely high risk of extinction in the wild in the immediate future) by the International Union for Conservation of Nature and Natural Resources.

6. **OLIVE RIDLEY SEA TURTLE** – Named for its olive-green colored shell – (Scientific name: *Lepidochelys olivacea*)

DESCRIPTION

Head is quite small. Carapace is bony without ridges and has large scutes (scales) present. Carapace has 6 or more lateral scutes and is nearly circular and smooth. Its body is deeper than the very similar Kemp's Ridley sea turtle. Both the front and rear flippers have 1 or 2 visible claws. There is sometimes an extra claw on the front flippers. Juveniles are charcoal grey in color, while adults are a dark grey green. Hatchlings are black when wet with greenish sides.

SIZE AND WEIGHT

Adults measure 2 to 2.5 feet (62-70 cm) in carapace length. Adults weigh between 77 and 100 pounds (35-45 kg).

HABITAT AND NESTING

Generally found in coastal bays and estuaries but can be very oceanic over some parts of its range. They typically forage offshore in surface waters or dive to depths of 500 feet (150 m) to feed on bottom dwelling crustaceans.

Nest every year in mass synchronized nesting called arribadas (Spanish for "arrival"). Only the Kemp's ridley also nests this way. Nests 2 times each season. An average clutch size is over 110 eggs which require a 52 to 58-day incubation period.

RANGE AND STATUS

The olive ridley inhabits tropical and subtropical waters of the Pacific, Indian and Atlantic Oceans. Listed as Vulnerable (facing a high risk of extinction in the wild in the near future) by the International Union for Conservation of Nature and Natural Resources.

7. **FLATBACK SEA TURTLE**- Named because its shell is very flat - (Scientific name - *Natator depressus*)

DESCRIPTION

Head has a single pair of prefrontal scales (scales in front of its eyes). Carapace is bony without ridges and has large, non-overlapping, scutes (scales) present with only 4 lateral scutes. Carapace is oval or round and body is very flat. Flippers have 1 claw. Edge of carapace is folded and covered by thin, non-overlapping waxy scutes. Carapace is olive-grey with pale brown/yellow tones on margins and the flippers creamy white. The scutes of the hatchlings form a unique dark-grey reticulate pattern, and the center of each scute is olive colored.

SIZE AND WEIGHT

Adults measure up to 3.25 feet in carapace length (99 cm). Adults weigh an average of 198 pounds (90 kg).

HABITAT AND NESTING

Prefer turbid inshore waters, bays, coastal coral reef and grassy shallows. Nests 4 times per season. Lays an average of 50 eggs at time, but these are comparatively quite large. The eggs incubate for about 55 days. When the hatchlings emerge, they are larger than most species.

RANGE AND STATUS

Very limited. It is found only in the waters around Australia and Papua New Guinea in the Pacific. Listed as Data Deficient by the International Union for Conservation of Nature and Natural Resources. Was previously listed as vulnerable. Change in classification does not imply species recovery, it just indicates a lack of recent research into their abundance and distribution.

SEA TURTLE HANDLING GUIDELINES

STEP 1:

DETERMINE IF THE TURTLE IS SMALL ENOUGH TO BRING ON BOARD

Remember to use gaffs only on fishing gear, NOT on turtles

IF TURTLE IS TOO BIG TO BRING ABOARD

- Bring turtle close to boat by pulling gently on the line.
- Determine if the turtle is hooked or entangled and choose the proper tools to remove as much fishing gear as possible from the turtle – including the hook.
- If the turtle is hooked and the hook is visible just inside the mouth or on the body, use long handled de-hookers to remove hook. See **Step 3** for instructions.
- If turtle is entangled or the hook is deep inside the mouth or throat and cannot be removed, use a long-handed line cutter to cut all lines
- Skip to **Step 5.**

