

Turtle Monitoring IN THE GREATER ST LUCIA WETLAND PARK



DEPARTMENT OF ENVIRONMENTAL AFFAIRS AND TOURISM



EZEMVELO
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Greater St Lucia Wetland Park Authority

Loggerhead and Leatherback TURTLE MONITORING PROGRAMME

Seven species of marine turtles exist in the world's oceans today, all of them have unique lifestyles in that they travel great distances and take decades to mature. This makes turtles important indicators of ocean health. There are five species found off the KwaZulu-Natal Coast, namely, the loggerhead, leatherback, hawksbill, green and Olive Ridley turtles. Of these five species that occur in South African waters, only the loggerhead and leatherback females nest along our shores.



Photo: Dr. George Hughes

Loggerhead turtle



Leatherback turtle



Olive Ridley turtle



Green turtle

General Biology

NESTING

Both loggerhead and leatherback turtles nest during the summer months at night (October – March). They use the medium to coarse grained sandy beaches that are backed by high dunes with well developed primary vegetated dunes. Steep beach faces makes it easy for loggerheads to swim through the surf over low lying rock ledges. The females emerge from the surf and rest in the wash zone on the beach. It is here when they assess the beach for any danger by lifting their heads and scanning the beach. Satisfied that there is no danger they then proceed up the beach to well above the high water mark.



EGG LAYING

Having found a suitable site at the vegetation edge the female commences by excavating a body pit with her fore flippers, this enables her to lie with the top of her carapace level with the beach. She then digs an egg cavity with her hind flippers. The egg pit is a flask shaped hole about 50 - 80 centimetres deep. A normal clutch constitutes 100 – 120 soft white shelled eggs which are deposited into this hole. When all of the eggs have been laid the female fills the hole with sand and kneads and presses the surface until the sand is packed hard. Once this is done she disguises the nest site by throwing sand with her fore flippers over the nesting area. Satisfied that her nest is safe she returns to the sea.

Leatherbacks can return up to seven times to lay eggs, while Loggerheads return up to four times in a single season.

HATCHING

Both loggerhead and leatherback turtle eggs take between 55 – 65 days to mature. Once ready to emerge the hatchlings cut their way out of the egg with a special egg tooth on the end of their beaks. After the bulk of the eggs have hatched the hatchlings start digging at the sides of the nest, this causes it to collapse filling the hole and allowing the hatchlings to push and climb their way to the surface.

If the hatchlings reach the surface during the heat of the day they will not move until the temperature of the surface sand drops. They will normally rest until nightfall before they emerge and sprint down to the sea. Hatchlings are guided towards the waters edge by the lighter sea horizon. During this run to the waters edge about 4 out of every 100 are taken by ghost crabs or other predators.



LIFE AT SEA

Once clear of the beach the hatchlings go into a swimming frenzy that lasts for a few days. Many enter the Agulhas Current and then are swept down the east and south coasts of South Africa as far as Cape Agulhas and some even into the Atlantic, (both loggerhead and leatherback). Most are swept back into the Southern Indian Ocean where they spend at least 3 years drifting in the open sea. It is during these first few years that predation is high and it is estimated that only 1 to 2 hatchlings of every 1000 that enters the sea will reach maturity.

During this phase the young sea turtles feed on blue bottles, jelly fish and storm snails that drift on the surface. Following the currents they are eventually brought back to the coasts where they change their diets. The loggerheads feed on sea organisms that inhabit reefs, i.e. urchins, mussels and crabs. Leatherbacks maintain an exclusive diet of jellyfish and they only enter coastal waters to breed.

Females reach nesting maturity between 12 and 20 years, when they return to the beaches on which they hatched, to restart the lifecycle.

Threats to Turtles

EVERY LIFE HISTORY PHASE IS IMPACTED ON BY HUMAN ACTIVITIES

Turtles utilize both coastal areas and the high seas, where humans activity is increasing, therefore no area is sacred or safe for them. They are under extreme pressure because of bad coastal zone practices and habitat destruction, direct harvesting for food and curios and are caught as by catch in local fisheries.



