

SC Sea Turtle Stranding and Salvage Network Species Identification and Training Guide

South Carolina Department of Natural Resources
Marine Turtle Conservation Program (MTCP)
P.O. Box 12559
Charleston, SC 29422
Office: 843-953-9015
E-Mail: seaturtles@dnr.sc.gov

**To Report a Sea Turtle Stranding
Call SCDNR Law Enforcement Radio Room:
1-800-922-5431**

Contents

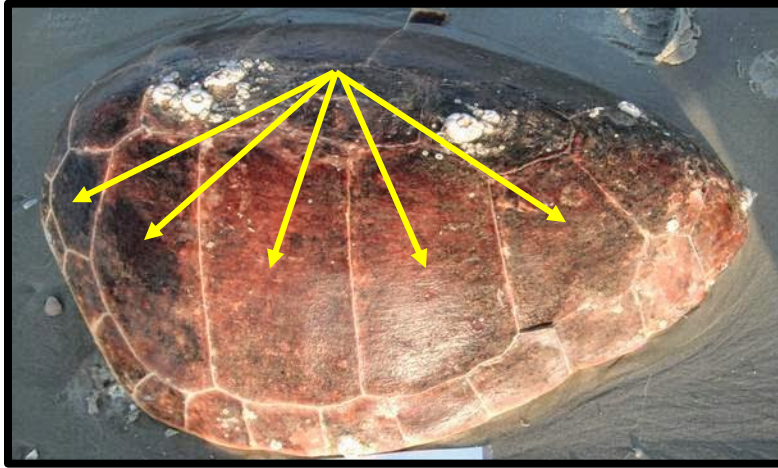
Species Identification	3
Loggerhead (<i>Caretta caretta</i>)	3
Scutes	3
Coloration	4
Kemp's Ridley (<i>Lepidochelys kempii</i>)	5
Scutes	5
Coloration	6
Green sea turtle (<i>Chelonia mydas</i>)	7
Scutes	7
Coloration	8
Leatherback sea turtle (<i>Dermochelys coriacea</i>)	9
Scutes	9
Coloration	9
Hawksbill (<i>Eretmochelys imbricata</i>)	10
Scutes	10
Skeletal	10
Skulls	10
Entoplastron	11
Sex determination	12
Male	12
Female	12
Tail measurement	12
Tags	13
Flipper tags	13
PIT tags	14
Living tags	14
Measurements	15
Curved Measurements	15
Measuring Leatherbacks	15
Straight Measurements	15
Injuries and Disease	16
Watercraft	16
Disease	16
Debilitated Turtle Syndrome (DTS)	16
Cataracts	17
Fibropapilloma (Fp)	17
Shark	17
Entanglement	18
Dredge	18

Species Identification

Loggerhead (*Caretta caretta*)

