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ON

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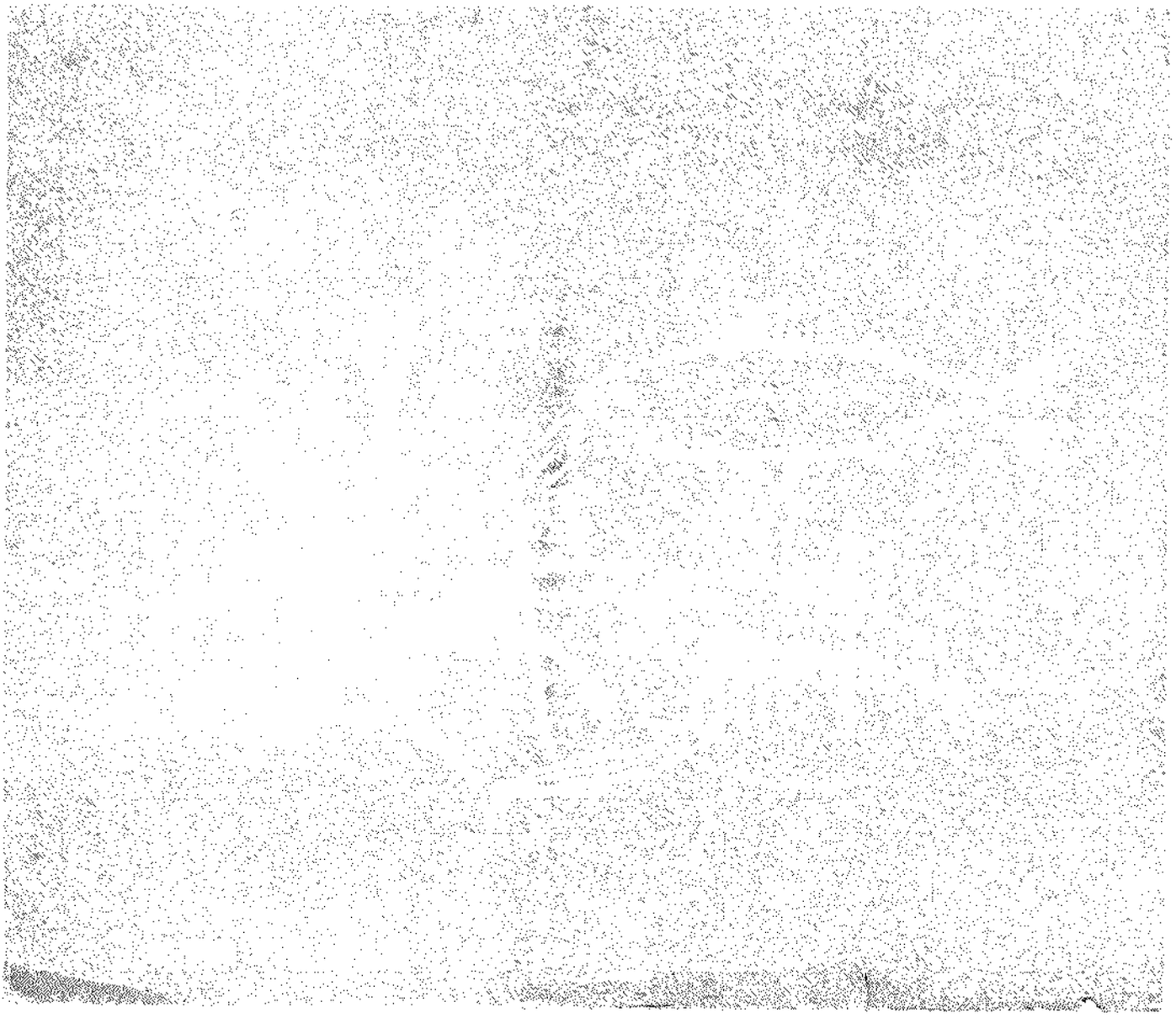

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SPECIAL PUBLICATION
CENTRAL MARINE FISHERIES RESEARCH INSTITUTE
COCHIN-11
1973