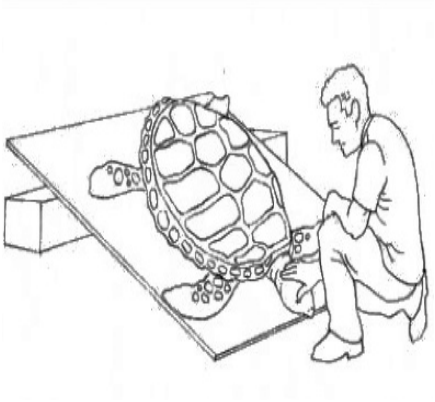
IF TURTLE IS SMALL ENOUGH TO BRING ABOARD

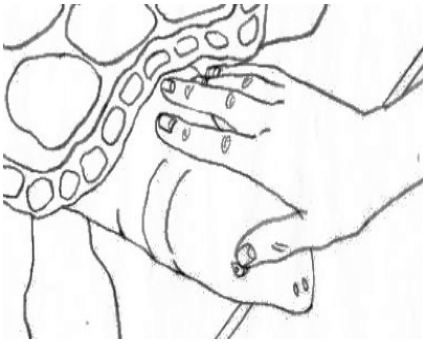
- Use dip net to bring turtle aboard
- Do not bring turtle aboard by pulling on fishing line or by grabbing the eye sockets.
- It may be helpful to grab the flipper close to the turtle's body when using the net to help bring it aboard.
- Go to **Step 2**

STEP 2:

AFTER THE TURTLE HAS BEEN BROUGH ABOARD, DETERMINE IF IT IS ALIVE OR APPEAR DEAD

A turtle that looks dead may just be very tired and can regain strength with your help





UNCONSCIOUS TURTLE – Inactive or appear dead

- Keep the turtle on a tire in a secure, shaded place away from activity.
- Remove fishing gear using instructions in **Step 3**
- Place turtle on its belly and elevate back flippers at least 6 inches for at least 4 hours to help remove water from its lungs while recovering.
- Place wet towels on turtle. **DO NOT** cover its nostrils.
- Occasionally wet turtle with a deck hose. Avoid spraying turtle's head.
- Perform reflex test every 3 hours, by gently touching corner of the eye and lightly pulling on tail. Movement may indicate the turtle is recovering.
- If there is no movement from reflex test after at least 4 hours, but no more than 24 hours, release the turtle to be ocean using methods in **Step 4**
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CONSCIOUS TURTLES

- Keep the turtle on a tire in a secure, shaded place away from activity.
- Remove fishing gear using instructions in **Step 3**
- Release the turtle using methods in **Step 4**. You do not have to wait 4 or more hours before release

If Active

If not Active

i.e moving strongly and breathing regularly

Land the turtle on your boat. Watch it for activity (breathing or movements)

Keep the turtle onboard:

a. Raise the rear flippers about 20 cm off the deck to drain its lungs
b. Keep it shaded and damp.
c. Allow to recover for up to 24hrs

If not Active

Gently return the turtle to the water with:

a. The engine in neutral when possible.
b. Nets not trawling or in the water; and
c. Without dropping the turtle on the deck

STEP 3:

METHODS FOR REMOVING FISHING GEAR FROM A HOOKED TURTLE

TURTLE HOOKED WITH BARB EXPOSED

1. Using bolt cutter, remove the bard of the hook
2. Once bard has been clipped off, back the hook out to remove it

TURTLE HOOKED WITH BARB EMBEDDED

1. Follow instructions for using a pig-tail de-hooker
2. If hook cannot be removed, cut line as close as possible to hook.

TURTLE IS HOOKED, BUT YOU CANNOT SEE HOOK

- Cut fishing line as close as possible to hook without pulling hard on line

TURTLE ENTANGLED IN FISHING LINE

- Use monofilament or wire cutters to remove all fishing line from turtle.

IF BOLT CUTTERS ARE NOT AVAILABLE

1. Place a pig-tail de-hooker or similar hand-held tool on the line above hook. To get the de-hooker on the line, refer to pig-tail de-hooker instructions.
2. Slide the device down the line to the bottom of the hook
3. Pull the line so it is opposite from the handle to the de-hooker
4. Keep the line tight, then pull and twist the de-hooker to remove the hook.