Photo from Coast Care Field Sheets



Photo courtesy Rudy van der Elft



Photo courtesy ORI



Photo courtesy ORI

THE MOST SERIOUS THREATS ARE PRESENT AT VARIOUS LIFE STAGES

- 1 **NESTING**
Egg collecting, slaughtering for meat, coastal development, sand mining, beach driving.
- 2 **HOME RANGES-** (coral reefs, sea grass beds, open oceans).
These are disturbed or destroyed by bad fishery practices, pollution, global warming.
- 3 **MIGRATIONAL MOVEMENTS**
During migrations they are threatened with being caught in trawl or drift nets and long lines.

Monitoring Turtles for 40 Years

THE PROJECT BEGAN IN 1963

In 1916, all harvesting of sea turtles was banned in South Africa, and from the early 1960s, concerted efforts were made to enforce legislation banning egg collection and the harvesting of adults. This was aided by effective continuous and high-intensity monitoring. In 1963, under the auspices of the Natal Parks Board, a Turtle Conservation and Monitoring programme was initiated along the north-eastern coast of KwaZulu-Natal which is now the Greater St Lucia Wetland Park. This programme, currently under the supervision of Ezemvelo KwaZulu-Natal (EKZN) Wildlife, is still in existence today. It is one of the longest, continuous loggerhead/leatherback turtle monitoring programmes in the world.



THE PURPOSE OF THE PROJECT

To monitor and record nesting populations of loggerhead and leatherback sea turtles along the eastern seaboard and simultaneously provide protection of the females during this vulnerable stage on the shore. Furthermore to establish an annual population census and determine distribution of nesting loggerhead and leatherback sea turtles in South Africa and southern Mozambique.

STUDY AREA

The 56 kilometre of beach, north and south of Bhanga Nek, in The Greater St Lucia Wetland Park, is the main focus area of the project. During the peak nesting season (mid - October to mid - March) intensive patrols are conducted by students, field rangers and temporary staff for the entire 56 kilometres. About 20 km of this stretch of beach is patrolled throughout the year. More erratic and less intensive monitoring is also undertaken south of Mabibi and Cape Vidal as well as in southern Mozambique north of Ponte Malongane.

POPULATION MONITORING METHOD

Foot patrols are undertaken every night during the nesting season (mid - October to mid - March) by trained community monitors. Each patrol zone, which is 8 kilometres in length is allocated two community monitors, who patrol the area just before sunrise and sunset. In addition vehicle patrols, undertaken by EKZN Wildlife staff, monitor the entire study area in a single night. Once a turtle is encountered, the beach location, date and time of the emergence is recorded and various environmental factors are noted (presence of clouds, lightning, thunder, rain and the wind strength and direction).



Turtles are recorded as 'nested' when:

- ★ They are actively observed nesting.
- ★ When a nest is located.

Turtles are recorded as 'not nested' when:

- ★ They emerge and return to the sea with no nesting taking place.
- ★ There are tracks on the beach with no nest.



All turtles are checked for previous tags or tag scarring. Those individuals not previously tagged have a uniquely numbered titanium tag attached to them. This is placed on the edge of the fore flipper of loggerhead females, and on the inside trailing edge of the hind flipper under the carapace of leatherback females.

MAP SHOWING THE STUDY AREA IN THE GREATER ST LUCIA WETLAND PARK

Community Participation

Sixteen local community members have been trained as monitors and are employed over the nesting period (October – March) to gather valuable data.

A turtle walk concession at Kosi Bay/Bhanga Nek has been granted to local community guides to take small groups to walk along the beach to watch turtles nesting.

Five turtle concessions have been granted to independent ecotourism operators in the Greater St Lucia Wetland Park.

Ezemvelo KZN Wildlife staff support the Wetland Authority in compliance efforts with regard to turtle conservation.



ACHIEVEMENTS OF THE PROGRAMME

1. The ongoing monitoring and conservation efforts have had a positive effect on population size. Since the programme's inception, a total of 46,893 loggerhead and 11,509 leatherback females have nested on the beaches of The Greater St Lucia Wetland Park.
2. Scientific information has been obtained about the nesting and non-nesting distribution range.
3. The role of Agulhas current in distribution of hatchlings has been established.
4. The conservation effort contributed to the establishment of Marine Protected Areas.
5. Management actions are in line with international conventions.
6. International recognition and collaboration were obtained for both research and management of the breeding populations of turtles and provided guidelines for conservation activities in the South Western Indian Ocean.
7. The programme served to increase public awareness and create tourism benefits along the Park's beaches.