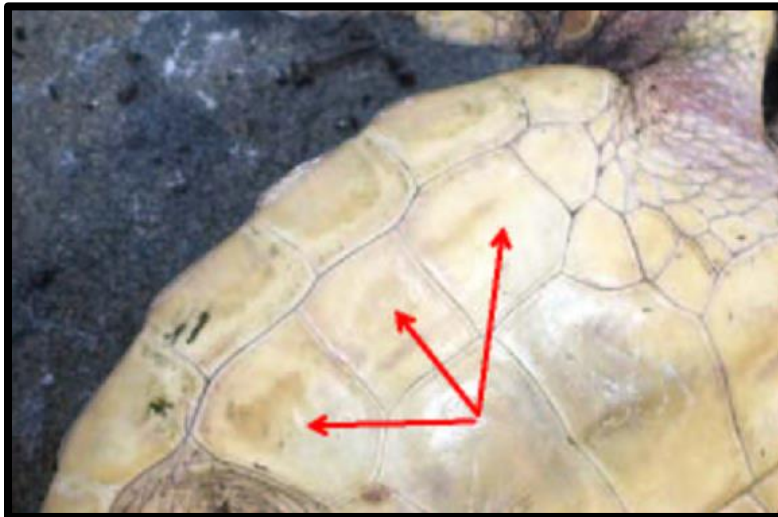
Scutes

Lateral/Costal scutes



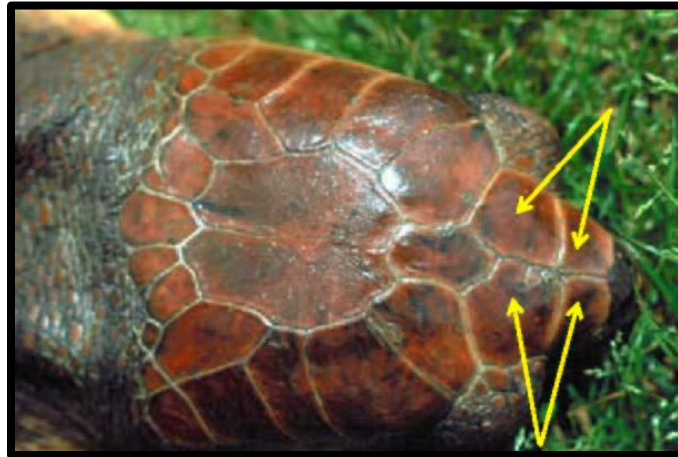
Loggerhead carapace showing five lateral/costal scutes and reddish-brown color.

Inframarginal scutes



Loggerhead plastron showing three inframarginal scutes and yellow color.

Prefrontal scales



Loggerhead reddish-brown head with more than one pair of prefrontal scales.

Coloration

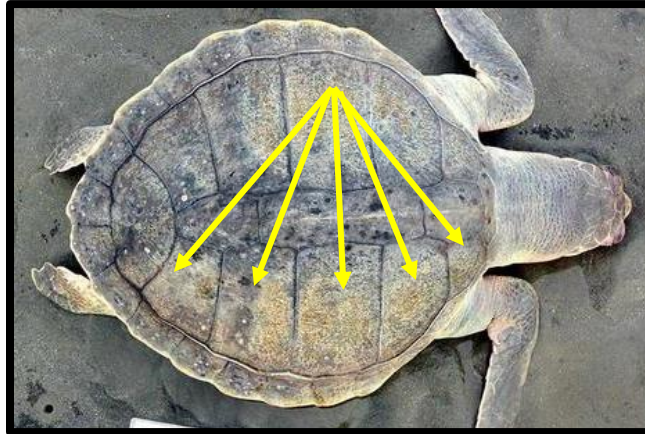


Typically loggerheads have a cream to yellow plastron and a brown to reddish brown carapace.

Kemp's Ridley (*Lepidochelys kempii*)

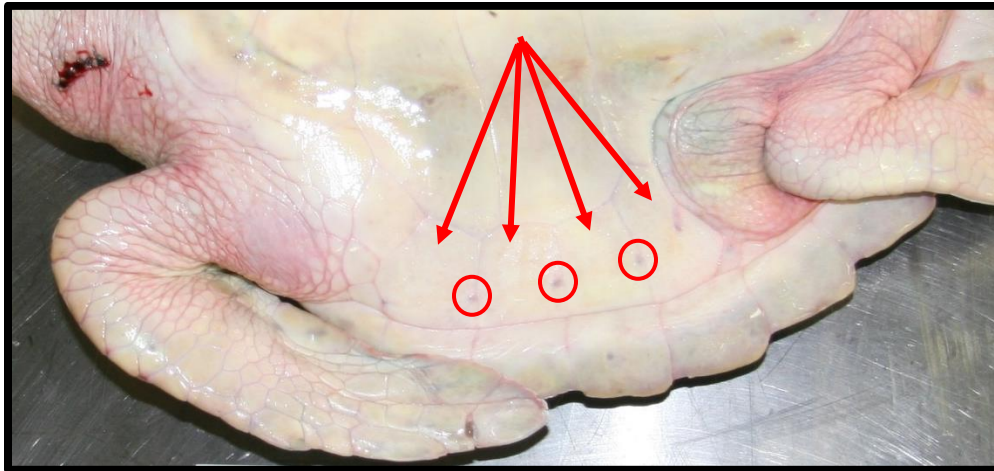
Scutes

Lateral/costal scutes



Kemp's ridley carapace showing five lateral/costal scutes and light olive color.

Inframarginal scutes



Kemp's ridley plastron showing creamy white color and four inframarginal scutes with pores.

Prefrontal scales



Kemp's ridley head showing more than one pair of prefrontal scales, hook on beak, and almond-shaped eyes.

Coloration



a) Juvenile Kemp's ridley carapace showing dark grey color and round shell. Kemp's ridleys have a carapace width equal to or greater than the carapace length. b) Adult Kemp's ridley carapace showing light olive green color. Shell color lightens as they mature.

