

Caretta caretta (Loggerhead Turtle)

Family: Cheloniidae (Sea Turtles)

Order: Testudines (Turtles and Tortoises)

Class: Reptilia (Reptiles)



Fig. 1. Loggerhead Turtle, *Caretta caretta*.

[<http://marinesciencetoday.com/2009/05/05/emergency-rule-to-protect-threatened-sea-turtles-in-the-gulf-of-mexico/>, downloaded 6 November 2012]

TRAITS. *Caretta caretta* also known as the loggerhead turtle is easily recognized by its reddish brown coloration in addition to having a broad head (DEEP 1999) with a horny beak that has been recorded to be significantly thicker than in other sea turtles (Marine Bio 2012). With their powerful jaws (Burnie 2001) adapted for crushing prey (NOAA 2012), the loggerhead turtle usually weighs about 180 pounds with a length of at least 28 inches (Ernst & Lovich 2009). The largest hard shelled turtle (Ernst & Lovich 2009) boasts of having a yellow-orange carapace (Fig. 1) or upper shell connected to a pale yellow plastron or bottom shell (NOAA 2012) by 3 inframarginal scutes (Wynne & Schwartz 1999). The sexual dimorphism of *Caretta caretta* is apparent in adults (Buitrago 1982) where males have longer tails as well as larger re-curved claws, than the females, with shorter plastrons (bottom shells) as to accommodate their larger tails (Hughes 1974; Geldiay et al. 1982).

ECOLOGY. The loggerhead turtle like many other sea turtles can spend a significant amount of time submerged in the ocean's waters. They have the ability to not only rest but sleep submerged underwater for several hours (Marine Bio 2012) where their rate of reaction to a stimulus slows down considerably as compared to when they are awake within their natural environment (Ernst & Lovich 2009). The habitat preference of *Caretta caretta* varies with their age as well as they possess a wide habitat range from continental shelves, lagoons, bays as well as estuaries (Dodd 1988). From temperate to subtropical and even the tropical water of the Atlantic, Indian and Pacific Oceans (Dodd 1988), and the Mediterranean Sea (Spotila 2004) are all areas showing the vast range of the species not only for survival with respect to feeding but nesting as well. This vast range preference is referred to as a cosmopolitan distribution (Spotila 2004) signifying its span over most of the world. Individuals, especially young turtles, are occasionally found in waters off the north coast of Trinidad, but the loggerhead turtle rarely breeds on Trinidad and Tobago beaches.

FEEDING BEHAVIOUR. Primarily carnivorous (Dodd 1988), loggerhead turtles feed heavily on invertebrates such as jelly fish (Fig. 2) and squid (DEEP 1999) but are also capable of feeding on hard-shelled prey (Hendrickson 1980) due to their broad heads (DEEP 1999) and powerful jaws (Burnie 2001). *Caretta caretta* is also known for engulfing some vascular plants, algae, fishes at any respective growth phase and as well as turtle hatchlings belonging to its own species (Ernst & Lovich 2009). The composition of the loggerhead turtle's alimentary canal differs from the conventional reptile by the conified papillae in their oesophagus. The modified papillae have the ability to remove foreign, unwanted particles out of the loggerhead turtle's oesophagus. This benthic feeder is also capable of turning its neck along varying angles to consume food which was torn apart to be consumed (Ernst & Lovich 2009) through the snapping method that it uses to engulf prey or food that may be resting on their pseudo-claws which aid in its feeding technique (Davenport and Clough 1985). Juvenile *Caretta caretta* have been known to rely on surface macro-planktonic prey (Carr 1987) as they are not thoroughly able to dive as the adults, and as a result bottom feeding is not possible by the species in early stages. The metabolic rate of the sea turtle is directly proportional to the temperature of its environment, and as a result the rate of digestion is also temperature dependent (Ernst & Lovich 2009). As a consequence of this, the sea turtle's eating preference varies by its location in its vast range as it not only consumes that which is in high concentration facilitating easy meals but, the preference to eat is temperature dependent.

REPRODUCTIVE BEHAVIOUR. Like many sea turtles, the loggerhead turtle participates in migration to warmer water through the use of instinctive cues to lay their eggs and mate. The sexual maturity of the female differs according to the habitat, that is, the initial reproductive age of a female can be between 17 and 33 years (Spotila 2004). Males have been recorded to circle females before approaching them for courtship (Limpus 1985) which is then followed by the male mounting the female; where the male's tail curls directly down under the female, bringing their cloacas closer together (Dodd 1988). By bringing the cloacas closer together the male is now capable of inserting his penis and releasing his sperm into the female sea turtle. The male holds onto to his respective female firmly by not only using his pseudo-claws to maintain grip but by keeping his head on her carapace (Dodd 1988). This method is assumed to keep the mating female at a slow steady pace by increasing her drag (Dodd 1988). Loggerhead turtles are described as being polyandrous in nature (Dodd 1988) as multiple males tend to copulate with a female after one or more males have conducted the exercise. Females after mating return to the

beach from once they hatched to lay their eggs in a series of clutches over a period of time, usually 12-17 days in the nesting season (Spotila 2004). Female loggerhead turtles approach the beach with caution in an attempt to find a suitable nesting site as the nest must be adequate depth and width to protect the eggs from possible predators as well as to facilitate the easy emergence of the young from the nest to the sea waters. The female expresses similar behaviour to that of other sea turtles where she creates a nest using her hind legs and then lays her eggs (Fig. 3). The sex of the hatchlings are dependent on the temperature of the sand they were laid in (Marine Bio 2012) where higher temperatures leads to the formation of females while cooler temperatures lead to the formation of males by the developing embryo.

