

## MARINE TURTLE CONSERVATION IN THE MEDITERRANEAN – LEBANON: A FIRST SURVEY FOR *CHELONIA MYDAS* AND *CARETTA CARETTA* NESTING IN LEBANON

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### INTRODUCTION:

During the last 20 years, there has been extensive monitoring along the Mediterranean in order to locate the nesting sites of the only two marine turtle species known to reproduce in the area, *Caretta caretta* (loggerhead) and *Chelonia mydas* (green turtle). Recent reviews on the nesting location of these two species include Greece and Turkey (Margaritoulis 2000, Yerli & Demirayak 1996); the overall status for *C. mydas* in the Mediterranean has also been separately assessed (Kasperek *et al* 2001). With the exception of the Palm Islands Reserve where *Caretta caretta* was already known to nest, the Lebanese coast has been one of the least surveyed areas along the Eastern Mediterranean coastline. Groombridge (1990) considers it “uncertain” whether marine turtles actually nested there in the past, adding that “no nesting is known at present”. The nearby Syrian coast lacks strong evidence for nesting as published data from preliminary surveys (Kasperek 1994) indicated only insignificant nesting, with the species identity remaining unknown. Nesting in Israel seems to occur only in low numbers according to observations over the last decade (Kasperek *et al* 2001 and references therein).

In the summer of 2001, based on past nesting observations of *C. mydas* by the MEDASSET representative in Lebanon, the Lebanese Ministry of Environment with the support of the Regional Activity Centre for Specially Protected Areas (RAC/SPA) and MEDASSET organized a first survey of the entire Lebanese coast in order to locate potential nesting sites<sup>1</sup>. Estimates of nesting density would, if possible, take place. A qualitative assessment of egg and nest predation would also be undertaken and notes should be taken regarding the general condition of the Lebanese beaches. Further enquiries on marine turtle nesting and interactions with fisheries should include the fishermen and any other appropriate person. The aim of this preliminary survey was to provide some first-hand data to elucidate the current situation regarding marine turtle nesting along the Lebanese coast. The authors hoped that this assessment would provide the basis for more detailed work, if shown to be necessary.

### MATERIALS AND METHODS:

The main survey took place between the 23<sup>rd</sup> of July and the 5<sup>th</sup> of August 2001; short visits had also been paid at the end of May – beginning of June 2001 (El-Mansouri beach) and at the end of June 2001 (Qasmiye beach). As it is known from previous

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<sup>1</sup> The Nile soft-shelled turtle *Trionyx triunguis* was also considered.

surveys in the same region such as in the northern part of Cyprus (Ilgaz & Baran 2001) and Turkey (Yerli & Demirayak 1996), the best period for the survey would have been between the 15<sup>th</sup> June and the 15<sup>th</sup> July, the peak nesting period; however, it was not possible to carry out the main survey then. The entire coast was divided into two sections: the Northern one (Jounie to Tripoli) and the Southern one (Sour to Saida) and investigated from the sea to identify the location of sandy beaches. Then the survey was carried out by foot patrols wherever access was available to look for any evidence of the presence of sea turtles. The beach investigations started at dawn and the afternoons were spent interviewing the local people, officials and fishermen. Out of the approximately 200 km of the Lebanese coast, only 30.3 km were accessible, sandy, non-urbanised areas and were thus considered potential nesting beaches. This coastline length (30.3 km) is used for the analysis presented in Tables 1 and 2. A complete descriptive list of these beaches is given in Demirayak *et al* (2002). Topographical maps (1:20,000) prepared by the French National Geographic Institute in the 1960's were used during the field surveys. Beach coordinates were identified by GPS.

## RESULTS:

Nesting sites and nesting density: The total number of nests recorded during the survey is shown in Table 1. Five (5) different sites (total length 7.5 km) provide visual evidence of current use by marine turtles for nesting. The nesting species however remains unknown except for El-Mansouri where both *C. caretta* and *C. mydas* were observed to nest.

Turtle egg predation and nest predation: Turtle egg predation was observed in all 4 sites where nests were found (Table 1). Judging from the footprints and the remnants of the nests, the predators were thought to be canids and crabs.

Observations on the general condition of the Lebanese beaches surveyed: With the exception of the two reserve areas along the Lebanese coast, the Sour Reserve and the Palm Island Reserve, the rest of the Lebanese coast shows an escalating degree of urbanization and developing tourist facilities in several sites. Moreover, after comparing older cartographic data with the modern-day situation, it becomes evident that several sandy coastal areas have disappeared. Sand extraction is regarded as one of the major factors that have contributed to beach loss. The litter burden can exceed 1m in depth in certain areas along the coastline.