PRESENT STATUS OF THE TURTLE FISHERY IN THE GULF OF MANNAR AND THE PALK BAY

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ABSTRACT

Turtles are caught along the entire coastline of India but except in the Gulf of Mannar and Palk Bay it is a fishery of only a causal nature and hardly of any significance. The main commercial species is the green turtle *Chelonia mydas* while other species occur in stray numbers. A fairly regular fishery of some magnitude exists for the green turtle in the Gulf of Mannar and it is estimated that on an average about 3,000 to 4,000 numbers are landed every year between Pamban and Cape Comorin. In the Palk Bay the fishery is of a much lower level and about 1,000 turtles are estimated to be landed annually between Rameswaram and Mimisal. The possibilities of increasing the catches in the Gulf of Mannar giving due attention to conservation measures are discussed.

TURTLES form a regular fishery of some magnitude only in the Gulf of Mannar and the Palk Bay, though they are occasionally caught along the entire coastline of India forming a casual fishery. The commonest and the most economically important species is the green turtle, *Chelonia mydas* (Linnaeus) known as "Peramai" in Tamil. The other species caught are the olive-logger-head turtle *Lepidochelys olivacea* (Eschscholtz) known as "Sithamai", Hawk's bill turtle *Eretmochelys imbricata* (Linnaeus) known as "Alungamai" and the brown logger-head turtle, *Caretta caretta gigas* Deraniyagala known as "Perunthalai amai" in Tamil. In addition to these species very rarely the leathery turtle *Dermochelys coriacea* (Linnaeus) known as "Elu varai amai" also is caught. Of these the green turtle, the hawk's bill turtle and the brown logger-head turtle are caught usually in nets and the others in nets as well as when they come to the shore for egg-laying. Only in the Gulf of Mannar and the Palk Bay special nets are operated for turtles. But they are also caught occasionally in gill nets set for fishes all along the coastline of India, constituting a casual fishery.

From the available statistics it would appear that availability of turtles is more in the Gulf of Mannar than in the Palk Bay. The main fishery centres in the Gulf of Mannar are Pamban-Kilakarai, Tuticorin, Ovari, Kuttankuli, Periathalai and Cape Comorin while along the Palk Bay, Rameswaram, Tondi, Tirupallakudi-Devipattanam area and Pamban are the important centres. The reasons for the comparative abundance of turtles in the Gulf of Mannar are not known. The possible explanation may be the presence of sparsely inhabited sandy coastline and a chain of small uninhabited islands, from the neighbourhood of Tuticorin as far as Rameswaram Island facilitating egg-laying in safety and the comparatively calm conditions prevailing during the greater part of the year. The above conditions may be conducive for the turtles from the open seas around to converge here for either feeding or breeding purposes. Further, there is an abundance of growth of sea grass in the shallow belt along the coast skirted by the chain of islands and species like *Chelonia mydas*, *Eretmochelys imbricata* and *Lepidochelys olivacea* may be frequenting for feeding purposes while species like *Caretta caretta gigas* and *Dermochelys olivacea* come ashore for breeding purposes.

The most abundant species is the green turtle *Chelonia mydas* famous all over the world for the turtle soup made out of its flesh. This constitutes about the three-fourth of the total catches and

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certain portions of the flesh are cured and exported for preparation of soup while the rest of the flesh is consumed locally. *Lepidochelys olivacea* and *Caretta caretta gigas* form about 20% of the total catch and they are invariably consumed locally. On account of the disagreeable flavour of the meat of *Lepidochelys* it is not very much relished. *Eretmochelys* is sometimes caught and its shell once popular is in little demand in the market now having been replaced by plastic substitutes. The meat is however good, but occasionally some turn out to be poisonous causing deaths presumably on account of poisonous varieties of algae consumed by the turtle. The meat of *Dermochelys coriacea* which is the largest of the turtles is not consumed but its fat is used for the extraction of oil for coating the bottom of boats.

