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Community-based conservation initiatives in developing countries –the turtle protection programme in Maputaland, KwaZulu-Natal

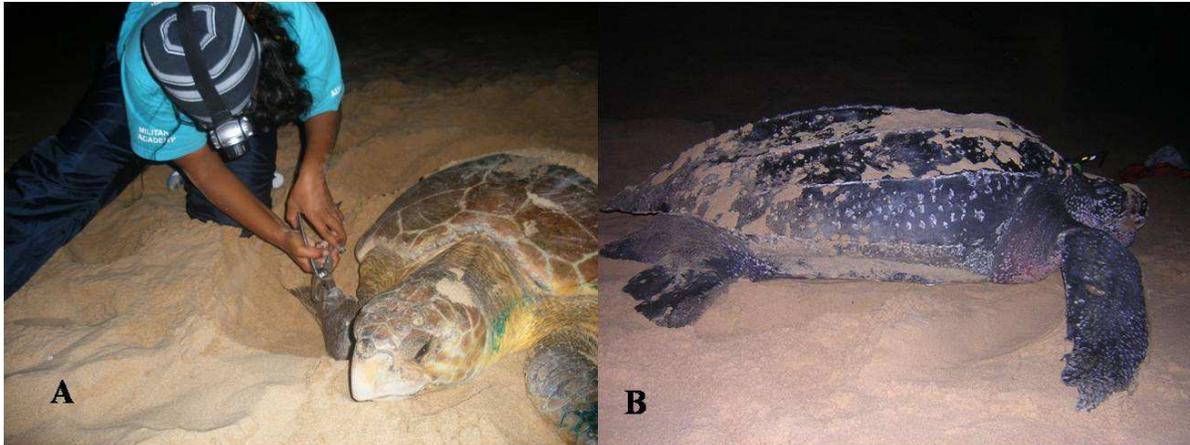
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The iSimangaliso Wetland Park, which consists of two marine protected areas (MPAs), namely the St. Lucia Marine Reserve and the Maputaland Marine Reserve, was declared a world heritage site in 1999. It contains a rich biodiversity, and many rare and threatened species. In particular, endangered species (i.e. species that are in danger of extinction) such as sea turtles, nest within these protected regions and form an important part of the community-based conservation programme.

Sea turtles are marine reptiles that spend their entire life in the sea except when the females come ashore to lay their eggs. Like most egg-laying reptiles, sea turtles haul themselves onto the beach, dig a nest, lay their eggs (about 100 eggs at a time), close up the nest and return to the sea. Unlike their relative, the land tortoise, sea turtles cannot contract their neck and limbs inside their shell. Instead, their limbs and neck are fused to their shell.

Only seven sea turtle species are still alive today. Two of these turtles, namely the loggerhead and leatherback turtles, have important nesting grounds restricted to the northern coast of KwaZulu-Natal extending past the Mozambiquan border. The loggerhead turtle (species name *Caretta caretta*) gets its name from their large head and jaw, needed for their main diet of shelled animals, like barnacles. They can grow to be more than 100 kg, and nest mostly in subtropical areas, i.e. north and south of the tropics. The leatherback turtle (species name *Dermochelys coriacea*) is the only one of its kind left. Not only is it the only turtle with a soft-shell, hence the name "leatherback" for its leathery-like shell, but it is also the largest living reptile that exists today and can weigh up to one ton. All the turtle species are long-lived (up to 150 years, depending on the species), grow slowly, and only sexually mature at a late age (8-15 years for leatherbacks; 15-35 years for loggerheads).

The current rate of human-induced climate change from the continuous release of greenhouse gasses, pollution and human activities such as coastal development, boat propellers, capture of adults for meat and egg collection for consumption, threaten these species.