STEP 4:

CAREFULLY RETURN THE TURTLE TO THE WATER

1. Stop vessel
2. Release the turtle away from any fishing gear in the water
3. Gently rub turtle in water, head first
4. Make sure turtle is clear of vessel before motoring away

STEP 5:

RECORD THE INTERACTION IN YOUR LOGBOOK

1. Record the identified species
2. Write down how much fishing gear remained on the turtle after release
3. Record status of the turtle after all life saving techniques have been utilized (Dead or Alive).
4. Record any tag numbers observed on turtle

WHEN TO LEAVE HOOKS IN PLACE

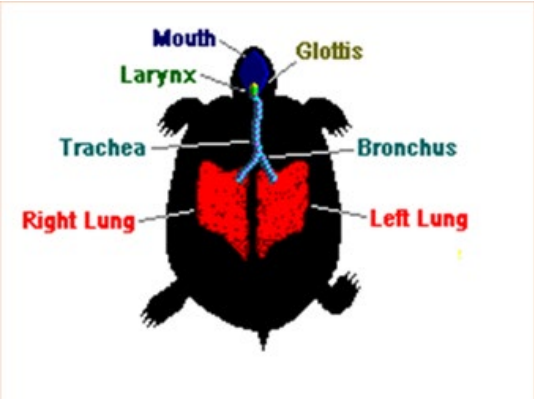
It is generally good practice to remove all fishing gear from the turtle, but there are instances when the gear should NOT be detached. Leave the hook in place and cut the line as close as possible to the hook itself.

THE HOOK HAS BEEN SWALLOWED

Forcing a de-hooking device down the turtle's throat may worsen its injuries or cause an infection.

THE HOOK HAS PIERCED THE ROOF OF THE MOUTH

Trying to remove this hook may cause damage to the Organs and nerves of the turtle's head.

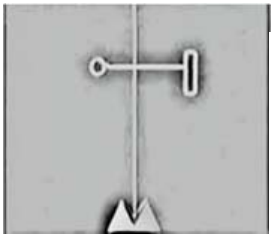


THE HOOK IS IN THE GLOTTIS

The glottis is situated at the back of the mouth and covers the airways. Trying to remove hooks from the glottis may cause additional injury and prevent the turtle from covering its airway during dives.

Glottis: slit-like opening behind the tongue.

DE-HOOKING J-HOOKS USING A PIG-TAIL DE-HOOKER WITH YOUR RIGHT HAND



Place the de-hooker at 90-degree angle to the line with the ends of the pigtail facing up

Run the de-hooker down the line until it engages the bottom bend of the hook

Draw the de-hooker back towards you like a bow and arrow until loop pulls on the line, maintaining contact between the de-hooker and the line

Pull the line tight and parallel to the de-hooker. Give a quick thrust to remove the hook.

Rotate the de-hooker ¼ turn clockwise (The line should be inside the curl of the de-hooker

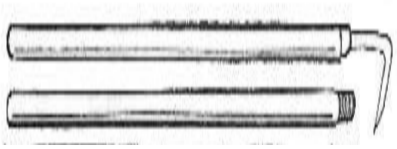
Keep the line tight so the hook remain inside the curl of the de-hooker until hook is clear of the turtle

CIRCLE HOOKS

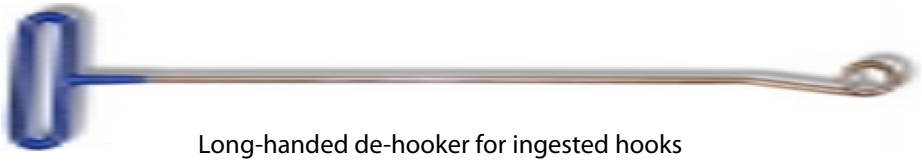
When using the long-handled pigtail de-hooker on a turtle in the water, it may be easier to remove circle hooks if the line is not parallel to the de-hooker's handle once the de-hooker is on the line.

- While keeping the line tight, separate the line and de-hooker then try to push and twist the de-hooker to dislodge the hook. This may work better than quick thrusts.
- If you cannot remove the hook, cut the line as close as possible to the hook
- If turtle is aboard try to rotate the hook back out using the line or pliers before using the de-hooker. This may help remove the hooks.

