

## Turtles 3D

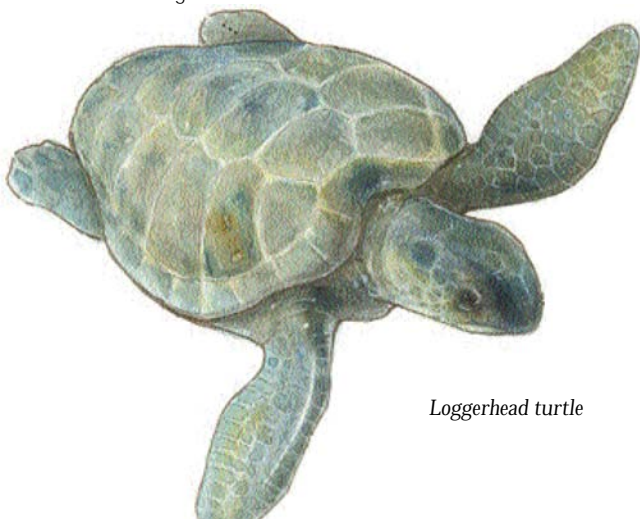
Sea turtles are some of the most ancient reptiles still alive today and have been around for over 200 million years. They are adapted to living in the sea with flipper-shaped limbs and streamlined bodies, but must rise to the surface to breathe air. Five species of turtles are found in South African waters. The leatherback, *Dermochelys coriacea*, and the loggerhead, *Caretta caretta*, turtles nest on the beaches of northern KwaZulu-Natal. The green turtle, *Chelonia mydas*, is a non-breeding resident while the hawksbill, *Eretmochelys imbricata*, and olive ridley, *Lepidochelys olivacea*, turtles occur as strays in our waters.

### Feeding habits

Different species of turtles feed on different prey items, demonstrating a remarkable example of niche partitioning. This means that the turtles do not compete with each other for either food or space. Green turtles graze on algae and marine plants, leatherback turtles slurp in jellyfish, loggerhead turtles are carnivorous, feeding on bottom-dwelling molluscs and echinoderms, while hawksbill turtles nibble sponges and olive ridley turtles feed on crabs and prawns. They have salt glands that remove excess salt that is taken in with their food. The concentrated salt solution drips out of their eyes and looks like tears.

### Breeding habits

Although marine turtles spend most of their lives in the sea, the females must come onto beaches to lay their eggs. Along the coast of South Africa nesting occurs between October and February. Male turtles usually arrive first, when the females arrive they are pursued by the males and mate in the sea. Once she has mated and her eggs have been fertilised, the female turtle emerges from the sea and clambers onto the beach. She



