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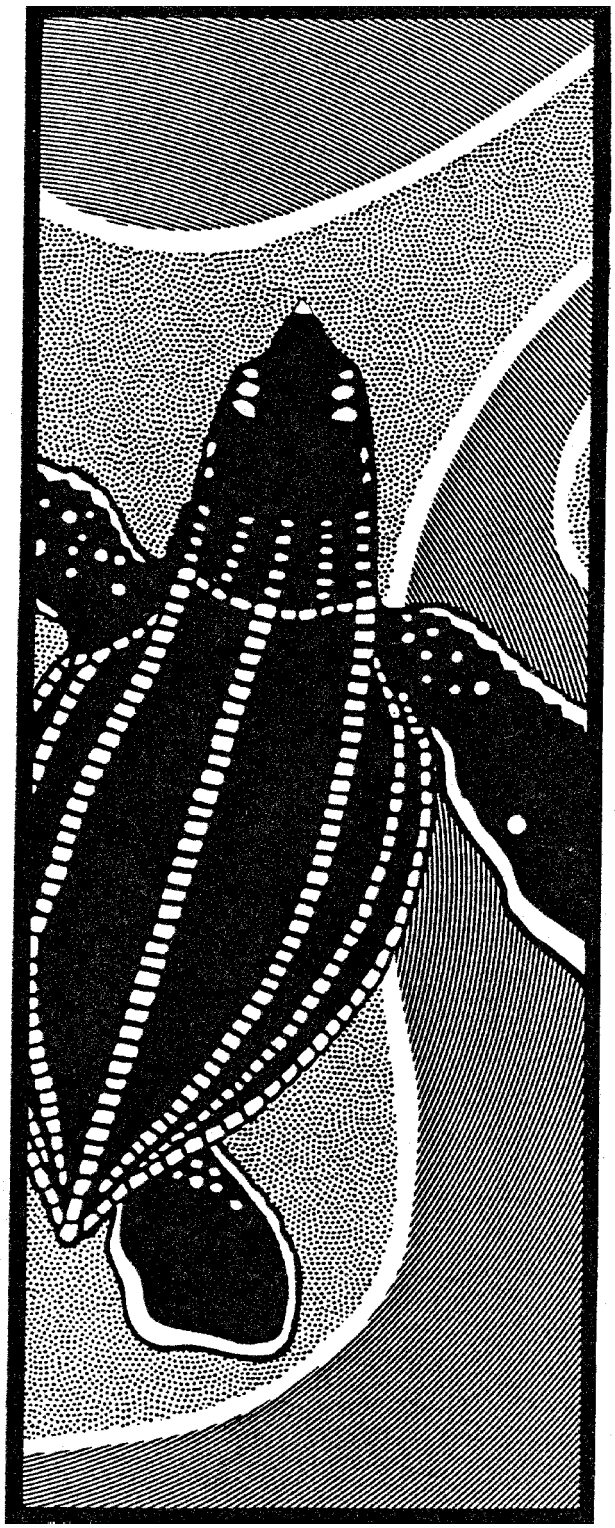

PROCEEDINGS OF THE SEVENTEENTH ANNUAL SEA TURTLE SYMPOSIUM

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MANAGEMENT POLICIES FOR THE CONSERVATION OF THE NESTING HABITAT OF *CARETTA CARETTA* ON THE ISLAND OF CRETE, GREECE

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INTRODUCTION

The island of Crete in the eastern Mediterranean is the largest and one of the most southerly in the Greek archipelago. After initial surveys by the Sea Turtle Protection Society of Greece identified significant numbers of nests along some of the beaches of Crete, monitoring, nest conservation and public awareness projects were started in 1990 (Margaritoulis *et al*., 1992). These projects operated in the three most important nesting areas, Rethimno and Hania along the northern coast, and Messara in the south. A total of 32 km of beach were monitored on a daily basis throughout the entire nesting and hatching season (May-Oct). Data between 1990-96 show an average of 401 nests in Rethimno, 125 in Hania, and 56 in Messara, totaling 582 nests annually, or 21% of the total observed nesting for all of Greece. Nests were monitored, protected or transferred as necessary. Nest survival and excavation data indicate an estimated annual production of 37,500 hatchlings.

HUMAN IMPACTS

These coastlines are under heavy pressure due primarily to their increasing use for tourist and recreational purposes. New developments are built directly behind the beaches, with associated lighting and human disturbance problems. The beaches themselves are becoming covered in sunbeds and umbrellas. Sea walls and other coastal defenses are leading to fundamental changes in the beaches. There is currently no legal protection for these important coastlines, although large parts of the nesting beaches are being considered for inclusion in the Europe-wide "Natura 2000"

network of habitat conservation sites. Any legal protection is likely to be delayed for several years, by which time STPS fears that the beaches will have deteriorated severely.