Statistics of only the green turtle which forms about seventy-five per cent of the catches are available as most of them are sent to Tuticorin from different places of capture. The others are killed and consumed locally as and when they are caught. The assembling centres for the captured turtles in the Gulf of Mannar are Pamban, Kilakarai and Tuticorin and on the Palk Bay coast, Tondi and Pamban. These centres are shown in Fig. 1. At these places special pens are con-

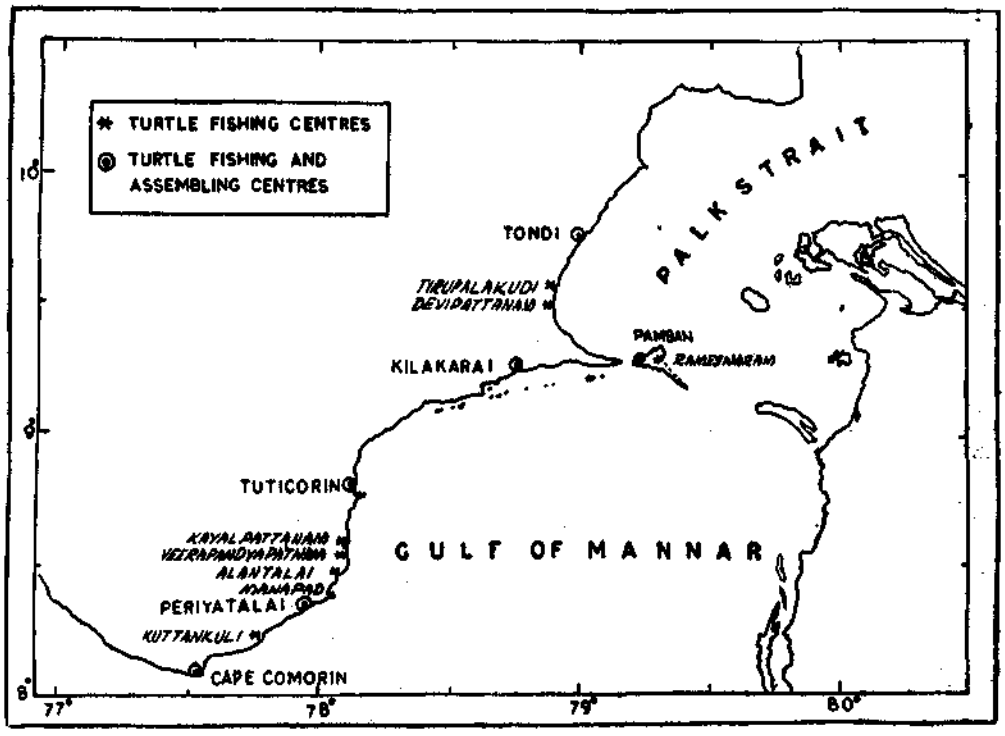

FIG. 1

structed in the sea close to the shore for keeping the turtles alive. At Tuticorin they are collectively slaughtered every Sunday. Calipash, the light greenish fat-like meat found as irregular patches inside the carapace immediately below the scutes, and calipee, the light yellowish meat found in patches attached to the plastron-scutes are exported to West Germany and United Kingdom for the purpose of making soup. About 1,000 to 1,500 kg of these are sent every year. Until a few years back turtles were exported regularly in sailing boats from Pamban to Jaffna, Ceylon. But with the restrictions imposed by the Ceylon Government this trade has completely stopped.

The turtle nets or "Amaivalai" are usually made of cotton yarn but nowadays of nylon also and are used as drift nets. At Tondi there are about 20 nets with meshes of 6 inch-square, *i.e.*, about 12 inches when stretched. At Pamban-Rameswaram about 150 nets of 10-inch-square mesh, *i.e.*, about 20 inches when stretched are operated. At Kilakarai about 450 nets are in operation, while at Ovari, Periyathalai and Idinthakarai there are some old nets in stray numbers. The same type of net is used for encircling the turtles as they surface for breathing and this operation is called "Kattuvalai".