Green sea turtle (*Chelonia mydas*)

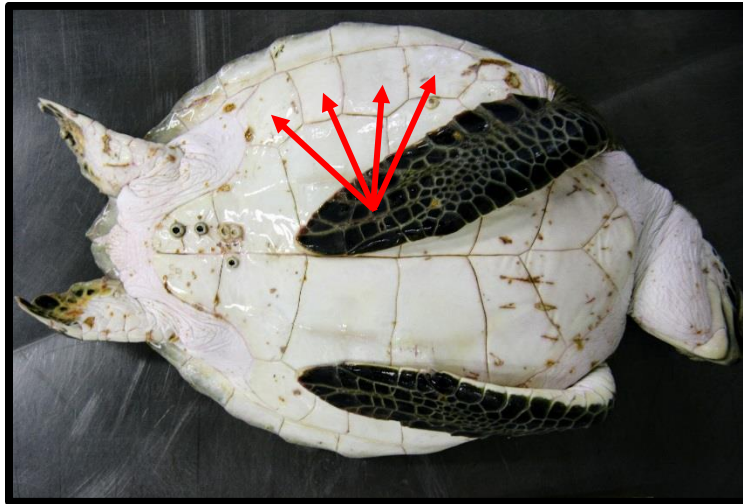
Scutes

Lateral/costal scutes



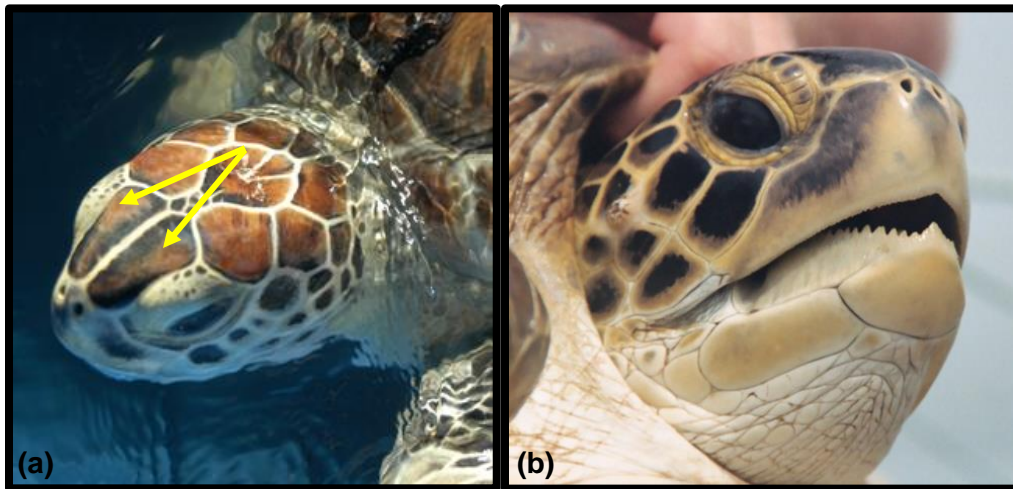
Green sea turtles have four lateral/costal scutes.

Inframarginal scutes



Green sea turtles have four inframarginal scutes without pores.

Prefrontal scales



a) Green sea turtle head showing one pair of prefrontal scales. b) Head showing serrated lower jaw.

Coloration



Green sea turtle carapace with sunburst pattern and showing typical size (10–12 inches) seen in South Carolina.

Leatherback sea turtle (*Dermochelys coriacea*)

Scutes



Leatherbacks do not have scutes or scales. Instead they have dorsal ridges running lengthwise along the top of the rubber-like carapace. Leatherbacks are the only sea turtle species that lack a hard carapace.

Coloration



Note the black coloration with white speckling.

Hawksbill (*Eretmochelys imbricata*)

Scutes



Hawksbill sea turtles have and an extremely ornate, serrated carapace with overlapping scutes. **There have been no verified strandings of this species in South Carolina.**



