

# Status of leatherback turtles in Sudan

## 1. Introduction

The Sudanese Red Sea coast is approximately 750 km long, inclusive of bays and inlets, extending from 18°N at the Eritrean border to 22°N at the Egyptian border. In most parts of the Sudanese Red Sea water transparency is very high, reaching up to 70 m. Surface temperatures range between 26.2 and 30.5 °C, and salinity is high (39 - 41 p.p.t.). From May to October, surface currents flow in a southerly direction, and for the rest of the year they flow northwards.

Most of the coast is bordered by fringing reefs 1 - 3 km wide, and not favourable nesting habitat for leatherback turtles, even though the reefs are separated by deep channels from a barrier reef of 1 - 14 km offshore, and the outer barrier drops steeply to several hundred metres depth. Port Sudan is the largest coastal city with a population of ca. 390,000. At present Sudan's natural resources of the Red Sea are under-exploited due to a lack of marketing, transport facilities and cold storage. There is no offshore oil exploitation, the contribution of fisheries and tourism to the GNP is < 3 %, and subsistence fisheries are only locally important. The primary industries are maritime shipping and port-related activities. Fisheries play a minor role in the economy at the national level, but are important at a subsistence level along the coastal area.

## 2. The legal protection status for leatherback turtles

### 2.1 Overview

Sudan is a signatory to a number of international conventions and agreements that promote marine conservation. National legislation in Sudan is not believed to address turtles *per se*, but indirectly supports pollution control measures and navigation.

Sudan has ratified the following Conventions and Protocols relevant to marine turtles: Convention Concerning the Protection of the World Cultural and Natural Heritage (1974); Convention on Biological Diversity (1995); Convention on International Trade in Endangered Species of Wild Fauna and Flora (1982); Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment (1984); United Nations Convention on the Law of the Sea (1985).

Several national legislative frameworks are in place that relate indirectly to turtles: the Sudanese Fishery Ordinances and Regulations (1937, amended in 1975 and 1978); the Environmental Health Act (1975); the Marine Fisheries Ordinance (date unknown to the author). Al-Mansi et al. (2003) suggest all turtles receive legal protection, but do not cite it specifically. A new Maritime Law has been drafted by the Maritime Administration and is awaiting approval and implementation, and the Comprehensive National Strategy commits Sudan to the pursuit of sustainable development and environmentally sound resource management.

### 2.2 Management agencies responsible for marine turtle conservation

Sudan has much of the infrastructure needed for regular monitoring and effective management of marine resources. There exist research organisations (based at the universities) that have carried out brief research on turtles in the past, and government agencies (such as the Navy) which provide a limited degree of enforcement. Many of the present problems faced by turtles can be attributed to a widespread lack of law enforcement, a lack of awareness among law enforcement authorities, a weak legal framework, and the absence of surveillance. Recently, power was transferred from the central government to federal states. The new system is not yet well established, resulting in an unsatisfactory legal situation and inadequate enforcement of existing regulations.

The Sudan Marine Conservation Committee (SMCC) is an institution with representatives from all government institutions, the private sector, and NGOs concerned with the Red Sea environment. It played an important role in raising awareness and in formulating regulations on marine conservation, particularly in the 1970s.

The following institutions are involved in management of coastal and marine areas and resources:

1. The Ministry of Environment and Tourism, established in 1994 with the mandate of co-ordinating environmental conservation and promoting tourism (under its umbrella it includes the Higher Council for the Environment and Natural Resources (HCENR), which is the technical branch in charge of co-ordination, policy making, and international co-operation; the National Tourism Corporation, which is responsible for planning and promotion of tourism; the General Administration for Wildlife Conservation, which is charged with the protection and management of wildlife, including protected areas)
2. The Ministry of Animal Wealth: In charge of animal production and fisheries, and includes the Marine Fisheries Administration, which manages fisheries resources and controls the observation of fisheries regulations; the Marine Fisheries Research Centre, which provides scientific information for the management of fisheries resources; and the Wildlife Research Centre, in charge of providing the scientific background for wildlife conservation and management.
3. The Ministry of Defence is in charge of the Naval Forces in the Red Sea area. The Navy is responsible for the security in the coastal and marine areas. The Navy has a boat and two soldiers stationed at Sanganeb Marine National Park.
4. The Ministry of Interior is in charge of the Police Forces. The Wildlife Force is under administrative supervision of this Ministry.

