

## Marine turtles of New Caledonia

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### Introduction

The «Association pour la Sauvegarde de la Nature Néo-Calédonienne» (Association for the protection of New-Caledonian nature) was established on the 6th of May 1971. Since the eighties, ASNNC has been interested in marine turtles which utilise our lagoons as foraging grounds and come to nest on our shores. Based on the principle that “knowledge forms the basis for protection”, ASNNC initiated a research program on marine turtles, motivated by that fact that (i) little was being done by other organisations for these endangered species and (ii) these organisms are considered to be truly emblematic of New Caledonia (and the Pacific).

From 1989 to 2004, ASNNC organised tagging campaign, mainly on d'Entrecasteaux Reefs. The main goal of these efforts was to not only estimate the population size of marine turtles visiting these Northern islets, but also to study these species' migration routes. So far reports have shown that marine turtles caught in New-Caledonia mainly travel to eastern Australia. At the same time, the Association organised public awareness and information campaigns. ASNNC's work would not have been possible without the incredible support afforded by the French navy, PROE (Pacific Regional Environment Program), New Caledonia Provinces, CIPAC Beachcomber, WWF and IFRECOR, and the invaluable contributions by scientists such as George H. Balazs (Hawaii), Peter Pritchard (USA), Colin Limpus (Australia) and Scott Baker (New-Zealand).

### Species present in New Caledonia

Marine turtles's history dates back to over 100 million years. They belong to the Reptile class, and all marine turtles are part of the Chelonidae family, with the exception of the leatherback turtle (which belongs to the Dermochelidae). In New Caledonia, four species of sea turtles are known to occur (of 7 worldwide). They are, in decreasing order of importance:

- The green turtle (*Chelonia mydas* Linnaeus, 1758) is the most abundant. With a carapace length at times exceeding 1.25m, individuals can weigh up to 250 kg. A rather peaceful animal, as an adult it feeds mainly on marine plants. As a juvenile it sometimes eats crustaceans, molluscs, echinoderms, sponges and jellyfish. This species is characterized & generally identified by: (i) a sharply serrated cutting rim to the beak (ii) 1 pair of elongated prefrontal scales (iii) 4 pairs of lateral scutes, the foremost not touching the precentral scute;
- The loggerhead turtle (*Caretta caretta* Linnaeus, 1758) – so named because of its large head - is more aggressive. Although generally larger in size, it can measure up to 1.35 m, it is usually less heavy, rarely weighing in at more than 150 kg. It is carnivorous. The species is typically reddish brown in colour, and is characterised by 5 pairs of laterals, the anterior touching the precentral scute; 5 central (neural) scutes; and 2 pairs of prefrontal scales;
- The hawksbill turtle (*Eretmochelys imbricata* Linnaeus, 1766) has the same vernacular name 'caret' as the loggerhead turtle. Smaller, it barely reaches 90cm. It can easily be distinguished from other species due to its sharp hooked 'beak' and highly imbricated scutes at maturity – the overlapping character is frequently lost in older individuals. Carnivorous, it is fairly aggressive in nature. Its head possesses 2 pairs of prefrontal scales and the scutellation of the carapace is similar to that of *Chelonia*, with 4 pairs of laterals (the first not touching the precentral scute);
- The leatherback turtle (*Dermochelys coriacea* Vandelli, 1761) can easily be discerned from other species. This is a turtle of colossal proportions, reaching up to 2 m in length and weighing more than 500 kg. This species' carapace is supported by a thick matrix of cartilaginous tissue with 7 dorsal

keels. Adults are covered by a rubber-like, leathery skin, typically blue-black in colour with scattered white blotches. The beak of adult individuals is feeble, but sharp-edged, lacking crushing surfaces, well adapted to grab jellyfish and tunicates, the mainstay of its diet. The leatherback turtle is a highly pelagic species and its meat is not sought after. Leatherback turtles are protected as their nesting sites are few and this species population has been suffering a precipitous and dangerous decline.