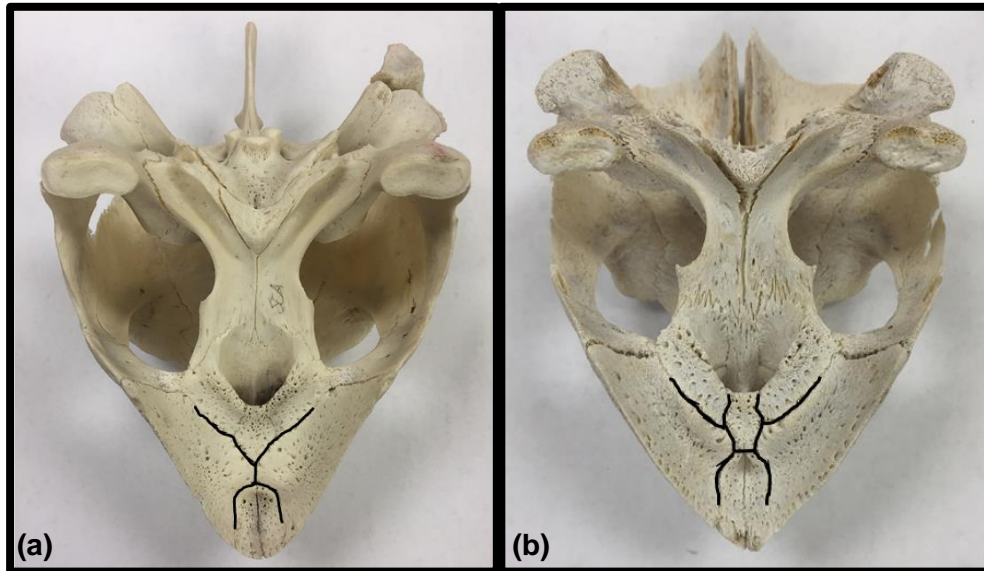
Hawksbill head with two pairs of prefrontal scales. Also note, pointed beak.

Skeletal

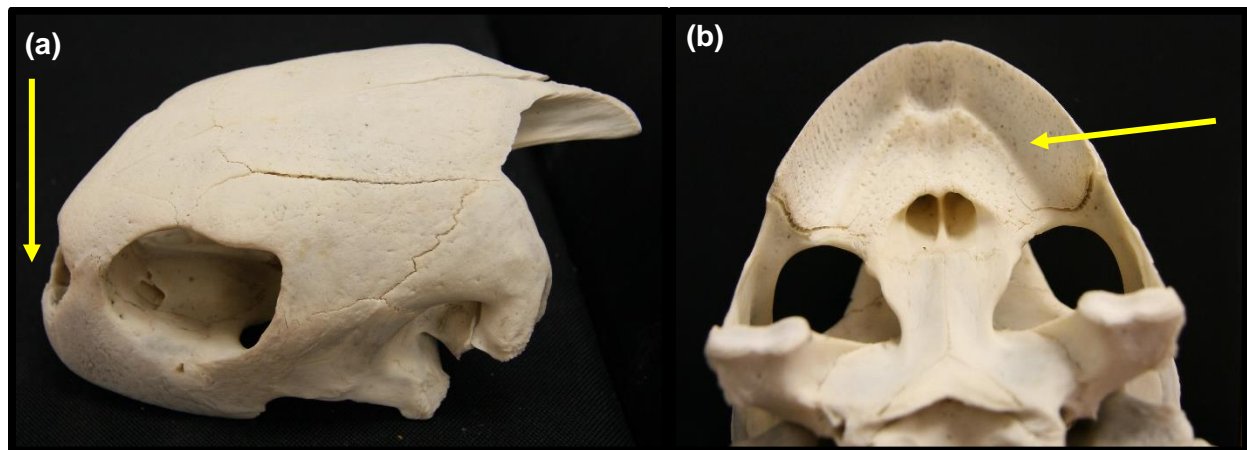
Skulls



Comparison of skulls from four sea turtle species found in SC. From left to right: juvenile Kemp's ridley, juvenile green, adult loggerhead, adult leatherback.



Comparison of a) loggerhead and b) Kemp's ridley maxillary bones in the skull. Notice that they touch on the loggerhead and are separated by a smaller bone on the Kemp's ridley.



Green sea turtle skull is distinct in that it has a) nearly vertical premaxillae and b) strong ridges in the roof of the skull that are parallel to the outer edge of the upper jaw.

Entoplastron



a) Comparison of entoplastron bones. From left to right: loggerhead, Kemp's ridley, green. b) Location of the entoplastron bone in sea turtles.