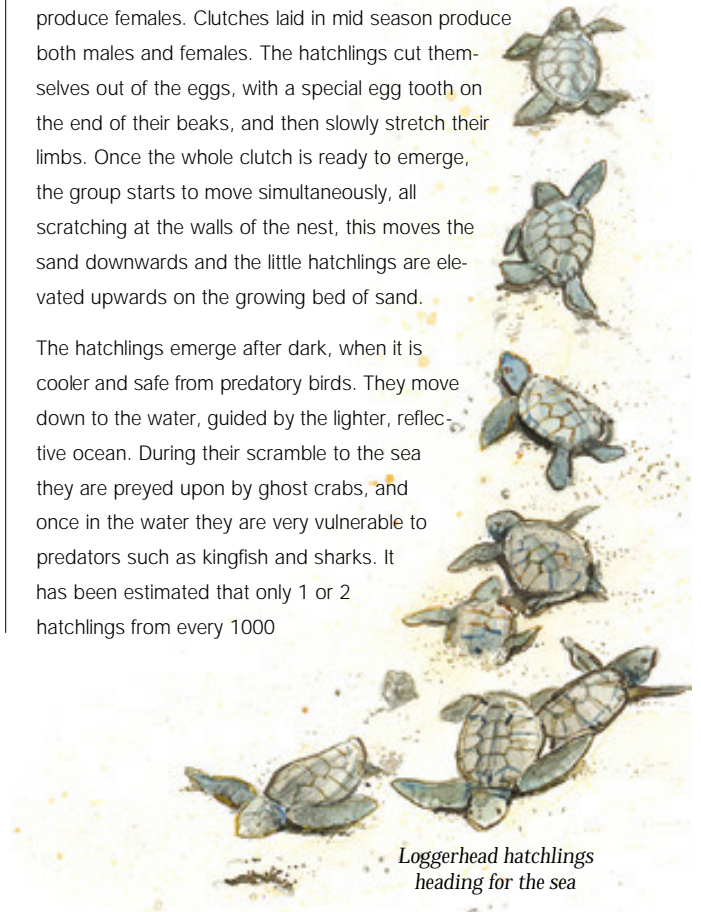
Loggerhead turtle

beach, hauling her huge bulk, up to 700 kg in the case of the leatherback, by simultaneous movements of the flippers. Once she has passed the high spring tide mark she begins to dig a hole in the sand. The first hole she digs is a body pit, in which she rests her body, before starting to dig the hole for the eggs. Once the flask shaped hole, about 60-80 cm deep has been dug, she immediately begins to lay. Usually about 100 eggs are laid in bursts of 1-4 at a time and fall quickly from the cloaca to the bottom of the nest. The eggs are soft-shelled and well lubricated with mucous forming a glistening mass in the hole. The female carefully fills the hole with sand and gently pats the sand down until the hole is level with the surface of the beach. She then continues to pile sand on top and compacts it down, first with her flippers and then with her whole body. She then proceeds to throw sand over her back, effectively disguising the precise location of the nest. Then she heads back to sea, leaving a track for the waves to obliterate. She may go through this process as many as seven times during the nesting season.

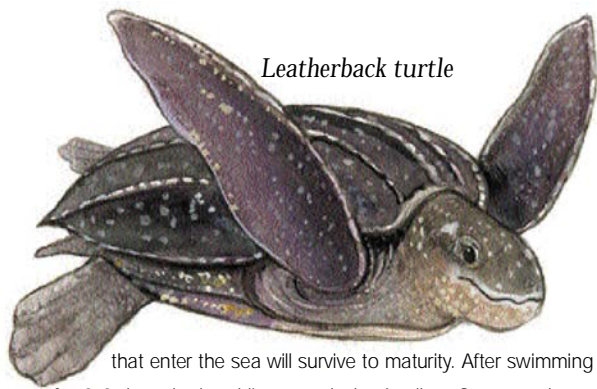
### Life cycle

The eggs incubate for about 60 days, depending on the surrounding temperature. The temperature also determines the sex of the juvenile turtles, cooler (20-24°C) clutches result in a male dominated clutch while warmer (29°C) nests produce females. Clutches laid in mid season produce both males and females. The hatchlings cut themselves out of the eggs, with a special egg tooth on the end of their beaks, and then slowly stretch their limbs. Once the whole clutch is ready to emerge, the group starts to move simultaneously, all scratching at the walls of the nest, this moves the sand downwards and the little hatchlings are elevated upwards on the growing bed of sand.

The hatchlings emerge after dark, when it is cooler and safe from predatory birds. They move down to the water, guided by the lighter, reflective ocean. During their scramble to the sea they are preyed upon by ghost crabs, and once in the water they are very vulnerable to predators such as kingfish and sharks. It has been estimated that only 1 or 2 hatchlings from every 1000



Loggerhead hatchlings heading for the sea



Leatherback turtle

that enter the sea will survive to maturity. After swimming for 2-3 days the hatchlings reach the Agulhas Current, where they spend the next three to four years in the eddies and gyres of this powerful current. Turtles grow slowly and, in the case of the loggerhead turtle, females reach sexual maturity at 12-15 years of age. Female turtles return to their natal beaches to lay their eggs. It appears that each nesting beach has its own particular smells, which are imprinted on her as a hatchling. Local currents help to orientate the female, as she recognises and follows these scents from her 'home' beach.

### Conservation status

Turtles are critically endangered. It is therefore essential that a concerted effort is made to ensure the future survival of these fascinating creatures. Their endangered status is a result of pollution, over-exploitation of the adults and eggs, destruction and alteration of breeding beaches, gill nets and human ignorance. Long term survival of turtles, a shared resource of immense value to coastal nations, can only be achieved by collaboration and co-operation of all states in the range of the turtles. This has been done through an international regional agreement under the Bonn Convention (Convention on Migratory Species of Wild Animals), to which South Africa is a signatory.

