



Indian Ocean - South-East Asian Marine Turtle Memorandum of Understanding



Profile of the Month

Sea turtles ... from a South African perspective

(Dec 2007)

Source: Dr Ronel Nel, Dept of Zoology, Nelson Mandela Metropolitan University

Photos: c/o Ronel Nel

Dr. Ronel Nel, Nelson Mandela Metropolitan University, interviewed in November 2007 about her perspectives on marine turtle conservation in South Africa:

You are one of very few individuals working actively on turtle conservation and research in South Africa. Do you feel a certain responsibility to carry forward the decades of work of Dr George Hughes?

Sea turtles have intrigued me because of their complexity, and I certainly feel that "South African" turtles need a champion to defend their cause, wherever they go. Furthermore, their slow-growing nature and life history compel scientists to work on them for their entire career, which could only be one generation for a sea turtle. So chances are good that I am going to do the same.

How widely do sea turtles in South African waters move?

Previously we thought that specifically South African sea turtles are "restricted" to the eastern seaboard (Indian Ocean) because they nest around Sodwana Bay in the Isimangaliso Park, formerly known as the Greater St Lucia Wetland Park. However, we have found out subsequently through satellite tracking and longline fisheries data, there are many more of "our" South African turtles in colder Atlantic waters. These animals are a focus for conservation action under the CMS MoU for Marine Turtles of the Atlantic Coast of Africa, which South African has just signed.



Where are sea turtles most at risk?

Turtles are probably most vulnerable in nesting areas, where they occur in higher concentrations. When they come ashore to nest they are very clumsy. They go into a "trance" state while nesting, where one can do virtually anything to them. Often this is when they are slaughtered.



Their eggs are a popular source of protein and nests are vulnerable to poaching if there is a "highway" of a turtle track leading anyone directly to the nest. Fortunately, South Africa's protection and monitoring programme has successfully addressed this problem.

Also when sea turtles start to emerge, they prefer certain feeding grounds such as sea mounts, including the Walvis Ridge and Walter's Shoal. Unfortunately these areas are also the most favoured fishing grounds for industry, so there is a resource-use conflict.

However, the great unknown for turtles in the near future is not depending on a successful nest protection programme. It is going to be climate change, which will make nests vulnerable to inundation, erosion and temperature for success of hatching. That is where a substantial amount of research has to be focused.

Which turtles in South African waters are most under threat?

Undoubtedly leatherback turtles (*Dermochelys coriacea*) are critically endangered, with only 60 nesting females per annum in KwaZulu-Natal province.

The reason seems to be their exclusively pelagic lifestyle. As they drift away from the coast in the water column, feeding on jelly fish, they interact with all of the large commercial fisheries. The Pacific leatherback could face extinction in the next 20 years because of this threat.



What are the main threats facing turtles in general, and are any problems specific to either the Atlantic or Indian Oceans?

In general, sea turtles face three types of threats:

- Direct harvesting of turtles and their eggs.
- Habitat destruction - especially nesting and feeding habitats. These could include pollution, dynamite/chemical fishing, developments on nesting beaches etc.
- Incidental mortality - catching turtles when targeting other species. This could be subsistence (gill netting) or industrial (trawling & long-lining) or boat strikes which could be any size vessel. Remember - a large leatherback can have a carapace length of 2m.

In the Atlantic we have a problem with commercial/industrial fishing - long-lining and prawn fisheries in particular. We suspect that there may be other fisheries, such as purse seining, that could be important threats as well, since Namibia has about (estimated) 50 strandings of dead leatherbacks per year, of which we do not know the cause. Further along the coast towards central Africa, offshore oil exploitation could result in periodic oil spills.

Threats are different in the Indian Ocean. Adult loggerheads particularly migrate to feeding grounds close to the coast. Here these turtles encounter coastal/shallow water commercial and artisanal fisheries particularly prawn trawling, gill netting and direct harvesting.

How many turtles are killed in South Africa waters every year?

It is difficult to answer this question accurately. What I can say is that proportionally, each year around 200 turtles are caught in longlining (probably less than half of these are killed), around 50 in shark nets, around 15 in trawl nets, and around 5 are picked up in strandings through ghost fishing - where turtles get entangled in lost or discarded fishing gear. We also know of at least 5 tagged turtle returns from East Africa, where turtles were caught and killed. The numbers may not sound like many, but one must keep in mind that we only have about 400 nesting females each year. So this figure could be significant.

We need more information on the size and species of turtles caught in all fisheries. Longlining is a lucrative industry in South Africa that has potentially the largest impact due to the species that we have in South Africa. Leatherbacks are pelagic drifters and the same is true for the loggerhead turtle in the first half of its life (i.e. drifting in the oceans for the first to 15 years or so).

