



Yet another ship runs aground on the KZN coast cont'd...

The stricken MV Smart



Estuaries in the immediate vicinity were identified as priority environmental areas. As such, a team comprised of the relevant environmental and disaster management agencies, and salvage experts were on standby. Their plan included the booming of the uMlathuze Sanctuary, Richards Bay harbour, Mfolozi and Mlalazi estuaries in order to prevent oil making its way into these systems. Fortunately, no oil was spilled.

The Department also undertook sampling of the coal on board to determine the impact it could have on the receiving environment. This has informed the need for subsequent monitoring programmes, as it is anticipated that it may take several months to remove the coal from the vessel.

DEA, along with the KZN Department of Agriculture and Environmental Affairs, Ezemvelo KZN Wildlife and all other responding environmental agencies and local authorities have been on high alert to provide a rapid response in the event of any oil pollution and continue to monitor the situation regarding other impacts caused by the vessel. As there are a long few months ahead before the vessel is removed, it is imperative that environmental risks are minimised.

~ Omar Parak (DAEA)

## Fun at Sea World Science Week

Education  
guide  
with  
Grade 9  
learners



ORI  
Scientist  
with  
visitors  
in the  
aquarium



Sea World  
guide  
showing  
visitors  
squid  
dissections



Sea World  
Education  
teaching  
school  
children  
about  
SCUBA  
gear

# Fifty Years of Turtle Conservation & Monitoring in KZN

Globally, six of the seven marine turtle species known to science are classified as “threatened with extinction” by the IUCN Red List of Threatened Species. Five of these occur off the coast of KwaZulu-Natal (KZN). Of these five, two are critically endangered (leatherback and hawksbill turtles), two are endangered (loggerheads and green turtles) and one, an occasional visitor to our coast - the Olive Ridley, is considered vulnerable. Ezemvelo KZN Wildlife (EKZNW) and its partners have a particular concern and interest in the two species that nest on the beaches of northern KZN in the iSimangaliso Wetland Park - the endangered loggerhead turtle and the critically endangered leatherback turtle.

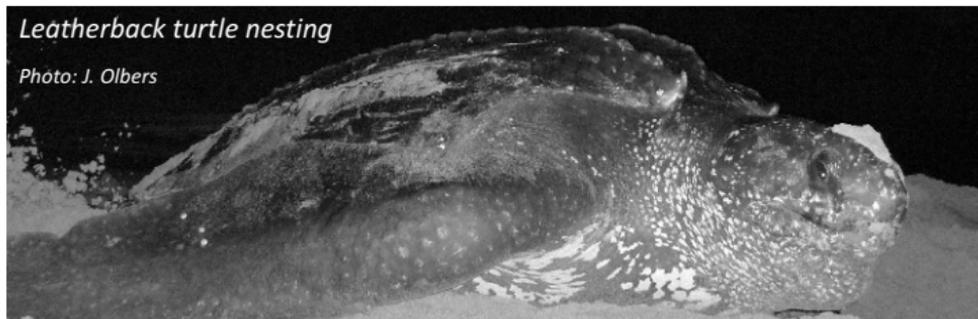
The monitoring of sea turtles in KZN started in 1963 when the then Natal Parks Board (now EKZNW) responded to rumours of sea turtles nesting on the Tongaland beaches of northern KZN. The team that was dispatched established that there were leatherback (*Dermochelys coriacea*) and loggerhead (*Caretta caretta*) turtles using these beaches as nesting grounds. They also discovered that these turtles were being poached. At the time, there were less than 10 leatherbacks and no more 200 loggerheads recorded as nesting. The poaching highlighted the need for better protection of these species and more active conservation and stricter enforcement of the Natal Coastal Fisheries Ordinance.

As such, the Natal Parks Board authorised a survey of these nesting species, which started on 1 December 1963 under the guidance of turtle champion Dr George Hughes. Today, this is one of the longest running and most successful marine turtle conservation and monitoring programmes in the world.

Now 50 years on, Ezemvelo KZN Wildlife is still successfully implementing and managing the annual leatherback and loggerhead conservation monitoring programme.