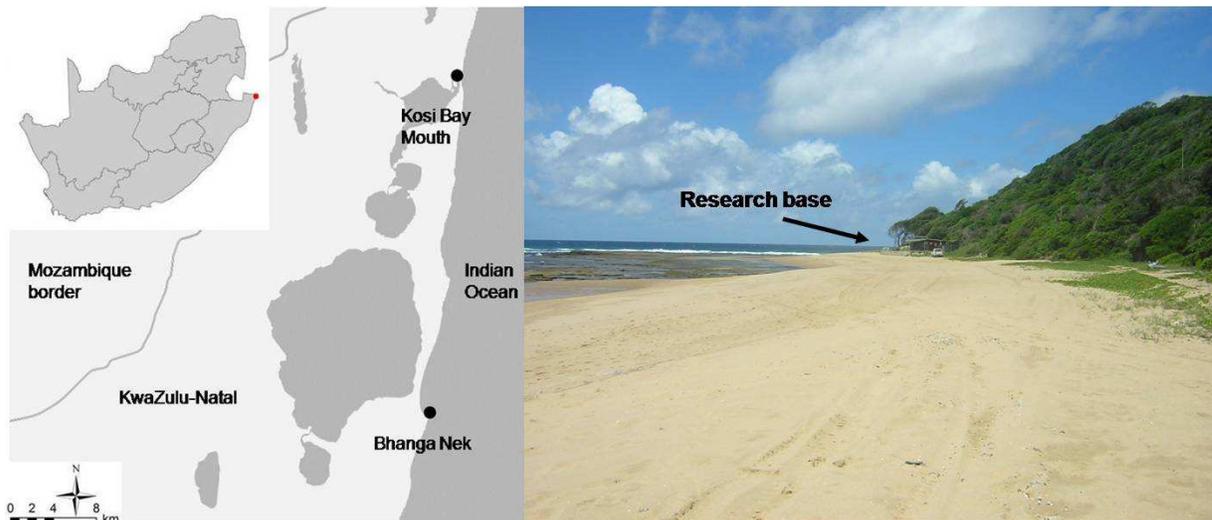
Above. A picture of a loggerhead female (A) being tagged for research conservation purposes and a leatherback female (B).

The killing of sea turtles in South Africa was banned in 1916, but subsistence harvesting still continued as law enforcement was negligible, and the numbers of turtles continued to decrease. In 1963, formal action was initiated to protect sea turtles, and the South African turtle monitoring and protection programme was started, making this one of the longest running programmes for loggerheads and leatherbacks in the world. One of the main goals driving the world heritage site, in addition to conservation purposes, is promoting the economic development of the adjacent region and empowering the local communities primarily through tourism.

Some of the positive economic impacts of community-based conservation in the case of the Maputaland turtle protection programme include job opportunities (conservation officers, housekeepers, turtle monitors, tour operators and guides), established resorts or camp sites and informal street traders in the nearby communities and rural towns. Social impacts may include the interaction with tourists, the erection of schools and libraries, bursary programmes and projects or programmes that add value to the lives of the local communities. Overall, the socio-economic impacts of a community-based conservation initiative in a developing country seem positive.

The monitoring programme, where trained locals partake in patrolling the beach every night on foot, takes place between October and March of each year as turtles nest in summer. If a nesting turtle or a nest is found on their beach patrol, they have the skills to record valuable information for conservation and research purposes. In addition to skilled monitors, some of the locals are appointed as tour guides, to take out tourist groups at night, teach them about the turtles and show them nesting females (between October to January) or hatchlings (between January and March). From the data collection by monitors, loggerheads indicate a significant increase in the number of nesting females over the years, and leatherback female numbers seem stable with a possible slight increase. This may be a positive recovery, the result of the protection programme combined with a good reproductive strategy. The exact drivers are not yet known.

Not only is this community-based conservation programme positive for socio-economic and conservation purposes, but the strict regulations and monitoring makes it an ideal area to do research and assess biological impacts, as there is no coastal development with the exception of the local communities, the research base and the conservation officers houses. There are also no nearby cities (the closest rural town is an hour's drive away). Researchers, primarily from the Nelson Mandela Metropolitan University in Port Elizabeth, reside at the research station at Bhanga Nek beach (the beach where the highest numbers of loggerheads come to nest) during the turtle season to collect data that will aid in conservation strategies.



Above. A map indicating the location of the most important loggerhead nesting area, Bhanga Nek, in KwaZulu-Natal and the Bhanga Nek research base.

Even though the positive impact of community-based conservation is evident, there can be some negative impacts associated with the turtle protection programme. Since the turtle season only takes place for 6 months of the year, jobs are scarce for the rest of the year, considering that many locals are uneducated or unemployed. Socio-economic relief for these rural communities primarily depends on “tourist season” and may result in criminal incidents in non-tourist seasons. The environmental impacts include the disturbance of wildlife by tour operators, damage to natural vegetation, erosion along driving trails and pollution. However, considering an extreme scenario without turtles, these rural communities would have been worse off, having no seasonal income and no money for schools or books. In the case of turtle monitoring in Maputaland, this is a great initiative and serves as a good example of overall successful community-based conservation that aid in socio-economic relief to otherwise poor communities.