

STATUS OF MARINE TURTLES ON KARACHI COAST

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ABSTRACT

Owing to the endangered status of these animals, the Government of Sindh under Sindh Wildlife Protection Ordinance 1972 and Sindh Wildlife protection Act 1993 declared all marine turtle species as "Endangered". Pakistan is also a signatory to CITES (the Convention of International Trade in Endangered Species of Fauna and Flora) where all sea turtles are included in the list of organisms which are prohibited for international trade. Results of continuing study carried out by Sindh Wildlife Department from October 1979 to December 2001 indicate that the beaches of Hawksbay and Sandspit in Karachi are important nesting grounds for green and olive ridley turtles. Sporadic nesting also occurs on the sandy shores along Manora, Buleji, Paradise Point and Capemanz, the main feeding grounds for turtles. The paper outlines the present status of marine turtles in Pakistan and highlights the conservation measures taken along Karachi coast. The data regarding tagging, tag recoveries, eggs transplanted and hatchlings released is collected and analyzed for investigation of migratory pattern and nesting behavioral.

Key-words: Marine turtle, wild life, Karachi coast, W.W.F., IUCN, Pakistan.

INTRODUCTION

Subsistence hunting for immediate local consumption has led to depletion of nesting and feeding population of turtles particularly in areas where protein sources are in great demand and human population density is high. In Pakistan turtles were not used as food but their population was declining due to heavy pressure of export to foreign countries during the late sixties. Owing to the endangered status of these animals, the Government of Sindh under Sindh Wildlife Protection Ordinance 1972 and Sindh Wildlife protection Act 1993 declared all marine turtle species as "Endangered". Pakistan is also a signatory to CITES (the Convention of International Trade in Endangered Species of Fauna and Flora) where all sea turtles are included in the list of organisms which are prohibited for international trade from or to signatory countries. The plight of marine turtles has received attention from all parts of the world including many areas around the Indian Ocean and international restrictions imposed through CITES has reduced international trade and further exploitation of these animals (Anon, 1981, Firdous, 1997).

Government of Pakistan in collaboration with WWF-Pakistan had sent a team of experts led by Guy Mountfort to survey the wildlife habitats of Pakistan in 1966. A wildlife enquiry committee was established on recommendations of the team to consider various questions related to wildlife conservation and administration with special reference to endangered species. The committee listed sea turtles of the genera *Chelonia*, *Dermochelys*, *Caretta*, *Lepidochelys* and *Eretmochelys* as endangered species in need of protection (Anon., 1970). Sindh Wildlife Protection Ordinance of 1972 makes it illegal to exploit the hatchlings (commercially or otherwise) of all marine turtles, or to harass them (Anon, 1972, 1984). Sindh Wildlife Department took immediate protective measures at Hawkes Bay and Sandspit beaches of Karachi. Pakistan is also a signatory to the international treaty of CITES which prohibits trade on turtle products and forbids the export of any part or product of species listed in Appendix I of CITES (Anon., 1981), which included following species of turtles: *Caretta caretta* (Loggerhead), *Chelonia depressa* (Flatback), *Chelonia mydas* (Green), *Eretmochelys imbricata* (Hawksbill), *Lepidochelys kempii* (Kemp's Ridley), *Lepidochelys olivacea* (Olive Ridley), *Dermochelys coriacea* (Leatherback).

The IUCN's Red Data Book enlisted the Green Turtle in the category III (Groombridge, 1982) of "depleted" species. Although occurring in numbers adequate for survival, the species has heavily depleted and continues to decline at an alarming rate that the turtle population can sustain. Red Data Book lists the Olive Ridley turtles "rare species" under category II, not under immediate threat of extinction but occurring in such a small number in restricted and specialized habitats that it could quickly disappear and requires regular monitoring.

Contribution of Sindh Wildlife Department in collaboration with WWF and IUCN

In early 1970s, a certain amount of commercial exploitation of adult sea turtles and their eggs had been reported. The adults were caught, butchered and the meat was exported (mainly to Japan). The eggs were collected and sold in the main grocery market of Karachi, as a cheap alternative to poultry eggs and bought mostly by big bakeries that used them for making bread and cakes. From 1972-79 a lot of attention was diverted to the protection of sea turtles and in 1979 a small pilot project began at Sandspit beach with modest funding provided by WWF, IUCN and the Sindh Wildlife Department. Under this project patrolling along turtle nesting beaches was carried out to check poachers and tourists harassing or disturbing nesting turtles. A small enclosure was constructed to replace

and protect turtle eggs which were laid on the open beach vulnerable to scavenging by dogs and other predators. Later a three-year pilot project (1981-83) was approved by WWF/ IUCN and implemented by Sindh Wildlife Department for conservation and research on marine turtles along the beaches of Karachi particularly Hawkes Bay and Sandspit (Kabiraji and Firdous, 1984). The project was based on a broad objective to survey the beaches, to determine the status of species; to estimate the population of sea turtles and the key threats to their existence. Besides conservation and protection programmes, an attempt to raise public awareness was also made to educate school children and others about turtle conservation and its importance.