There is thus a large overlap in the areas used by turtles and longliners. However, it is not right to say that every turtle caught on a longline will die. If they are recovered in time, before drowning, and treated carefully they can survive successfully afterwards. So the action that needs to be taken now is adequate research and education and training of the industry to understand the issues at hand. Then it comes down to the regulations and enforcement.

What can South Africa do to mitigate and manage these threats?

South Africa can begin to address these threats on two levels:

Nationally, we can minimize threats to turtles in the South Africa EEZ (Exclusive Economic Zone) by ensuring that fishing gear and practices are "turtle-friendly", through the implementation of gear and condition restrictions. On the west coast of South Africa, it will particularly mean to incorporate specific regulations into fisheries management (e.g. permit conditions, and gear restrictions such as circle hooks and closed areas). However, all of these restrictions must be researched first. It does not mean that if they work elsewhere, they will work in South Africa waters or fisheries.



Internationally, now being a signatory to both CMS turtle MoUs, we can negotiate with other African nations to make sure that we have similar regulations in all countries. For example, the United States' shrimp embargo is meant to oblige countries that want to export shrimp to the US to use turtle excluder devices (also known as TEDs) in their shrimp fisheries. Nigeria is now certified to export shrimp to the US, through this programme.

South Africa does not have shrimp fisheries in the Atlantic, so TEDs are not relevant there, but to date there is no TED requirement in our east coast shrimp fisheries. We could adopt this (or a similar measure) that would work for South Africa. Furthermore, we can use expertise of other countries, along with ours, to make sure that our neighbors are adopting these turtle friendly measures.

Why do you think it is important to protect marine turtles?

Several reasons come to mind:

1. The need for human beings to exercise a wider biodiversity perspective.
2. Marine turtles are ecosystems agents, feeding on different things depending on the species. So they help to structure and contribute to healthy ecosystems.
3. Turtles are also valuable in many cultures, forming parts of rituals, wedding ceremonies etc.
4. Previously turtles were valuable for their meat, oil and shell; but through over-use restrictions have had to be imposed.
5. A current "non-exploitative use" is the growing tourism industry. These ancient creatures that have been around since the age of the dinosaurs, still come ashore to nest and perform a fine-tuned ritual. Watching a sea turtle nest is like looking back in time. That is a highlight in any tourism industry!

How effective would you say turtle conservation measures have been to date, in South Africa and elsewhere?

Generally, conservation is extremely effective where there is a direct pressure. Then that pressure can be alleviated through conservation. For example, between 1900 and around 1960, harvesting of sea turtles and their eggs on South African shores during nesting season seemed to be at an unsustainable rate. Numbers declined to less than 200 turtle nests on our beaches at that time – probably meaning less than 50 turtles nesting annually on our beaches.

In 1963 the Natal Parks Board (now Ezemvelo KZN wildlife) instigated a turtle protection and monitoring programme. During the nesting and hatching season, conservation officers patrol the beaches nightly for 5 months every year. Collectively, over 4000 nests of leatherback and loggerhead turtles were recorded in the 2006/7 nesting season - the highest since the monitoring programme began.

So if correct measures are applied, conservation can be very successful. However in many of the poorer countries of West and East Africa, turtle and egg harvesting is still taking place despite legislation.

It is difficult to prescribe how other nations should deal with this, but South Africa might be seen as an example. We have realised two things: firstly, communities should take ownership of conservation. In this country they have been part of the monitoring for decades now, with some community members receiving a small salary to monitor and protect turtles. Secondly, turtles are worth more when they are alive than dead! In South Africa, there is a small but important and sustainable tourism industry built around Isimangaliso Park. There are many examples of this all over the world.

I referred earlier to the US shrimp trade embargo, which has been very effective. We could try similar strategies with other fisheries such as longlining, since shrimp trawling is not the only industry that could be devastating to turtles. Turtle mortality can be reduced significantly by reducing soak times, using de-hookers, circle hooks, deep setting or using alternative baits.

What are your personal predictions for the state of South Africa's turtle population 15-20 years from now; and do you think you will still be championing their cause in 2025?

The prediction for South African turtles is relatively rosy, assuming the status quo – which means that they are stable or increasing under the current strong protection. They are, however, extremely vulnerable because they are marginal populations at the end of their distribution range.

The number of loggerhead nesting females does not exceed 700 per annum, and leatherbacks are even less, hovering at around 120 females per year. Any change – such as less conservation attention, an increase in pelagic longlining using turtle-unfriendly methods, or climate change – could tip the balance almost instantaneously.

Whether I will be the champion remains to be seen. However, I have learned that continuity is a prerequisite. Sea turtles (and I) have been lucky in that Dr George Hughes has looked after them for his entire professional career. He has passed that responsibility to me, but he still remains interested and is an excellent and patient mentor. He makes sure that the conservation focus for South African turtles is firmly grounded in science and sustainability principles, and that “the cause” does not get swayed with an overly “green” or any other tinge.

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