

POPULATIONS STATUS AND BEACH STUDIES

Preliminary Report on the Status of Marine Turtle Nesting Populations on the Mediterranean Coast of Egypt

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Two species of marine turtle regularly nest on the Mediterranean coast: the green turtle (*Chelonia mydas*) and the loggerhead turtle (*Caretta caretta*). In every country in which these two species nest their breeding ground are threatened by coastal development from either industry or tourism. Estimates suggest that only about 2000 female loggerheads and 500 green turtles are nesting regularly on Mediterranean beaches. The major nesting beaches are in Turkey, Cyprus and Greece, however as the number of nesting females is so low, the smaller satellite rookeries that might exist in Israel, Libya, Syria, Tunisia and Egypt are becoming increasingly important. Of all the countries in the southeastern Mediterranean basin, the status of nesting marine turtles in Egypt is perhaps the least well documented. For this reason researchers from the University of London, Suez Canal University, and the Egyptian Environmental Affairs Agency, have initiated a 3 year study to identify important marine turtle nesting beaches along the Mediterranean coast of Egypt. The study has been funded by a grant from the British Government through the Darwin Initiative for the Survival of Species program. This paper outlines the results of the first year's field studies; it identifies those areas in which turtles are nesting and indicates where the survey should be focused in future years.

Methods

The first year of the survey involved a reconnaissance of the entire Egyptian Mediterranean coast from Gaza in the east to Libya in the west. Surveys were done on foot by teams of 3-4 biologists. All the sandy beaches along the Mediterranean coast were surveyed at least once during the 1998 nesting season from 1/6 to 7/9. Those beaches on which evidence of nesting activity was found were surveyed three times during the season. The survey team would walk a suitable sandy beach from end to end providing 100% coverage of each potential nesting beach.

They would note the position of any emergence tracks and if a nest had been excavated on the track the team would attempt to locate the position of the egg chamber to confirm that egg deposition had occurred.

Results

El Salum to Alexandria - Only three sets of loggerhead emergence tracks were recorded in this area during the 1998 survey. These tracks were found just east of Sidi Barrani. As the tracks were all found on the same day in close proximity to each other and were of approximately the same size, it is reasonable to assume that the same individual made them. Egg deposition could not be confirmed. These results would seem to confirm those of Kasparek (1993) that negligible marine turtle nesting is occurring in this region.

Alexandria to Port Said - No evidence of marine turtle emergence or nesting was found in the Nile Delta region. This may be because the sand in the delta has a large amount of mud and clay associated with it that may make the substratum unsuitable for nesting. However, the sandy beaches from Izbet Jamasa al-Ghariyab to Baltim, and the beaches of the Lake Burullus sand spit would appear to be suitable for marine turtle nesting.

Port Said to Rafah - The beaches of the Northern Sinai have the most marine turtle nesting activity of all Egypt's Mediterranean coast. In total 106 emergence tracks were observed along the Northern Sinai coast during the 1998 season of which 20% were confirmed to have resulted in egg deposition. Nesting by both green and loggerhead turtles was confirmed. Tracks were found on the beaches from Rafah to Romana, however, the greatest concentration of emergences and nests were found in the Lake Bardawil to El Arish region.

The results of the 1998 field season surveys are summarized in **Fig. 1**, a ranking of 1 indicates the area most heavily utilized for marine turtle nesting and a ranking of 8 indicates that no evidence of nesting was found in this area.

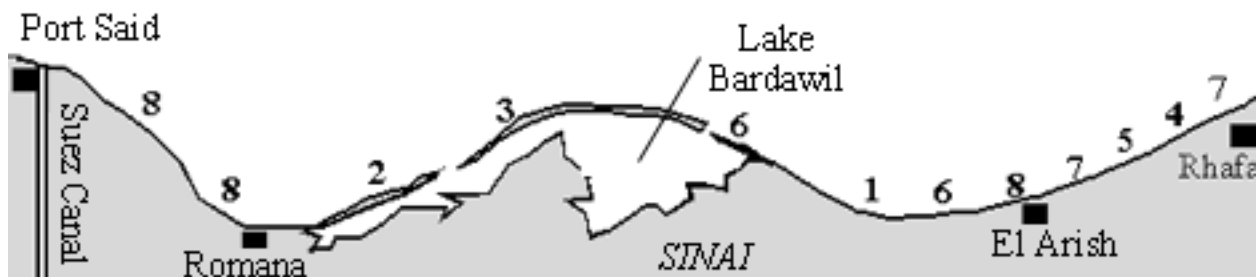


Figure 1. The results of the 1998 field season surveys, a ranking of 1 indicates the densest nesting areas while a ranking of 8 indicates that no evidence of nesting was found in the area.