Outcomes of the Project

Results of continuing study from October 1979 to December 2001 suggest that among seven species of marine turtles in the world only two are found nesting along the beaches of Hawkes Bay and Sandspit. These are green turtles (*Chelonia mydas*) and olive ridley (*Lepidochelys olivacea*). A couple of dead specimen of leatherback turtle (*Dermochelys coriacea*) were also recorded along these beaches indicating that it must be inhabiting nearby waters (Firdous, 1989).

It was observed that marine turtles visit sandy beaches of Karachi at Sandspit and Hawkes Bay regularly for nesting and laying eggs. These two areas are universally famous turtle nesting grounds. Turtles from nesting grounds migrate to feeding grounds located along rocky shores at Buleji, Paradise Point and Capemonze for feeding on seaweed, a staple food item for green turtles. The areas where studies on turtle distribution and nesting behaviour have been carried out along the Sindh coast of Pakistan are shown in Fig. 1.

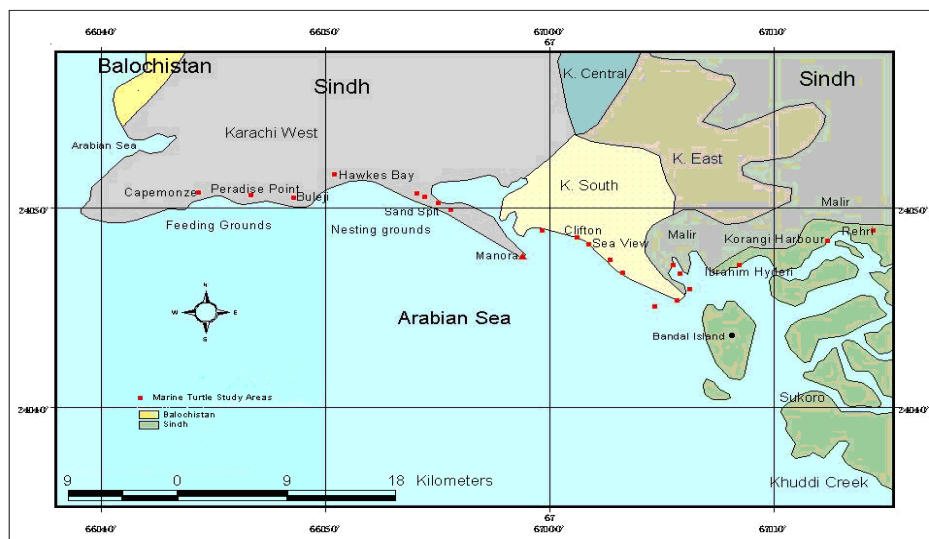


Fig. 1. Map showing marine turtle study areas along the coast of Sindh. This map was created in June 2001 at GIS Labs of the Sindh Wildlife Department.

Although green turtle nesting and egg laying occurred throughout the year but peak nesting season and egg laying was observed during the period from September to November (Firdous, 1985, 1988 and 2000). Nesting female turtles were tagged to record data on their returning sites for nesting on the same beach or on other areas and hence their migration pattern may be elucidated. Each tag carries a tag number with "W" on it as a code number for Pakistan on one side and the address of Sindh Wildlife Department on the other side. Tagging was started in 1982, and since then 4352 turtles have been tagged, and 600 tagged turtles have been recovered.

The eggs were transplanted in protected enclosures constructed along the beach and after 40-60 days hatchlings were emerged on sand surface inside the cages. Hatchlings were carefully collected and released safely to the sea. This exercise provided juvenile turtles protection from predators and helped in their conservation. From 1979, when the turtle protection programme began until December 2000, 1638392 eggs of green turtle and 78247 eggs of olive ridley turtle out of a total of 1716639 eggs which had been protected successfully from the predators. A total of 438654 hatchlings have been safely released into the sea including 417441 hatchlings of green turtle and 21213 hatchlings of Olive Ridley. In addition, some 95537 hatchlings were collected from outside the enclosures and also released safely to the sea. Overall results are shown in Table I. It has been observed that olive ridley population was declining for the last couple of years (Firdous, 1999).

Table 1. Overall results from Oct. 1979 to Dec. 2000.

Species	Turtles Tagged	Turtles Recovered	Nests Buried	Eggs Transplanted	Hatchlings Released	
					Enclo.	Outside
Green	4308	588	19224	1638392	417441	95265
<i>O. ridley</i>	44	12	656	78247	21213	272
Total	4352	600	19880	1716639	438654	95537

Captive rearing is an established means of conservation of marine turtles. Sindh wildlife Department has initiated a programme which is in experimental stage. In addition, for awareness and appreciation of the importance of conserving marine turtles and its habitat by the wider community is vital for the success of such operations. Under the Pilot project it was realized that conservation cannot be successful without public awareness and education. Therefore, various activities have been carried out for this purpose such as printing of publicity material like stickers, posters, greeting cards, brochures and booklets, painting and installation of sign boards and information hoardings, preparation of T-shirts, audio visual presentations and documentary films (Firdous, 2000). Guided tours to the beaches have also been arranged for public, particularly for students to make them aware of the conservation status of such an important species and to spread the message for protection of our national heritage.

Although a detailed initial work has been done, an increase in the turtle recruitment achieved and threats identified, there still exists a need for long term monitoring programme to establish the recent status of marine turtle population along the entire coastline of Pakistan.

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