CONSERVATION EFFORTS. There exists general threats to loggerhead turtles, that is, the threats can result from natural infection of the nest where the eggs laid can be affected by a bacterium in the sand (Ernst & Lovich 2009). In conjunction adult turtles can develop tumors from a herpes type virus (NOAA 2012) thus affecting their general behaviour in their biological environment. There are also threats that are manmade and are more harmful to the species population; where it has been recorded that sea turtle populations have significantly decreased not only through the over harvesting by man for food and turtle based products but man's poor ability at controlling water pollutants (DEEP 1999). Water pollutants such as plastic products are fatal to many sea turtles as some such as garbage bags appear similar to jellyfish which is one of their main prey organisms. Oil spills have also known to decrease marine populations as it not only reduces the oxygen supply in the ecosystem thus rendering the sea turtles to starvation as their prey populations drop but also reduce their ability to survive in oil thickened waters. Many countries around the world have taken the initiative to protect the loggerhead turtle in as many forms as possible. For instance, many countries have implemented clear beach zones for the safe laying and hatching of loggerhead turtle young as hi traffic beaches result in a high fatality of the young before they are able to reach the ocean's waters. Trinidad and Tobago has laws where an individual can be persecuted if found endangering the life of the loggerhead turtle and other endangered sea turtles. Lastly, fishing practices have been prohibited in several regions where sea turtles have been known to not only nest but forage from time to time as they can become caught in the nets and drown.

REFERENCES

- Buitrago, J. 1982. "Reproductive strategies in turtles marine". Hundred Mem Soc. Nat "La Salle" 42:133-144
- Burnie, D. (2001). "Animals". Dorling Kindersley, London.
- Carr, A.F., Jr. 1987. "The impact of non-degradable marine debris on the ecology and survival outlook of sea turtles". Mar. Pollut. Bull. "18(6B):352-356.
- Davenport, J., and W. Clough. 1985. "The use of limb scales or "pseudoclaws" in food handling by young loggerhead turtles". Copeia 1985:786-788.
- DEEP. "Loggerhead sea turtle *Caretta caretta*". Last modified December 1999. <http://www.ct.gov/dep/cwp/view.asp?q=326036> . Accessed 14 November 2012.
- Dodd, Kenneth (May 1988). "Synopsis of the Biological Data on the Loggerhead Sea Turtle *Caretta caretta* (Linnaeus 1758)" Biological Report 88. 1-83
- Ernst, C. H.; Lovich, J.E. (2009). "Turtles of the United States and Canada". (2 ed.). JHU Press. ISBN 978-0-8018-9121-2.
- Geldiay, R., T. Koray, and S. Balik. 1982. "Status of sea turtle populations (*Caretta c. caretta* and *Chelonia m. mydas*) in the Northern Mediterranean Sea, Turkey". Pages 425-434 in K. Bjorndal (ed.), Biology and conservation of sea turtles. Smithsonian Institution Press, Washington, DC.

- Hendrickson, J.R. 1980. "*The ecological strategies of sea turtles*". Am. Zool. 20:597-608.
- Hughes, G.R. 1974. "*The sea turtles of south-east Africa. I. Status, morphology and distributions*". Oceanogr. Res. Inst. Invest. Rep. No. 35, 144 pp.
- Limpus, C J. 1985. "*A study of the loggerhead sea turtle, Caretta caretta, in eastern Australia*". Unpubl. Ph.D. Dissertation. University of Queensland, St. Lucia, Australia.
- Marine Bio. "*Loggerhead Sea Turtles, Caretta caretta*". <http://marinebio.org/species.asp?id=163> . Accessed 16 November 2012.
- NOAA Fisheries. "*Loggerhead Turtle (Caretta caretta)*". Last modified 15 November 2012. <http://www.nmfs.noaa.gov/pr/species/turtles/loggerhead.htm> . Accessed 15 November 2012.
- Spotila, James R. (2004). "*Sea Turtles: A Complete Guide to their Biology, Behavior, and Conservation*". Baltimore, Maryland: The Johns Hopkins University Press and Oakwood Arts. ISBN 0-8018-8007-6.
- Wynne, Kate; Schwartz, Malia (1999). "*Guide to Marine Mammals and Turtles of the U.S. Atlantic and Gulf of Mexico*". Illustrated by Garth Mix (2nd ed.). Rhode Island Sea Grant. ISBN 0-938412-43-4.

Author: Alix Drakes

Posted online: 2012



Fig. 2. Loggerhead turtle feeding on a jellyfish.

[<http://www.economist.com/node/21563701>, downloaded 12 November 2012]



Fig. 3. Loggerhead turtle laying its eggs on a beach.

[<http://www.superstock.com/stock-photos-images/4179-40814>, downloaded 12 November 2012]