Discussion

Preliminary results indicate that the northern Sinai is the most important region of the Egyptian Mediterranean coast with respect to marine turtle nesting; in comparison, nesting activity in the delta and western regions is negligible. The next two years' survey results, which will concentrate on the Northern Sinai region, should reveal the relative importance of this area with respect to the other satellite rookeries in neighboring countries such as Israel, Syria, Libya and Tunisia. A conservation plan to safeguard turtles utilizing the northern Sinai region as nesting grounds will involve an intensive survey of the region and the establishment of a hatching area within Zaranik Biosphere Reserve, on Lake Bardawil, vulnerable nests can then be transplanted to this protected site. This will also provide the scientific team with the opportunity to collect fundamental information about turtles nesting in Egypt, such as hatching success rates, nest temperatures, incubation period, length of nesting season etc.

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Agonies and Ecstasies of 25 Years of Sea Turtle Research and Conservation In India

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India as well as Pakistan has a long history of trade in turtle products. Between 1963 and 1974, India exported 102,022 kg of sea turtle products valued at roughly \$100,880. The products included sea turtle meat, oil and tortoise shell. The domestic trade was substantial especially for the olive ridleys nesting in Orissa. Even up to 1970's it is estimated that 50,000 to 75,000 mature adults were harvested primarily for meat and secondarily for skin and oil from the Orissan coast mainly for the Calcutta market (Biswas, 1982; Dash and Kar, 1990). Similarly eggs were collected in large numbers from Gahirmatha rookery and other important nesting areas in Orissa for human consumption and as a supplement for feed of domestic animals (Dash and Kar, 1990). Prior to 1975, from Gahirmatha alone, a nominal egg tax (anda kara) was collected for a boat load of eggs containing about 35,000 to 1,00,000 eggs depending on the size of the boat (Dash and Kar, 1990). The estimated legal take in the 1974-1975 season was 800,000 eggs (FAO 1975-see Kar and Bhaskar, 1982).

Up to the 1970's our knowledge on the sea turtles that visited the coasts of India remained limited. However, the endangered status of the sea turtles led to a spurt of activity and therefore, we have considerable data on the activities of the sea turtles that visit the coasts for nesting. Unfortunately, our knowledge of their habits, migratory routes and activities of both the hatchlings and the adults after they leave the coast, remain negligible.

Altogether five species representing each of the five genera are known from the Indian seas. These include the leatherback (*Dermochelys coriacea*), the green (*Chelonia mydas*), the hawksbill (*Eretmochelys imbricata*), the loggerhead (*Caretta caretta*) and the olive ridley

(*Lepidochelys olivacea*). Sea turtles have been recorded from the eastern and western coasts, as well as the neighboring islands in the Indian Ocean (Kar and Bhaskar, 1982).

Long term research and conservation efforts have been taken up in two states, in Tamil Nadu (Silas and Rajagopalan, 1984; Rajagopalan, 1989) and in Orissa mainly by the wildlife wing of the State. Unfortunately, research and conservation activities have been concentrated in Orissa since the 1990's making it difficult to determine the status of sea turtles at a National level.

Since 1997, a high-powered committee under the chairmanship of Honourable Chief Minister of Orissa, has been reviewing and formulating plans for conservation. Recently, the Ministry of Environment and Forests, Government of India, has set up an expert committee. A status survey, building of database and implementation of TED regulations etc. are envisaged through this committee.

Considerable data is available on the breeding and nesting habits of the olive ridleys (Dash and Kar, 1990; Mohanty-Hejmadi, 1992; Mohanty-Hejmadi and Sahoo, 1994; Pandav *et al.*, 1994). Unfortunately, there has been no mass nesting two years in a row (1997,1998) at Gahirmatha and the mortality is substantial. This year there is a good congregation of turtles at the three mass nesting sites (Gahirmatha, Devi and Rushikulya estuaries) but no mass nesting yet. The mortality in the core area of Gahirmatha sanctuary has been reduced due to the protection enforced through the wild life wing, coast guards and Indian navy; however, the mortality is high south of the sanctuaries due primarily to the non-implementation of the Marine Fisheries Regulation Act (OMFRA) by the fisheries department.