Interviews of fishermen and others: Interviews of fishermen and others throughout the survey revealed that a number of additional beaches (total length 9.2km) -other than those where nesting signs had been seen by the authors- could be flagged as current nesting sites. Furthermore, the interviewees reported previous nesting on another 8.9 km of coastline (Table 2).

## DISCUSSION:

The Lebanese people are recovering from a conflict that ravaged the country for many years. Since, the conservation movement has developed and the Ministry of Environment has become empowered to investigate, propose and implement national environmental policies. Lebanon signed and ratified the Mediterranean Action Plan (UNEP) in 1975,

the Barcelona Convention and protocols, the MARPOL 73/78 convention and adopted the revised Action Plan for the conservation of Mediterranean Marine turtles (1999). Marine turtle hunting is prohibited by law. Egg poaching, however, does take place illegally. The Lebanese fisheries are artisanal and traditional. Although trawling is prohibited there appears to be little control and explosives, although illegal, are still used. Fishermen generally consider marine turtles a nuisance and report catches of up to 70 turtles in the nets of just one fishing boat.

The 2001 survey along the Lebanese coastline provided evidence that both loggerheads (*Caretta caretta*) and green turtles (*Chelonia mydas*) nest in Lebanon in areas previously unknown to host nesting populations. It should be noted that several additional beaches were reported by third parties as current nesting sites although the authors had not witnessed any direct evidence there. If these reports are proven to be true, then the length of the marine turtle nesting area in Lebanon more than doubles (Table 2). However, it should be mentioned that the inadequate numerical data, attributed to the field work season, do not allow for any actual estimation of the scale of marine turtle nesting in Lebanon. Yet, the number of *C. caretta* nests in El-Mansouri appears to be similar to the figures from Turkish areas such as Patara, Dalyan, Çirali, Göksu Delta and Gazipasa for the corresponding time period (1994 data - Yerli & Demirayak 1996, Patara 1997 data - Taşkin & Baran 2001); this can only be further assessed if full-season monitoring takes place. Regarding *C. mydas*, an optimistic scenario would involve nesting numbers from El-Mansouri being similar to the ones from Northern Karpaz for the corresponding time period (1996 data – Ilgaz & Baran 2001). Conversely, a more modest estimation would consider them as sporadic nesting, as in the case of the northern Sinai coast, Egypt (Campbell *et al* 2001). Therefore, the importance of the Lebanese nesting sites reported in this paper for both *Caretta caretta* and *Chelonia mydas* compared to other geographical zones of the eastern Mediterranean may only be revealed if full-season monitoring takes place during the next nesting season.

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Table 1: Sites along the Lebanese coast where nesting or nesting attempts were observed during the 2001 survey.

Beach	Approx. length surveyed	Survey period (no. of days)	Number of nests/tracks
El-Mansouri 33°11N' - 35°11E'	2 km	end of May – beginning of June 2001 (17)	9 nests <i>Chelonia mydas</i> , 35 nests <i>Caretta caretta</i>
Qasmiye 34°20N' - 35°14E'	3 km	end of June 2001 (1) – end of July 2001 (1)	5 nests and 2 nests, species unknown
Mahmoudiye 34°22'N - 35°15'E	1 km	end of July 2001 (1)	3 nests, species unknown
Adloun 34°23N' - 35°15E'	1 km	end of July 2001 (1)	1 nest – 1 false nest, species unknown
Damour 33°42N' - 35°26E'	0.5 km	beginning of August 2001 (1)	1 false nest, species unknown
<i>7.5 km in total</i>			

Table 2: Assessment of the marine turtle nesting data along the 30.3 km surveyed area of the Lebanese coast

	Length (approx. % of total surveyed coastline )	Beaches
current nesting observed by authors	7.5 km (24,75)	El-Mansouri, Qasmiye, Adloun, Mahmoudiye, Damour
current nesting reported by others	9.2 km (30,4)	Saida, Jbail, El-Aabde, Cheikh Zennad <sup>2</sup> , Palm Island Reserve
reported past nesting	8.9 km (29,4)	Sour, Yahoudiye, Er-Rmaile, Jiye, El-Aaqaibe
no evidence of nesting in the past or currently	4.7 km (15,5)	North Sour, El-Aaddoussiye, El-Heri, El-Minie
	<i>30.3 km in total</i>	

<sup>2</sup> reported nesting of *Trionyx triunguis*

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