### 3. Nesting populations

The results of a questionnaire in 2003 which targeted fisherman, coastal villagers, maintenance workers at the light house at Hindy Qider Island, shell collectors and the Sudanese Army suggested that green turtles *Chelonia mydas*, hawksbill turtles *Eretmochelys imbricata*, loggerhead turtles *Caretta caretta* and leatherback turtles *Dermodochelys coriacea* can be found at sea, but only the first three nest on the offshore islands (Al-Mansi et al. 2003).

### 4. Foraging populations

#### 4.1 Overview

leatherback turtles are known to occur in the Red Sea (e.g. Frazier et al. 1987), but no nesting has yet been recorded on any Red Sea-bordering nation. The fact that they are seen in Sudan's waters is evidenced by their having a distinct local name, *Abo-Herab*, but no quantitative records are available of the frequency of sightings at sea. No studies of any kind have been carried out on nesting or foraging leatherback turtles in Sudan. There are no known sanctioned sea turtle hatchery programmes of any kind, or any focussed conservation actions aimed at the leatherback turtle in Sudan.

#### 4.2 Threats to leatherback turtles

Due to the limited industrial development along the Sudanese coastline, threats are localised at the few urban centres. Turtles are threatened by maritime shipping, dredging and artisanal fishing. The most severe threats to turtles come from accidental capture by the limited fisheries. The large-scale shark fisheries by foreign vessels produce large amounts of bycatch, including turtles, which are discarded, invariably dead. Turtles are not reported as being commercially landed (Sanders and Kedidi, 1981; Mishrigi, 1993). Illegal take of marine turtles by fisherman and egg poaching continues at a low rate (Al-Mansi et al. 2003).

#### 4.3 Protection of foraging areas

The only marine protected area in Sudan is the Sanganeb Marine National Park (19°45'N 37°25'E), established in 1990. This is a 12 km<sup>2</sup> atoll with highly diverse and complex coral reefs, diverse reef-associated fauna. There are five proposed marine protected areas, of which four contain coral reefs: Shuab Rami, which covers ca. 4 km<sup>2</sup> and contains coral reefs and unique associated fauna including sharks and marine mammals; Mukkawar Island and Dunganab Bay, which cover ca. 300 km<sup>2</sup> and are home to coral reefs, whale sharks, and the largest aggregations of manta rays in the Red Sea; Suakin archipelago, which contains coral reefs with a diverse fish fauna, and is nesting site for marine turtles and sea birds, and Abu Hashish, which covers ca. 5 km<sup>2</sup> and also contains coral reefs and associated fauna.

#### 4.4. Gaps in capacity and requirements for improved conservation

A major problem in conservation of turtles is funding for research and management efforts. The recent revival of PERSGA (PERSGA 1997; 1998) and the injection of GEF funding have meant there was some research and training, but enforcement will remain at its present state. Additionally there are political obstacles within the government: the General Administration for Wildlife Conservation is charged with the protection and management of wildlife, including protected areas. However, it is still lacking experience in marine issues, and its efficiency is hampered by the fact that it is technically under the Ministry of Environment and Tourism, but administratively under the Ministry of Interior (employees are part of the police force). Finally, there are a few logistical constraints which combine to make turtle conservation ineffective. For instance, a number of important legal instruments still await ratification (the National Maritime Law and the marine conservation laws drafted by the Sudan Marine Conservation Committee); and the Faculty of Marine Science and Fisheries of the Red Sea University and the Suakin Marine Laboratory have conducted small and limited research on a few selected nesting beaches, but these projects are limited in scope and intermittent. No temporal studies take place in Sudan, providing little indication of changes to populations over time.

#### **5. References**

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