### **Work carried out by ASNNC**

Tagging of marine turtles at d'Entrecasteaux Reefs (Northern end of New Caledonia)

ASNNC conducted 12 fifteen-day tagging campaigns between 1989 and 2002 on Surprise, Fabre, le Leizour and Huon islets. 3651 female green turtles were tagged at the time of the nesting.

Between October 2003 and January 2004, ASNNC organised 3 three-week long camps on Huon islet. These allowed researchers to do some more in depth studies and to tag 437 female green turtles.

Tracks and nests study

At various occasions, track censuses were undertaken at Chesterfield islands, Loop islet, Beautemps-Beaupré, Anemata, Pléiades North and South, Ouvéa, and Roche Percée at Bourail (loggerhead turtle).

### **Nesting sites and estimated populations**

#### **- Green turtle**

The main nesting site is located at d'Entrecasteaux reefs. A few nesting sites can also be found along the Northern and Northeastern end of the territory, as well as on the West and the South coasts. The population has been estimated at 2000 mature females.

#### **- Loggerhead turtle**

Roche Percée beach at Bourail constitutes an important nesting site (around 200 nests). Its dark sand, favouring incubation temperatures higher than 28.5°C, seem to indicate that hatchlings from this beach would mainly be female. Other nesting sites can be found all along the West coast, on Iles des Pins and Loyalty Islands. Total population size has been estimated at 250 mature females.

#### **- Hawksbill turtle**

It appears as if the main population (about 200 individuals) is located on the Northeastern coast, but no nesting site was known in 2006.

A few sites can also be found on Loyalty islands, Iles des Pins, and in the South.

#### **- Leatherback turtle**

It is only transiting through New Caledonia and only a few occasional sightings have been reported.

### **Public Awareness and information campaigns**

Owing to various sources of funding, ASNNC conducted, in addition to tagging campaigns, a large scale in depth study spanning the entire territory from May 2002 to May 2004. The 3 three-weeks long camps on Huon islet took place during this study, as well as several operations in the three Provinces, and the satellite tagging on April 21<sup>st</sup> 2004 of a young loggerhead (nicknamed "Bip-bip") released from the Nouméa aquarium. The Argos tag was recovered in December 2004 near Maître islet where this turtle seemed to have settled. This operation was a huge success with many New Caledonians daily following the turtle's tracks on the internet.

For the past twenty years, ASNNC has also published many documents, articles, posters, identification cards, booklets, and has organised numerous conferences and competitions, which have certainly contributed to increased public, political and administrative awareness in New Caledonia. As turtles always return to the nesting beach they first emerged from, it is important New Caledonia takes the appropriate steps to preserve its natural heritage into the future.

## Threats and protection

Accidental mortality due to industrial fishing gears, including surface long-lines

Ingestion of various types of waste (plastics, cigarette filters, polystyrene ...)

Poaching and sale of meat, eggs and carapaces

Destruction of nesting sites due to human activities & development

High natural hatchling mortality (typically only 1 out of a 1000 hatchlings makes it to adulthood)

Predation by dogs on some beaches

The legal capturing of turtles only ceased in 2006 in the Northern and Southern Provinces, (with the exception of special authorisations granted for native ceremonies).

Prior to local legislative measures, marine turtles were already protected under CITES (Convention on International Trade in Endangered Species of Wild Flora and Fauna), prohibiting international trade and transport. In 1990, IUCN (International Union for the Conservation of Nature) listed green and loggerhead turtles as “endangered” species, and hawksbill and leatherback turtles as “critically endangered”.

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*Caretta caretta*



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*Caretta caretta*



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*Chelonia mydas*



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*Chelonia mydas*



© IRD/Pierre Laboute

*Eretmochelys imbricata*



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*Eretmochelys imbricata*



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*Dermochelys coriacea*



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