Sea turtle behaviour and conservation on Alphonse Island – Part 3

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How we keep them coming back for more

The titanium tag fixed in August 2007 on the same green turtle re-observed in August 2012 on the same beach section

The possible role of the Earth's magnetic field on nesting sea turtles

Sea turtles migrate long distances -- hundreds or even thousands of kilometers -- between their home/feeding areas and the beaches where they nest. Their nesting beaches tend to be near the beaches where they were born themselves. You probably wonder what makes turtles come back to the same area to nest time after time? This not well-understood event may happen thanks to the Earth's magnetic field: it resembles the dipole field of a vertical giant bar magnet placed at the center of the Earth. Field lines curve around the planet from South to North. The inclination of the field lines curve varies with latitude; lines are parallel to the ground above equator and are perpendicular to the ground at the poles. Magnetite crystals, like those in compasses that we use for navigation, have been found in the sea turtle brain. These crystals line up relative to the North Magnetic pole, similar to what they do in our compasses. As the turtles migrate, these magnetic crystals would help the animals distinguish among the magnetic field intensities that exist in different geographic locations. Scientists have produced evidence that, while running down the beach to reach the sea, the new-born hatchling is imprinting into its own head information about the magnetic field intensity of its nesting beach. This information will likely be used by that turtle many years later to find its way back as an adult turtle to nest in the same area.

Turtle Tagging Program on Alphonse shows the return of nesting turtles to their natal beaches

On Alphonse since 2007, ICS has been running a turtle tagging program that was designed by Dr Jeanne Mortimer, well known in Seychelles by her nickname 'Madam Torti'. Thanks to the application of tags on the Alphonse's turtles, we are able to recognized the same individuals coming back to nest twice or three times in one nesting

season, sometimes exactly at the same beach section. We have also this remarkable example of a nesting green turtle tagged in August 2007 by our colleague Pierre-Andre Adam on the eastern beaches and observed again, exactly 5 years later, in August 2012 on that same eastern beach.

A nesting green turtle going back to the sea after having successful laid on a beach without any obstacles

The ICS team keeps the Alphonse beaches clean to help the nesting sea turtles and their offspring

The degradation of the beaches by erosion or by accumulation of debris can cause serious problems for a turtle trying to find a suitable nesting site. During our daily turtle monitoring around Alphonse Island, we sometimes find evidence that turtles stopped by obstacles. The obstacles can be a sand cliff below the beach platform, up-roosted trees felled by coastal erosion, growth of invasive young coconut trees and accumulation of broken tree branches or coconuts. In addition to these natural debris, we sadly observe an increasing amount of marine waste, the product of Human's societies, washed ashore by the sea. Hatchlings are particularly vulnerable to this kind of pollution. Plastic bottles, caps, flip-flops…are obstacles that can slow down the vulnerable hatchlings in their way to the ocean, and make them more likely to fall prey to crabs or to dry out in the sun. To help the turtles, we regularly remove potential obstacles in the critical nesting sites and undertake routine beach clean-ups around Alphonse Island. Yes, it is an endless thankless task, but it is so great to know that we are helping the turtles!

Aurélie Duhec
Island Conservation Society