Sex determination

Male



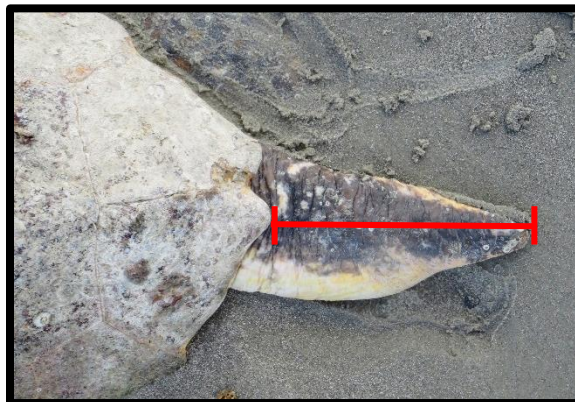
Adult male loggerhead showing elongate tail.

Female



Loggerhead juvenile or female showing shortened tail length.

Tail measurement



If the tail extends beyond the carapace, measure from carapace tip to tip of tail. Be sure to check tail length in all loggerheads over 80cm CCL. Note: tails of both male and female leatherbacks extend beyond the carapace.

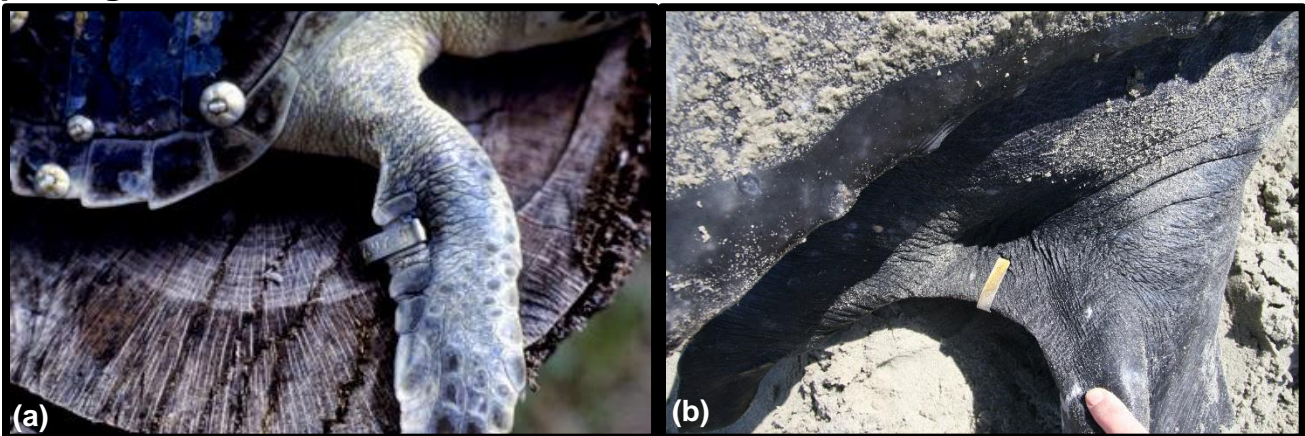
Leatherback Sex Determination Using Tail Length



Determining the sex of a leatherback externally can be done at the adult life stage (**155 cm CCL**). Sex can be determined by observing tail length and cloaca position. It is important to remember that the tails of both male and female adult leatherbacks extend beyond the carapace. The tail of the adult male leatherback is much longer than that of the female, and the cloaca is closer to the end of the tail in males. The tail of a male leatherback will extend beyond the rear flippers, whereas in females the tail barely reaches half-way down the hind flippers. a) Adult female: tail extends only half-way down rear flippers. b) Adult male: tail extends past rear flippers/presence of male sex organ.

Tags

Flipper tags



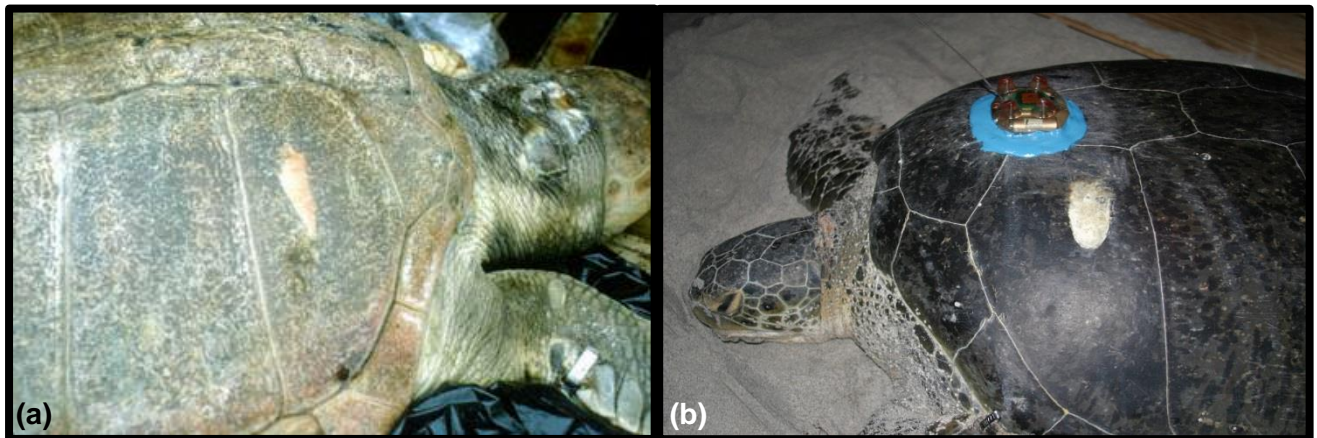
Flipper tags are metal with a unique alphanumeric code etched on one side and a return address on the other. These tags are typically pierced through the skin on the trailing edge of the front flippers of loggerhead, Kemp's ridley, and green sea turtles. Flipper tags will always be between the rear flipper and the cloaca in leatherbacks. Also be sure to always check all flippers for tag scars.

