

42 seasons of turtle monitoring in KZN

South Africa: 42 seasons of turtle monitoring in KZN Source: Dr. Ronel Nel, Ezemvelo KwaZulu-Natal Wildlife

Photos: c/o Ronel Nel, Ezemvelo KwaZulu-Natal Wildlife

The results from the long-term dataset collected on the beaches of KwaZulu-Natal, South Africa, were presented at the 26th Annual Sea Turtle Symposium, held in Crete from 3-8 April 2006.

This dataset is the result of a monitoring programme that was initiated in 1963 by the Natal Parks Board (now Ezemvelo KwaZulu-Natal Wildlife), under the leadership of Dr. George Hughes. It had the explicit aim of protecting sea turtles while ashore and at the same time collecting data on morphometrics, site preferences and population status.

Even though interactions by the local communities with turtles were relatively few, “bad habits” crept in and turtle numbers dwindled.

The first conservation measures were introduced in 1916 but with little effect, such that in the first year of monitoring only six leatherback nests were counted in the index area.

Now after four decades of dedicated conservation and nest protection, turtle numbers have increased to about 60 leatherback nests and between 2500 and 3000 loggerhead nests per season in the area north of Bhanga Nek.

This current success is ascribed to the strong beach protection measures in place, favouring both turtles (through patrolling) and their habitats (through sanctuary areas). The beaches in KZN were proclaimed as Ramsar sites and marine protected areas three decades ago and the area now has the status of a World Heritage Site, under the control of the Wetlands Authority.

It was stated upfront at the beginning of the programme that should the sea turtle numbers recover sufficiently consumptive use could be reconsidered if the need existed. However, with the dwindling populations elsewhere it would be difficult to “OK” harvesting of one of the few recovering populations.

Moreover, South Africa’s populations are shared with Mozambique, and are still modest in size. An alternative, non-consumptive value has been found and is being used very successfully i.e. turtle concessions. These are night-time turtle tours that take paying customers either on foot or by vehicle to view nesting or hatching turtles as well as tagging and monitoring. These non-consumptive practices are also perfectly in line with the expectations of the World Heritage Site status, since it is serving the purpose of a broader community while exercising conservation.

Caution should be taken though: evident from collected data is the sensitivity of loggerhead turtles to disturbance.

These critters will turn back to the sea at least half the time, especially when disturbed by tourist or turtle monitors. The latest monitoring approach of “the least disturbance possible” seems to have increased the fifty-fifty ratio of nesting to turning back, to one closer resembling one-third unsuccessful emergences to two-thirds successful nesting. Loggerheads are now handled only once they have started laying.

The large inter-annual variation typical of other turtle populations is also evident in Maputaland. It is difficult to find a single reason to explain this phenomena but it seems to be partly attributable to changes in water temperature and more specifically EL Nino events. In years of warm sea surface temperatures turtle numbers seem low with a compressed season, starting late and finishing early. This still needs to be verified for the (statistical) significance of the relationship and confirming the lag periods experienced, but it seems to operate in both loggerhead and leatherback populations.

Even though the general trend for both species seems to be a positive increase in nesting numbers it is not as directed as a linear regression implies. There is a possibility of a 20 year cycle of 'up and down' through the population. This may

suggest that the "bottle neck" experienced in the 1960's, due to the large suppression of numbers, is manifested again 20 years later and again 40 years since initiation of monitoring. This trend may thus be a result of harvesting or alternatively some climatic event that alters ocean productivity, such as decadal wet-dry cycles. If this trend were statistically significant, it could imply that interpreting population data over a short term may be misleading.

There is still an enormous amount of data mining to be done and exciting analysis to be conducted that will certainly add to our understanding of sea turtle population dynamics in the western Indian Ocean. An example is the notching experiment that was conducted over 20 years, when a scute or combination of scutes was removed seasonally from a hundred thousand loggerhead hatchlings.

Some of these individuals are starting to come back as adult females, giving an accurate estimate of their age.

The turtle monitoring programme is by no means finished and will still continue for as long as necessary and as long as the partnerships can be maintained. WWF-South Africa has contributed for 38 years and has been a lead partner in the monitoring programme. Newer players are the local community, national government (Department of Environmental Affairs and Tourism / Marine and Coastal Management - DEAT/MCM) and the Wetlands Authority, along with Wilderness Safaris and other concessions. We are looking forward to their continued support, and to being able to report on a half-century of data collection in a few years time.

For Ronel Nel's complete Powerpoint presentation, in pdf format, please visit the IOSEA Electronic Library.