PROPOSALS

An E.U.-funded LIFE project for three years (1995-97) has enabled the STPS to improve their monitoring, nest protection and public awareness activities in Crete. As a part of this project, management proposals are being prepared which will be completed by December 1997. Specific proposals will be made to improve the state of the nesting beaches by negotiating solutions to existing problems, such as light pollution, beach cleaning, and sunbeds. Guidelines for future development of the area will also be made, including a set-back distance for new buildings, height restrictions, lighting restrictions. These will have to implemented through national legislation, but until that time, STPS will begin a proactive policy of informing local authorities, developers and architects about sea turtle requirements and sustainable coastal development, and asking for their co-operation. Finally, crucial gaps in the existing knowledge about the population of turtles nesting on Crete are identified (*e.g.*, feeding grounds, migration rates, breeding rates, survivorship), and proposals made as to the research necessary before appropriate conservation policy can be devised.

In order for the plan to achieve its conservation objectives, and at the same time to be widely accepted by local authorities and businesses, it is expected that the plan must:
* have clear and realistic objectives, backed by scientific justification;
* balance the conservation needs of the sea turtles, with the local need for sustainable tourist development;
* consult with, and incorporate proposals from local authorities and businesses, and obtain clear statements of support from them;
* incorporate the sea turtles into the tourist product of the area, thereby encouraging local co-operation in conservation efforts and helping improve the quality of the tourist product;
* make maximum use of existing regulations; and
* be easily implemented and enforced.

METHODOLOGY

Beach sectors will be assessed according to nesting density and success, hatching success, and trends over the monitored period. Problems will be assessed as to their seriousness, frequency, and current and potential future impact on turtles. Each beach sector will then be evaluated as to ease of nesting, success of nest and levels of specific problems. A major source of data will be 1996 season, having been tailored to answer certain questions, but this will be checked for consistency with available data from previous years, and if necessary, will be compared with data from other areas.
Additional data from the 1996 season that will be used for the management plan:
* survey of tourist attitudes;
* detailed records of hatchling disorientation;
* counts over the summer of numbers of beach users and types of activities;
* survey of artificial lighting visible from the beach;
* details of umbrella/sunbed coverage per sector;
* additional details from the normal monitoring program (including number and type of attempts, obstructions and disturbances, and nest conditions.

Conservation efforts will be aimed at beach sectors that exhibit consistently high nesting density, high levels of nest survivorship, and high hatchling success rates, and areas that have had high levels in the past, and where declines can be explained by resolvable impacts (*e.g.*, disturbance or sunbeds). Some areas of low importance may, due to the high levels of investment (in terms of both money and effort) that would be required for rehabilitation, have to be allowed to continue to decline as nesting beaches. In these areas monitoring will continue, and any nests will be transferred to safe beach hatcheries. The pragmatic ‘sacrifice’ of small areas or low number of potential nests is an important step to ensuring local support for other conservation measures in more important areas.

LOCAL SUPPORT

Experience in Greece has shown that even protected areas covered by strong national legislation will fail if there is a lack of support for it at the local level. All indications are that the levels of local support are currently high in all three nesting areas. Local authorities are actively seeking solutions to some of the problems faced by the turtles, and involve the STPS in an advisory role, but also in some instances as part of the local authority decision-making process. All the local authorities in the three nesting areas are included in the consultation process during the preparation of the management proposals by the STPS. Many local tourist businesses see the sea turtles of Crete as an important resource, that could be used to improve the tourist 'image' of the areas, thus helping to maintain a high quality product.

CONTINUING ACTIVITIES

The STPS will continue its current conservation management of nests and turtles. Nests are caged for their protection, or transferred to avoid destruction or damage through inundation or human activities. Local property owners are approached to help resolve light pollution causing hatchling disorientation, and in most cases are found to be co-operative. An intensive public awareness campaign operates year-round involving local and national media. Six seasonal information stations operate in the nesting areas, and over 300 informative slide shows are given in the hotels to visiting tourists.

LITERATURE CITED

Margaritoulis, D., M. Dretakis and A. Kotitsas. 1992. Discovering new nesting areas of *Caretta caretta* in Greece. U.S. Dep. Commer., NOAA Tech. Memo. NMFS-SEFSC-361:214-217.