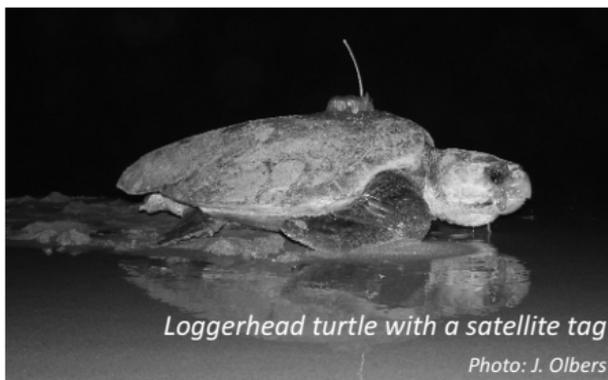
*Leatherback turtle nesting*

Photo: J. Olbers



# Fifty Years of Turtle Conservation & Monitoring in KZN

The response of the nesting leatherback and loggerhead populations has been remarkable. The loggerheads, starting from fewer than 450 nests in the sixties, are now close to 4 000 for the last season. The leatherbacks, starting from around 50 nests have now reached over 300.



*Loggerhead turtle with a satellite tag*

*Photo: J. Olbers*

The loggerheads have shown tremendous growth, with spectacular year-on-year increases since the early 2000's. Leatherbacks on the other hand, while displaying increased numbers, have had mixed success. Their population status is now considered stable and not in steady decline.

The presence of nesting turtles played an important role in the declaration of two marine protected areas (MPA) in the region – the Maputaland MPA and the St. Lucia MPA, which both now form part of the iSimangaliso Wetland Park World Heritage Site. This affords the nesting turtles the protection needed to maintain sustainable populations.

In the nineties a tourism industry centred around turtle-tourism became viable. Ezemvelo therefore facilitated the development of this sector, allowing private sector companies to undertake 'drive-on' turtle tours and the local Thonga community to take walking tours, which has assisted with job creation in the area. Given that the area is one of the poorest in the country, this makes a significant contribution to people's livelihoods. In addition, the monitoring programme provides employment for 21 local community members for 6 months annually.

While turtle populations have recovered well, it is important to note that they will always be conservation-dependent for their long-term survival. As such, the monitoring programme of Ezemvelo will continue, ensuring sound management and sustainability for these majestic creatures.

# TREASURE HUNTERS

## Diving gear, maps & cameras - the tools of marine scientists

Annually, during the first week of August, South Africa celebrates National Science Week. uShaka Sea World and the Oceanographic Research Institute are in a unique geographic position to share a huge range of exciting marine science activities with school learners and the public.

During the 2013 Science Week, learners from selected schools participated in an action-packed work experience involving activities that included working out the biology of different fish species, calculating sustainable levels of harvesting, working with an aquarist to find out about fish nutrition and what it takes to create a healthy environment for marine life. Discussions with scientists were held on different topics including how best to plan for sea-level rise in Durban and which methods can be used to tag fish. Some schools were visited by marine educators and a commercial diver, revealing the science behind diving and the skills needed to care for the Sea World animals – all presented in their own language, isiZulu.

The public, who were fortunate to visit uShaka Marine World during Science Week, were invited to chat to top ORI scientists about coral reef research, use GIS maps to plan for sustainable development along the KZN coast and analyse remote underwater video used to study fish communities and abundance within and outside a Marine Protected Area. A microscope linked to a large screen visually highlighted the smaller and more cryptic animals living abundantly on and close to the shore. The most popular of all were the squid dissections, even amongst the staff of a nearby seafood restaurant!

Organised by the uShaka Sea World Education Centre, this diverse programme reached over 7 000 people and was our most successful in the past ten years.

~Jone Porter (uShaka Sea World Education)



*Boy learning about SCUBA gear*



## Why are Tuna “Warm-Blooded”?

Water conducts heat far better than air, which means that any warm-blooded animal in water would need to expend 10 to 30 times more energy in order to maintain its body temperature than it would need if it lived on land. For this reason marine mammals are encased in a layer of fat or blubber so as to minimise heat loss. Most fish do not regulate their temperature but rather have the same internal temperature as their external environment, and are therefore cold-blooded.

One notable exception may be found with several species of tuna, which are able to maintain a body temperature several degrees higher than the surrounding water - as much as 20 degrees higher in some cases. This allows it to be a more powerful swimmer easily able to cross oceans and reaching speeds of 30 knots. Tuna can also dive and feed at depths to some 900 metres without suffering from the sudden exposure to cold water at such great depths.

In order to achieve such swimming efficiency tuna have a central core of highly vascularized red muscles, which are able to retain heat generated by muscle activity. This is achieved through a vascular “heat exchanger” which prevents heat loss from blood via the gills and instead retains the excess heat. Heat is stored in the central red tissue core and makes for more efficient muscle action. In fact, the eye muscles of swordfish also have such a mini “heater system” so it can operate better in low light.

~Bronwyn Goble & Rudy van der Elst (ORI)

### Contact Us

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