In Pamban–Rameswaram area annually 800 to 1,000 turtles are landed from the Gulf of Mannar as well as Palk Bay. The best season is reported to be October–January in the Gulf of Mannar area. At Kilakarai alone about 1,000 turtles are landed during the season April–September, peak season being May–August, in which some 220 turtles are captured every month. Apart from these areas at Periyathalai, Ovari, Alantalai, Idinthakarai turtles are caught during October–February in stray numbers and exact statistics are not available. In the Palk Bay area nowadays about 1,000 turtles are landed annually.

The price of the green turtle is fixed on the basis of the width of the plastron.

Rank	Width of plastron in inches	Price in Rupees
1	27 and above	35
2	Between 22 and 27	17
3	Between 18 and 22	5

As stated earlier the maximum catches are from October to January. Presumably during the period when heavy north-east monsoon winds with squally weather strike the open gulf, the turtles might be coming to the comparatively calm waters between the mainland and the chain of islands. It is of interest in this connection to mention that, during south-west monsoon season as the Gulf of Mannar is very rough, turtle fishery is carried out effectively by the fishermen of Kilakarai around the islands of Muli Tivu, Valai Tivu, Talairi Tivu and Appa Tivu which are in the neighbourhood of Kilakarai.

There is reason to presume that turtle population is affected by weather conditions as evidenced by the sudden decline of the fishery after the great cyclone of December 1964. It is reported by fishermen that extensive beds of seaweeds have been destroyed on account of getting covered over by sand and silt. This violent change in the grazing grounds is reported to be the cause for the heavy decline in catches in the Palk Bay especially in Tondi where owing to the dwindling catches the number of nets have come down from 100 to 20 per month. It is not known whether there has been any migration of the turtle population to the Ceylon side of the Palk Bay.

Information about the occurrence of turtles along the Ceylon coast of the Gulf of Mannar and the Palk Bay is not available. Considering the general topography it would appear that there also they should occur in equal abundance.

While estimating the turtle fishery potential of the area, the results of a series of experimental fishery carried out between Kuttankuli and Cape Comorin during 1960–62 by some merchants when 3,500–4,000 turtles were caught of special interest. It is reported that each year between October and December 1,000 to 1,500 were caught and no sign of any decline was noticed during that period. Since then the fishery has been completely neglected in that area for want of demand for turtle meat from abroad. This indicates to some extent that there is scope for increase in the catches with the increase of effort.

In the case of the turtles which are caught in stray numbers and form only a casual fishery depending upon the availability of stock in the wide open ocean, reliable estimation of resources is extremely difficult. The catch figures when fishing was at its best in former years, *i.e.*, 1960-62 (about 1,500 turtles per year) in the southern section of the Gulf of Mannar could probably be taken as an indication of the extent of their availability in Gulf of Mannar. Therefore, it could perhaps be estimated that the catch of 3,500 turtles could be had from the Palk Bay and the Gulf of Mannar at a sustained level. It is felt that there is scope for increase in the catches with increased effort. However certain restrictive measures are called for in the interest of effective management of the fishery. Some of the species are caught while they come ashore for laying eggs whereby there is bound to be a decline in recruitment. This practice has to be discouraged or if possible prevented as also capture and marketing of undersized turtles. It has been reported that the industry itself has certain self-imposed restrictions. In Pamban area, all young turtles with the carapace width of nine inches or less, when caught, are released into the sea. Due to the large size of the mesh of the nets used small-sized ones are seldom caught. In case they are landed, some merchants pay a petty compensation of about a rupee for each to the fishermen and are released into the sea. This is a very commendable and healthy practice and the industry deserves to be complimented for the initiative it has taken in the matter. A general survey of the turtle fishery indicates the need for an intensive study of the biology and resources of the turtles of economic importance in this region, so essential for the optimum utilization of the valuable seafood as information on the same is very meagre at present.

ACKNOWLEDGEMENTS

Our thanks are due to Messrs. K. Nagappan Nair and S. Mahadevan of this Institute who helped us in collecting information about the fishery. We also thank Messrs. S. Diraviam and R. Lawrence Kudalane and Messrs. Alagappan Co. (Private) Ltd., Tuticorin, for supplying us with particulars regarding the turtle catches and the turtle trade in general.