

# Status of leatherback turtles in Yemen

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## 1. Introduction

The Republic of Yemen lies in the south-western corner of the Arabian Peninsula, and includes the Socotra archipelago. The coastline has a length of about 2200 km, roughly one third of which is in the Red Sea and the remaining two thirds is in the Gulf of Aden. Yemen marine communities are developed in some extreme environments, ranging from high sea temperatures, minimal tidal movement and relatively calm sea conditions in the southern Red Sea, to seasonal cool water up welling and large oceanic waves in parts of the Gulf of Aden and Arabian Sea. Areas exposed to the up welling share a unique mix of tropical and temperate species, and highly productive fisheries.

Along the Red Sea, the climate is dry with an average annual rainfall of 100 - 200 mm and a humidity of about 60 %. The Gulf of Aden is dominated by the Indian Ocean monsoon system.

The Socotra archipelago has long been isolated from the mainland, surrounded by deep waters, in places exceeding 3,000 m depth. It lies 400 km south of the Arabian Peninsula and is highly exposed to the monsoon climate of the Indian Ocean. Annual rainfall is around 200 mm, mainly falling in June, November and December. Average air temperature ranges from 17 °C in January to 37 °C in July. Most of the coast consists of cliffs or sandy beaches with occasional gravel shorelines. Most of the coastal and marine areas surrounding these islands are still in a pristine state and in 1996, the Government of Yemen declared Socotra a special natural area in need of protection.

Major economic resources are port-related activities; fisheries, maritime traffic, oil and gas exploitation, and coastal and marine tourism play a minor role. Fish production is an important component of the GDP, with bases and landing sites spread along the mainland coastline and from a number of Islands. In the Red Sea, the continental shelf comprises rich fishing grounds for finfish and prawn trawlers.

## 2. The legal protection status for leatherback turtles

### 2.1 Overview

The Republic of Yemen is a party to international conventions, agreements and treaties which have implications on the marine environment. Similarly, a number of national instruments exist at various government levels which directly or indirectly concern marine turtles. Treaties or conventions that were signed by ex-YAR and ex-PDRY Yemen are still in force according to the unification decree. Yemen is party to Convention on Biological Diversity (1996); the Regional Convention for the Conservation of the Red Sea and Gulf of Aden Environment (1982); the United Nations Convention on the Law of the Sea (1987) and the United Nations Framework Convention on Climate Change (1996), among others.

In recent years Yemen has established a number of significant instruments, laws and regulations which address directly or indirectly marine turtles: Prime Ministerial Decree No. 4 (1996) established Socotra as a protected area and developed a High Committee for Development of Socotra headed by the Deputy Prime Minister and Minister of Planning and Development. The Presidential Resolution on Fishing, Exploitation and Protection of Living Aquatic Resources (Law No. 42) enacted in 1991, is the main legal framework for organization, exploitation and protection of fishing and aquatic resources, and under which capture of sea turtles is forbidden. This law deals with the protection of fisheries resources and regulation of fishing activities. The law prohibits the use of destructive fishing methods such as poisons, chemicals, etc. The law also indicates means of limiting and/or dealing with pollution. The Ministerial Decree for Specifications of Fishing Vessels and Gear (No. 101) enacted in 1995 also addresses indirectly turtle issues.

### 2.2 Management agencies responsible for marine turtle conservation

A number of governmental agencies have responsibility for the coastal and marine areas. There is no authority solely in charge of the management of the coastal zone in Yemen. The Environment Protection Council (EPC) was established in 1990 by Prime Ministerial Decree 94/1990. The Technical Secretariat (TS) co-ordinates and monitors: planning, implementation, environmental protection and natural conservation policy. Implementation at field level is under the responsibility of the line ministries. The EPC is the official government agency in charge of development and implementation of

the general national policy planning for environmental protection and control. The EPC is the prime agency responsible for marine turtle conservation. The Ministry of Fish Wealth (MFW) regulates fishing, issues licenses, and supervises processing and marketing of fish and fisheries products for local consumption and export. The MFW, through the department of monitoring and surveillance, is responsible for the enforcement of laws and regulations concerning marine resources, including bycatch of endangered species. The Public Corporation for Maritime Affairs (PCMA) is the main governmental body concerned with maritime safety and marine pollution control, but also plays an important role in developing a legislative framework to protect the marine environment.