PIT tags



PIT stands for Passive Integrated Transponder. These tags are injected internally under the skin, into the muscle of sea turtles. About the size of a grain of rice, the PIT tag consists of inert wire, a chip, and a capacitor encased in glass. When a scanner is passed over the PIT tag, the radio frequency of the scanner will excite the PIT tag, which in turn will reflect the radio waves back to the scanner. In this way, the scanner can detect the unique alphanumeric code of the PIT tag. If you have a PIT tag scanner, scan the entire body while pressing the button and holding the scanner close to the turtle.

Living tags



Living tags are skin grafts from the light colored plastron to the darker colored carapace, usually performed at the hatchling stage. The idea behind it is that the light colored “spot” from the graft will be visible throughout the life of the turtle. a) Kemp’s ridley with a living tag in second right lateral scute (and flipper tag in front right flipper). b) Green sea turtle with a living tag in the first left lateral scute (and a satellite tag).

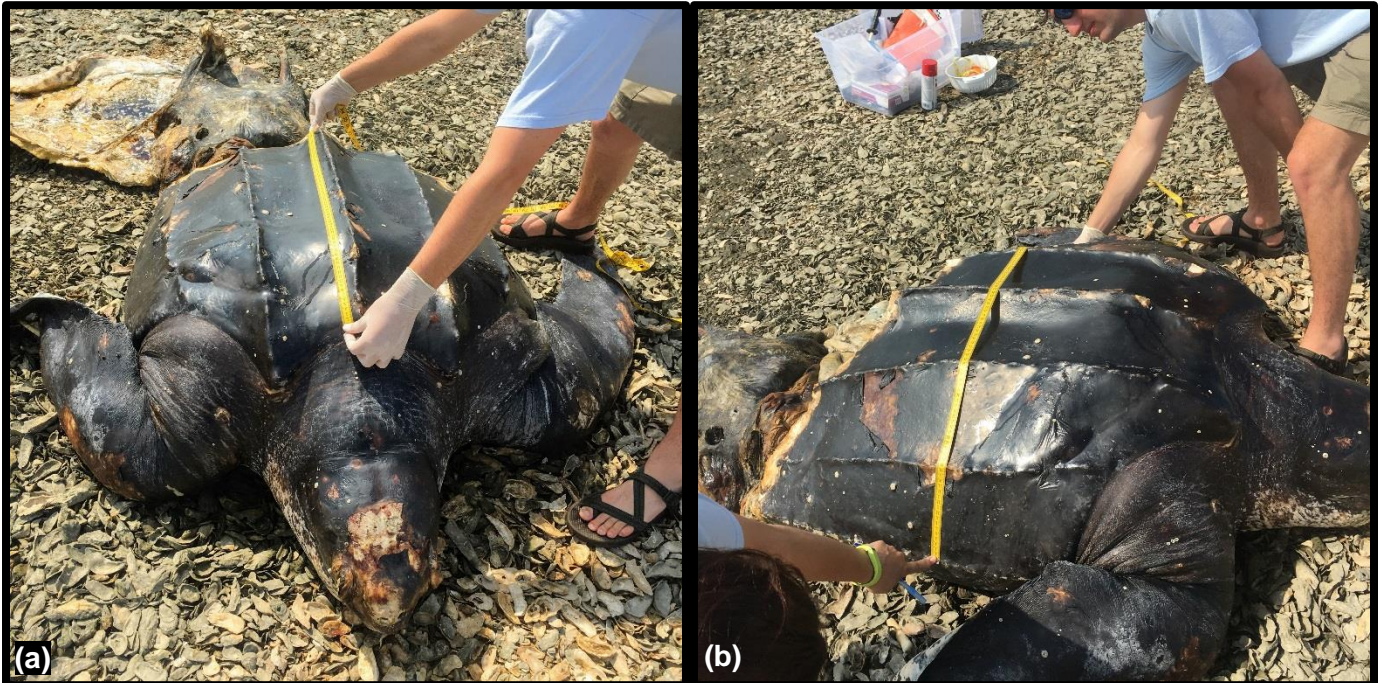
