

RECOMMENDATIONS FOR MANAGEMENT
OF THE TURTLE NESTING POPULATIONS
AT PANTAI REMIS, PERAK

Submitted to the
Department of Fisheries Malaysia

by

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Executive Summary

The following are the primary conclusions and recommendations of this report:

1. Approximately 70 to 300 egg clutches are deposited by green turtles each year in the region of Pantai Remis; hawksbill turtles also nest in small numbers.
2. The two most serious threats to the survival of the turtles are:
 - a) Overharvest of turtle eggs. Virtually every egg clutch laid is harvested and consumed by people.
 - b) Incidental capture of breeding turtles by commercial fishing vessels in waters adjacent to the nesting beaches.
3. A beach hatchery should be built at Pasir Panjang. Money should be allocated (about \$ 15,000-20,000) for its construction and maintenance. All eggs collected on the beach should be sold to the Fisheries Department and put in the hatchery to incubate.

Although in most situations, protection of the eggs in the natural nest is the preferred strategy, for two reasons this is not recommended for Pantai Remis:

- a) The beach is too long for effective enforcement.
- b) The beach is so heavily shaded that natural nests are likely to yield a high proportion of male offspring.
4. The authorities should consider a total ban on the sale and consumption of all turtle eggs in the State of Perak.
5. The laws restricting the operation of trawlers in near-shore waters should be strictly enforced.
6. A "stranding network" should be organized to report any dead turtles encountered along the shoreline of Perak.
7. Information pamphlets and signs should be posted to educate visitors about proper behavior at a turtle nesting beach.
8. A program to tag nesting turtles should be initiated.

Introduction

This report is based on information obtained by Dr. Jeanne A. Mortimer of WWF Malaysia and Encik Sukarno Wagiman of the Department of Fisheries, during a visit to Perak on 24-26 April 1989. They conducted interviews with the following people: members of the Department of Fisheries of the State of Perak, members of the Pantai Remis Angling Club, and the headman of the village of Segari who is responsible for the collection of turtle eggs. They also made an all-night site visit to Pantai Remis during which they walked the length of Pasir Panjang and saw two female green turtles on the beach.

Background

The Nesting Season

Turtle nesting reportedly occurs primarily during the months of February to June, with a peak in March and April. Two species of sea turtle are known to nest at Pantai Remis--the green turtle or "penyu agar" (Chelonia mydas) and more rarely, the hawksbill turtle or "penyu karah" (Eretmochelys imbricata).

Numbers of Nesting Turtles and Levels of Exploitation

Prior to 1985 there was no control on the take of eggs. Then in 1985, the new Sultan required that the beach be tendered (in part to protect the coastline against smugglers.) There are now three authorized egg collectors who pay a tenderer fee of \$ 220 per year. The wholesale value of green turtle eggs is \$ 0.40 each. They retail in the market at \$ 0.60 each. In practice, all eggs are collected and consumed. Reportedly, the average clutch size is about 90 eggs.

The headman of Segari village, who keeps some records of egg collection at the tendered beaches, reported that the numbers of turtles cycle from high to low in alternate years. (Such cycling is typical of nesting green turtles elsewhere in the world.) According to the village headman, the highest number of egg clutches reported was 200 in 1986. 1987 was a low year. In 1988, green turtles laid an estimated 70 to 100 egg clutches, and a hawksbill was reported nesting once. The headman expected the 1989 season to be low.

The harvest of many nests goes unreported, especially at the beaches that are not tendered (see following section); so the above figures probably underestimate the total amount of green turtle nesting in the region. In total, green turtles probably lay from 70 to 300 egg clutches in the Pantai Remis area each year. Since the average female green turtle lays from 3 to 5 egg clutches during a season, this means that each year, from 15 to 100 females nest in the Pantai Remis area. Note, however, that the total number of adult females in the population is several times larger than the number that nest in any one year, since green turtles generally do not nest two seasons in a row.

The Nesting Beaches

The beaches in the Pantai Remis area are isolated from the main roadways. Two of the beaches are tendered--Pasir Panjang (about 3.5 miles long) located at the end of a 5 mile-long newly built dirt road, and Pasir Pandak (about 0.5 miles long) just south of P. Panjang. Other nesting beaches (all reportedly less than 0.5 miles long) include: Pasir Yat, Pantai Akuan, Telok Mengkuou, and P. Emas all north of Pasir Panjang; and Telok Cina and Telok Senangin to the south of Pasir Panjang.