EQUIPMENT USED TO HANDLE AND RELEASE SEA TURTLES



Line Cutter

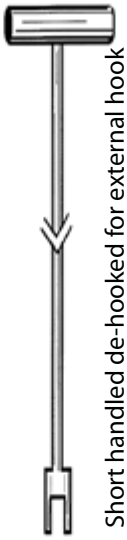


Long-handed de-hooker for ingested hooks

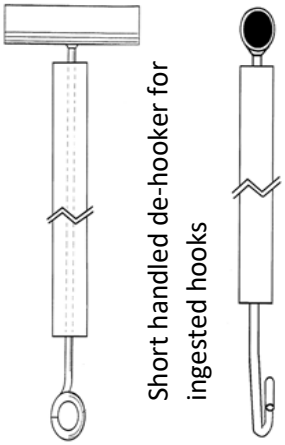
Long-handled de-hooker to external hooks

Long handled device to pull an inverted V

Bolt Cutter



Short handled de-hooked for external hook

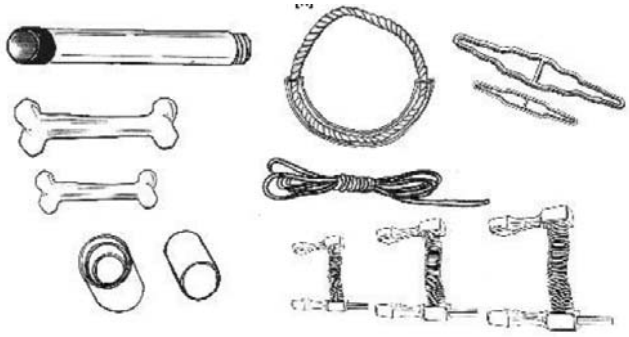


Short handled de-hooker for ingested hooks

Line cutter

Dip-net

Long nose/needle nose pliers



Different mouth openers

- Wood or metal tube
- Canine mouth gag
- Dog chew bones
- Rope loops
- Hank of rope
- Pvc splice couplings
- Large avian oral speculum

Standard automobile tire

CONCLUSION

The earliest known sea turtle fossils are about 110 million years old. In groups too numerous to count, sea turtles once navigated throughout the world's oceans, but in just the past 100 years, demand for sea turtle meat, skin, eggs and colorful shells has reduced their numbers. Destruction of feeding and nesting habitats and pollution of the world's oceans are all taking a serious toll on the remaining sea turtle population. There could be a time soon when sea turtles are just a thing of the past and an oddity in aquariums and natural history museums – unless we take action today.

Some of the known and most prevalent threats to sea turtles are: harvesting for consumption, illegal sea turtle shell trade, commercial fishing where these creatures are captured mostly through long line and trawl fisheries, marine debris which cause ingestion and entanglement, artificial lighting which discourages female turtles from nesting, coastal armoring caused by urbanized developments, beach erosion and activities, invasive species predation, marine pollution, oil spills and climate changes.

With so many threats to their survival it is no wonder some of these species are near extinction. But we can help, so let's do our part to help conserve these ancient mariners.

HOW WE CAN HELP

There are many things each of us can do to help sea turtles survive. First, we must remember that we share the oceans and the beaches with many other species. Second, become informed about the things that are killing these beautiful creatures or destroying their habitat. There are many literatures available on how we can help curb the demise of these sea turtles and many decisions are taken by governments and conservation organizations on issues that affect sea turtles. Being informed, you have the power to influence the outcome of these decisions and help save the sea turtles. Take responsibility for your actions by simply reducing the number of plastic garbage thrown in the seas and oceans, use bio-degradable chemicals, do not leave trash on the beaches and for those involved in commercial fisheries, practice best techniques to reduce sea turtle mortality in fishing operations. YOU CAN SAVE SEA TURTLES AND PROECT COASTAL HABITATS.

References

FAO's Guidelines to Reduce Sea Reduce Sea Turtle Mortality in Fishing Operations.

Sea Turtle Conservancy Website www.conserveturtles.org

Sea Turtle Conservation Guide

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