Measurements

Curved Measurements



When measuring turtles on the beach, use a flexible, non-metal measuring tape. a) Curved carapace length is measured from the nuchal notch to the posterior tip of the carapace (CCL max) and from the nuchal notch to the posterior notch (CCL min). b) Curved carapace width is measured across the carapace at the widest part.

Measuring Leatherbacks



a) When measuring leatherback carapace length, there will only be one measurement, notch to tip, which should be measured next to the center dorsal ridge. b) Carapace width is measured across the carapace to the most lateral ridges, at the widest point. Be sure to pull the tape tight while measuring CCW to avoid slack or drooping between ridges.

Straight Measurements

Straight length and width measurements are typically only taken by SCDNR staff using calipers.

Injuries and Disease

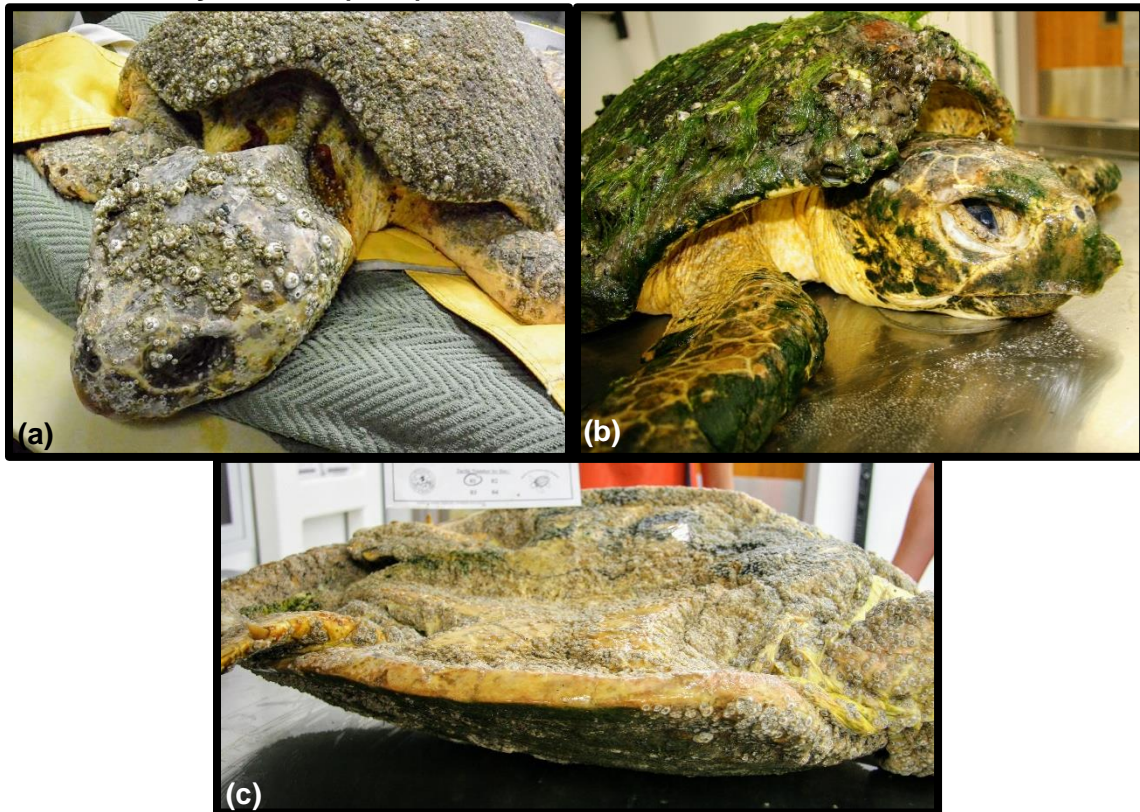
Watercraft



Watercraft injuries a) Loggerhead with boat propeller wounds. Note parallel clean-cut wounds. b) Loggerhead with skag wound. Note crushing wound, showing blunt trauma to the carapace