The shoreline of the major nesting beach, Pasir Panjang, has trees and ground vegetation growing right up to the high tide line along most of its length. Erosion also appears to be a problem, and turtles apparently have difficulty finding good nesting sites; in most instances those that they do use are heavily shaded. This would result in lower incubation temperatures, and the likelihood that most of the hatchlings produced under natural circumstances are males. (In sea turtles, higher incubation temperatures produce proportionally more females, and lower temperatures more males.)

Threats to Turtles in Offshore Waters

Incidental capture in trawl nets has been identified as one of the most serious threats facing marine turtles in the world today. The State of Perak has a large and modern trawling fleet with about 200 to 300 vessels. Although by law, trawlers must stay at least 3 miles from shore, they commonly fish very close to the shoreline. Last year three dead adult green turtles washed ashore at Pantai Remis. At least two of them were probably killed by trawlers. The actual number of turtles killed by trawlers is probably much higher. Some carcasses most likely wash out to sea unrecorded, while others may be consumed by Chinese fishermen.

Recommendations

To prevent the extinction of the Pantai Remis sea turtle nesting populations, the following actions are strongly recommended:

1. All the eggs laid by turtles should be completely protected and allowed to incubate in a hatchery constructed for this purpose. At Pasir Panjang, putting the eggs in a beach hatchery is preferable to letting them incubate in their natural nests, for the following two reasons:
 - a) The beach is too long to effectively patrol against poaching. Even though the beach is now tendered, the villagers report that many egg clutches are illegally taken by outsiders.
 - b) Most of the beach is shaded by dense vegetation. This means that natural nests are likely to yield a high proportion of male offspring. The population would

benefit by a beach hatchery constructed in a relatively unshaded area. (See following section entitled "Suggestions for choosing a hatchery site.")

2. About \$ 15,000-20,000 should be allocated for construction and maintenance of the hatchery. This sum would cover the following expenditures:
 - a) Clearing and fencing the hatchery site.
 - b) Construction of a shelter for hatchery caretakers.
 - c) Purchase of eggs from the villagers of Segari.
 - d) Wages paid to four hatchery caretakers employed from the beginning of the nesting season through the end of the incubation period.
3. State and federal authorities should consider a total ban on the sale and consumption of all turtle eggs in the State of Perak. In Perak, virtually all turtle eggs come from the Pantai Remis area. Our discussions indicated that in principle, all parties involved (villagers of Segari, personnel of the Department of Fisheries, etc.) favour total protection for the Pantai Remis turtle population.
4. The laws restricting the operation of trawlers in near-shore waters should be strictly enforced.
5. A "stranding network" should be organized to report any dead turtles encountered along the shoreline of Perak. The data form on the last page of this report (entitled "LAPURAN KEMATIAN PENYU DI PANTAI") should be copied and distributed to personnel of the Department of Fisheries, members of the Pantai Remis Angling Club and other interested parties. Whenever a dead turtle is found, the data collected would be sent to the Department of Fisheries.
6. The campfires and lights of visitors at the beach should be discouraged. Information pamphlets and signs should be posted to inform visitors about correct behaviour at a turtle nesting beach. (See appended pamphlet.)
7. Tags should be applied to nesting female turtles so that more data can be gathered on their nesting periodicity and migrations.

Suggestions for Choosing a Hatchery Site at Pantai Remis

A survey of Pasir Panjang conducted by Mortimer and Sukarno indicated that the best site for a hatchery was located north of the car park. This site was identified in the presence of Mr. Chan and Mr. Malik from the Department of Fisheries. To the south of the car park, most of the beach had too much vegetation for a hatchery. There was an open area at the extreme south end of the beach near the river mouth; but this area is not recommended because of the risk of flooding.

The following characteristics are desirable for a hatchery site:

1. The site should be relatively unshaded.
2. It should be free of roots and vegetation.
3. The sand should be light coloured, and not contain high levels of silt, clay or mud.
4. The site should be elevated high enough above the high tide line that water never reaches the bottom of the egg clutches. Ideally, the site should be elevated at least 1 meter above the level of the highest spring tides.
5. Hatchery sites should never be placed near the mouths of rivers or streams. The open sandy areas, free of vegetation, that are typical of a river mouth were created by flooding. Even a single flooding can destroy the eggs from an entire nesting season!