In terms of research and monitoring, the Department of Oceanography, University of Sana'a, which was established in the late 1970s, has more than 10 staff members specialized in marine ecology, chemistry, geology and fish biology. Its main responsibilities are teaching, research and advising the government on marine issues. It has a capacity for and is carrying out research and training in the fields of coastal surveys, pollution monitoring and analysis. The University of Aden also has several departments which are involved in research and training in the marine sciences.

The Marine Science and Resources Research Centre (MSRRC) in Aden is the advisory body for the MFW. The centre advises the ministry on aspects of fish stock assessment and management, data on fish landing, fishing seasons, etc. It consists of Fisheries, Oceanography and Benthos departments. The MSRRC operates a 37 m research vessel which is currently in need of maintenance. The centre receives some technical assistance from the Fourth Fisheries Development Project and has collaborated with IV Fisheries to execute a coastal habitat survey of the Gulf of Aden.

### **3. Nesting populations**

leatherback turtles are reported to occur infrequently along the Yemeni coast, but there is no historical or contemporary data indicating that they nest on Yemen's beaches (Saad 1999).

### **4. Foraging populations**

#### 4.1 Overview

Sightings of leatherback turtles in Yemen's waters are rare, but one person interviewed during a survey in 2002 recalled seeing a leatherback turtle off Ithmoon-Ras Sharma (down in the southern Hadramaut coast), and another was spotted in the sea near Bir Ali (Saad 2002). No research of any kind has been carried out on leatherback turtles in Yemen, and no concerted conservation efforts have been made which impact them specifically.

#### 4.2 Threats to leatherback turtles

Fishing is likely the greatest threat to leatherback turtles in Yemen, as they may be drowned in trawlers or entangled/drowned in pelagic long lines. Fishermen operate from bases and landing sites spread along the mainland coastline and from a number of islands. Most of the landings come from trawling in the Red Sea and the pelagic fishery in the Gulf of Aden. The trawl grounds of the Red Sea are about 6,200 km<sup>2</sup> of which 550 km<sup>2</sup> are shrimp fishery areas (Sanders and Kedidi 1981). The majority of the fishing in the Gulf of Aden targets pelagic species.

Turtles have not ranked highly on the protection agenda in Yemen. Development of urban centres and industry carry a higher priority, and only in recent years has the protection of turtles been addressed. Yemeni waters are major shipping routes. About 16,000 ships pass through the Strait of Bab al-Mandab each year and many call at Yemen's main ports (Table IV; Aden Port Development 1996). Ships are known to dump their wastes and dirty ballast water in the Yemeni waters. Dirty ballast waters result in the formation of tar balls which have been found throughout the coastline of the Gulf of Aden (EC/MFW 1995) and some parts of the Red Sea coast (Rushdi et al. 1991). Additionally, solid waste from ship-based sources may be found on beaches.

#### 4.3 Protection of foraging areas

There is one protected area (Socotra) and six proposed protected areas in Yemen. Establishment of marine protected areas is a relatively new process in Yemen, with funding and technical input from IUCN, the Global Environment Facility and PERSGA. The Socotra Islands archipelago occupies some 362,500 km<sup>2</sup> and is home to diverse terrestrial plant and animal life with a high degree of endemism. Socotra (12°30'N 54°00'E) is the main island, the others being Abd al-Khuri, Samha and Darsa. There are also smaller rock islets, Kal-faraon and Sabouniya. They are all fringed by diverse and largely pristine marine habitats and biota. Funding and logistical support is provided through the GEF-Socotra

biodiversity project, which has also included turtle conservation (mostly loggerhead turtles *Caretta caretta*).

Planned protected areas include the Belhaf and Bir Ali Area, a coastal stretch and group of high aspect islands with extensive fringing coral reefs and rich fishing areas (14°00'N 48°10'E). The area is also an important seabird and marine turtle nesting site, and contains a salt water crater with fringing mangroves; Ras Isa / Kamaran Island, located at 15°16'N 42°44'E, the headland / island complex contains coral reefs with diverse associated fauna; Khor Umaira, a semi-enclosed lagoon with mixed seagrass and coral reef habitat, that supports marine turtle feeding (12°40'N 44°10'E); Ras Sharma, an important (regional and possibly global) nesting site for marine turtles (13°00'N 43°40'E); Dhobba, considered as it is a marine turtle nesting site (14°45'N 49°40'E); and Bab al-Mandab and Perim Island, which contain extensive seagrass beds and mangrove stands, and is an important waterway feeding the Red Sea (12°30'N 43°30'E).

## 5. References

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