Since 1963, KwaZulu-Natal Wildlife has spearheaded turtle conservation efforts in South Africa. Nesting turtles are tagged to help scientists study the migration patterns, nesting and ageing of the animals. In 1966, only five leatherback turtles nested on the Zululand coast. The average number of nesting leatherback females has now risen to more than 90 – a wonderful return to a healthy population, with numbers slowly increasing over time. The number of loggerhead turtles has also risen from less than 100 in the early 1960's to 500 nesting annually within the Maputaland Marine Reserve.

### What you can do to help

Turtles die each year as a result of eating plastic bags, that they mistake for floating food. These plastic bags get stuck and block the gut, causing the slow starvation and death of the turtle. All litter should be disposed of properly and should not be left on the beach. Tie plastic bags into a knot so that they cannot be blown or float into the sea.

In some parts of the world turtles are still harvested for food or for their shells. Make sure that none of the items you purchase contain parts of turtles. This applies particularly to items such as turtle shell jewelry or hair clips.

On KwaZulu-Natal beaches, only drive off-road vehicles if and where allowed, and always only between the high and low water marks. Always avoid sensitive dune areas. Be especially careful when driving on the beach during the nesting season, October to February, as deep tyre tracks on soft sand can trap the turtle hatchlings and make them vulnerable to predation by ghost crabs.

Bright vehicle head-lights and torches can disorientate nesting turtles or small hatchlings making their way to the sea for the first time. If you are lucky enough to witness one of these special events, please use your lights carefully.

Author: Judy Mann-Lang September 2000

### Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Reptilia
FAMILY:	Dermochelyidae
GENUS & SPECIES:	<i>Dermochelys coriacea</i>
COMMON NAME:	Leatherback turtle
FAMILY:	Cheloniidae
GENUS & SPECIES:	<i>Caretta caretta</i>
COMMON NAME:	Loggerhead turtle
FAMILY:	Cheloniidae
GENUS & SPECIES:	<i>Chelonia mydas</i>
COMMON NAME:	Green turtle

### FURTHER INFORMATION:

- KwaZulu-Natal Wildlife (formerly KwaZulu-Natal Nature Conservation Service), P.O. Box 13053, Cascades, Pietermaritzburg 3200. Tel: (0331) 8451999
- Payne, A.I.L., Crawford, R.J.M. & van Dalsen, A.P. 1989. *Oceans of Life off Southern Africa*. Vlaeberg Publishers, Cape Town.
- Hughes, G.R. *Sea Turtles: A Guide*. Natal Parks Board, Pietermaritzburg.

RELATED FACTSHEETS: • Maputaland Coast • Off-road Vehicle Use • Sandy Beaches • Crabs



# Sea Snakes 3D

**S**ea snakes, as their name implies, are completely aquatic. There are 45-50 species, restricted mainly to the coastal waters of Australasia, and they are all venomous in varying degrees with fangs at the front of the upper jaw. Sea snakes are very common in tropical areas such as Vietnam and Malaysia, where fishermen catch large numbers in their nets, and bites and fatalities are often recorded. A specific antivenom is required for sea-snake bites as those developed for land snakes are not effective.

## Yellow-bellied sea snake

Only one sea snake is found in South African waters, this is the yellow-bellied sea snake, *Pelamis platurus*. Fortunately it is docile and only occasionally washes ashore. It has potent venom that is mildly neurotoxic and dangerous to humans, although its bite has never proved fatal. The yellow-bellied sea snake is distinctively marked and easy to identify by its flattened tail, which has yellow and black markings. The back of the snake is black and the belly is yellow to yellow-brown. This bright colouration is possibly aposematic (a warning to predatory fish that the snake should be avoided as it is very toxic). These snakes are excellent swimmers using the flattened tail as a paddle to move both backwards and forwards but they are helpless if washed ashore. Sea snakes have numerous adaptations to their marine existence; the nostrils are situated on the top of the rather long snout and have valves to keep water out of the large lung so that they can stay underwater. They shed their skin in small pieces using a knotting behaviour, to rub one part of the body against another to loosen the skin. Unlike many land snakes they

have small ventral scales. The average length of adults is 60-75 cm with the female being largest.