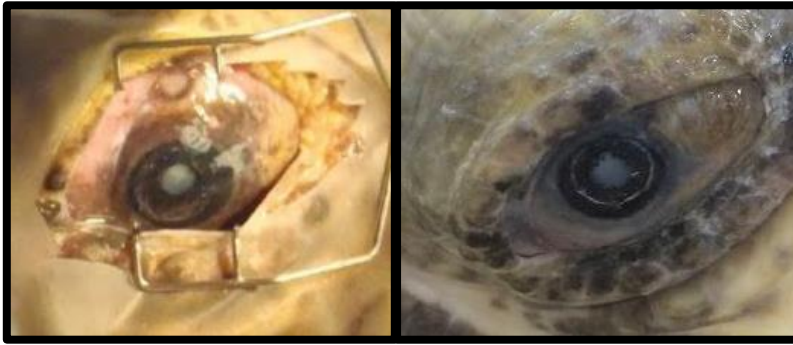
Disease

Debilitated Turtle Syndrome (DTS)



Emaciated loggerheads, a) note visible, exaggerated neck muscles, b) note extremely heavy barnacle and epibiota load and sunken in eyes, and c) note concave plastron. DTS turtles are very fragile and should NEVER be picked up or transported without first placing a durable support underneath their plastron.

Cataracts



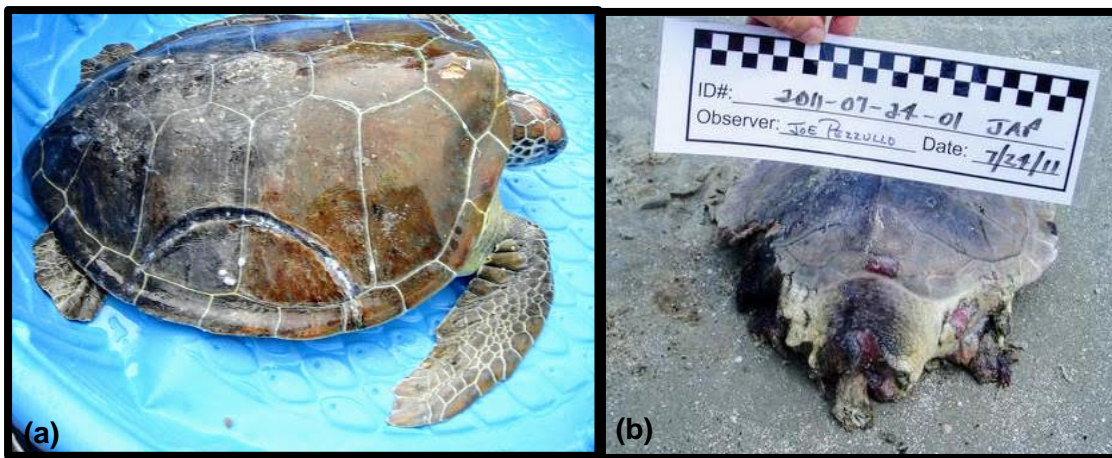
There has been increased incidence of cataracts in diseased loggerheads. If you see a milky white circle within a turtle's pupil, please report to SCDNR prior to disposing of the turtle.

Fibropapilloma (Fp)



Fibropapilloma is a debilitating disease that affects sea turtles. Fibropapillomas develop as external tumors on soft tissue and are most commonly found on green sea turtles in Florida. They have been observed on both loggerheads and green sea turtles in North Carolina. They are rarely seen in South Carolina; however, we have several reported cases in green sea turtles.

Shark



Shark bites on loggerheads. It is important to note whether the shark attack was pre or postmortem. Sharks tend to feed on drifting turtle carcasses. Note a) half-moon bite shape and b) jagged edges.

Entanglement



a) Kemp's ridleys will eat bait and consequently swallow fishing hooks. b) Another Kemp's ridley entangled in fishing line. Always send entanglement material to SCDNR, but please take photographs before removing the entanglement material.

Dredge



Loggerhead and Kemp's ridley killed by dredge. Note crushed carapace and lack of parallel wounds. Heavy sand impaction throughout the turtle carcass is also indicative of dredge kills.