## Distribution

The yellow-bellied, or pelagic, sea snake swims far out to sea and spends its entire life in the ocean. It occurs in the warmer regions of the Pacific and Indian Oceans from Baja California to Kenya. Vagrants are washed south in the Agulhas Current and strand on KwaZulu-Natal and Cape beaches. They are not found on the west coast.

## Feeding

Yellow-bellied sea snakes gather in slicks, where surface currents meet, and hide under floating seaweed or debris and ambush small fish. Other sea snakes feed mainly on eels and fish eggs but will eat any marine life. Like marine birds and turtles they have a nasal salt gland to remove excess salt, taken in with the food.

## Reproduction

The yellow-bellied sea snakes mate at sea and do not come ashore to lay eggs. They are viviparous, the females giving birth to 3-8 young between March and October.

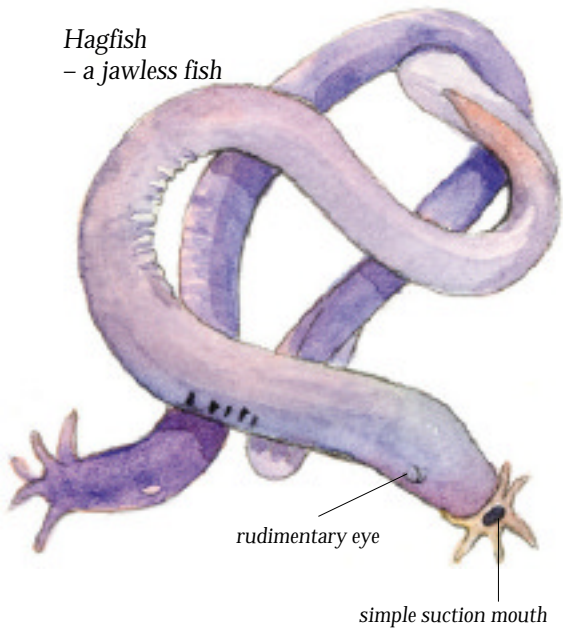
## Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
CLASS:	Reptilia – Reptiles
ORDER:	Squamata – Snakes and lizards
FAMILY:	Elapidae – Cobras, mambas, sea snakes
GENUS:	<i>Pelamis</i>
SPECIES:	<i>platurus</i>
COMMON NAME:	Yellow-bellied sea snake

Yellow-bellied sea snake



Hagfish  
– a jawless fish



## SNAKE-LIKE SEA CREATURES

Many people incorrectly call snake-shaped fishes, sea snakes. These may be grey hagfish, primitive jawless fish, common in kelp forests. Fishermen detest them, because they secrete copious slime when hooked and no fish will take bait covered with hagfish slime. The other elongate fishes are eels. Some eels, such as morays, are aggressive and can give a nasty bite but they do not have venomous fangs like true snakes and are not reptiles.

### Classification:

PHYLUM:	Chordata
SUBPHYLUM:	Vertebrata
SUPERCLASS:	Pisces – Fish
CLASS:	Osteichthys – Bony fish
ORDER:	Anguilliformes – Eels
SUPERCLASS:	Agnatha – Jawless fish
CLASS:	Pteraspodomorphi
ORDER:	Myxiniiformes – Hagfish

Author: Margo Branch September 2000



Moray eel is a fish

#### FURTHER INFORMATION:

- Port Elizabeth Museum and Snake Park, PO Box 13147, Humewood 6013,
- Two Oceans Aquarium, Waterfront, Cape Town. Tel (021) 418-3823 Fax: (021) 418-3952 E-mail aquarium@twoocean.co.za
- Branch, B. 1988. *Snakes and other reptiles of southern Africa*. Struik Publishers, Cape Town.
- Broadley, D.G. 1983. *FitzSimon's snakes of southern Africa*. Delta Books, Johannesburg.

#### RELATED FACTSHEETS:

- Eels • Turtles • Aquariums in South Africa

