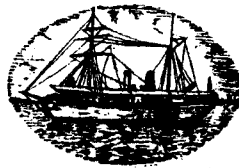
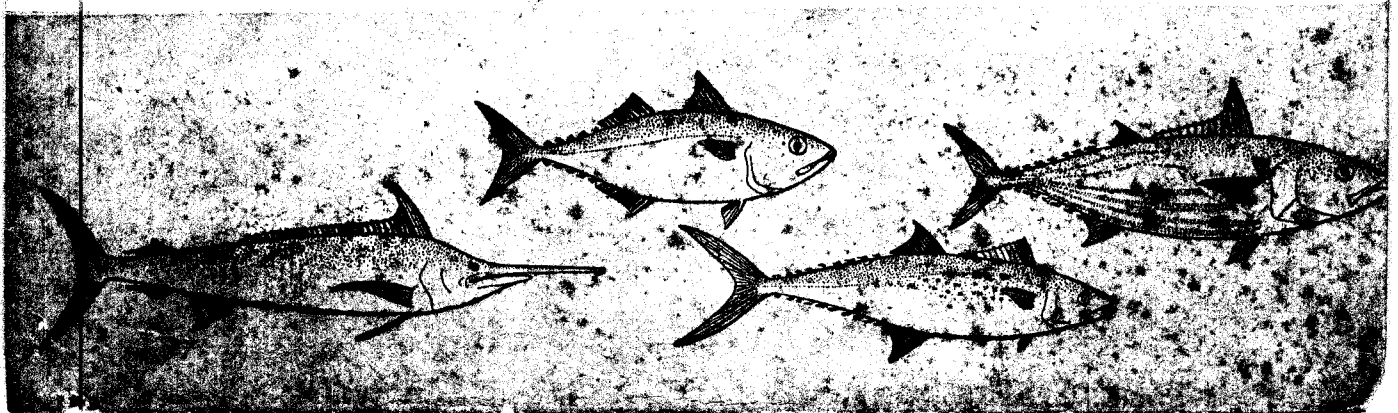


# **SYMPOSIUM ON SCOMBROID FISHES**

**PART III**



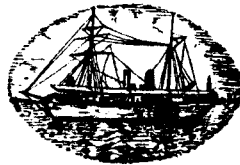
**MARINE BIOLOGICAL ASSOCIATION OF INDIA  
MANDAPAM CAMP  
S. INDIA**



PROCEEDINGS OF THE  
**SYMPOSIUM**  
ON  
**SCOMBROID FISHES**

HELD AT MANDAPAM CAMP FROM JAN. 12-15, 1962

**PART III**



SYMPOSIUM SERIES I  
**MARINE BIOLOGICAL ASSOCIATION OF INDIA**  
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## THE MACKEREL FISHERY OF PANGKOR, MALAYA

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THE present paper is written mainly based on the material collected and observations made during my deputation to Malaya in September 1956 to attend the Rastrelliger Sub-Committee Meeting of the Indo-Pacific Fisheries Council. I am deeply obliged to the Directorate of Fisheries, Malaya for all the arrangements made and facilities given to visit Pangkor and see the mackerel fishery there. My thanks are due to Mr. Soon Ming Kong, the present Director of Fisheries, Malaya for kindly furnishing me with particulars regarding the present condition of the mackerel fishery at Pangkor and for the photographs showing the various aspects of the fishing industry there given in this article. I am grateful to Mr. Lim Eng Chuan, Inspector of Fisheries, Lumut, who accompanied my colleague Mr. S. K. Banerji and myself to Pangkor and rendered very valuable assistance in the collection of information incorporated in this article.

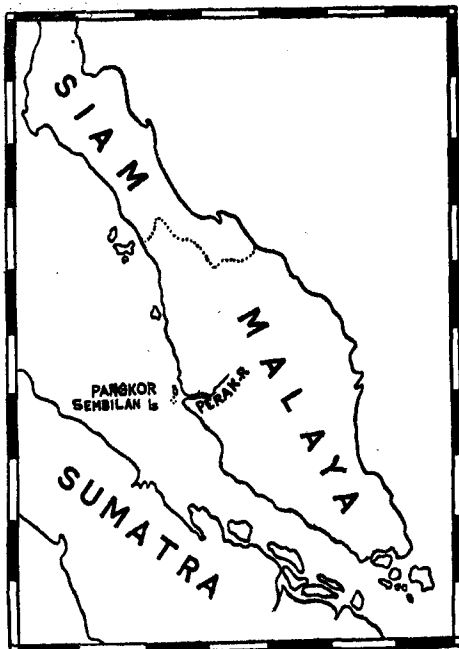


FIG. 1. Malay peninsula showing Pangkor and Sembilan Islands.

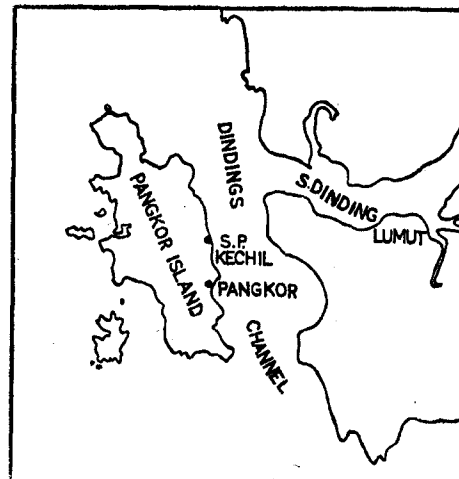


FIG. 2. Pangkor Island.

Pangkor is an island in the State of Perak, Malaya about 85 miles due south of Penang by sea and 3 miles from the mainland (Figs. 1 & 2), having an area of about 30 sq. miles and a population of about 10,000 who are mostly Chinese. The economy of the island is mainly dependent on fishing. Though a few rubber plantations exist their importance is negligible. The island has telephone connection with the mainland and has electric supply also. All communications are through the town of Lumut in the mainland about 5.5 sea miles from Pangkor at the mouth of the Dingings River from where it is about 130 miles by road to Penang. Lumut is connected with the important towns of Ipoh, Taiping, Telok Anson etc., by a good road system. There

are two fishing centres in the Island, Pangkor and Shungai Penang Kechil, about 3 miles apart, of which the former is the larger one.†

The history of the mackerel fishery in Pangkor is hardly three decades old. Till the early part of this century the place was practically unknown from the fisheries point of view and the island was used mostly as a quiet picnic resort and excursion ground by planters and other opulent public from the mainland. Fishing as an industry was non-existent though Malayan fishermen from the hamlets along the coast were engaged in small scale fishing in the inshore waters for their local needs. About 35 years ago some fishermen from the west coast of Thailand came down to fish and located the existence of a potentially rich fishing ground in the neighbourhood of Pangkor. The energetic Chinese seeing the prospects of good fishing took up the cue and gradually built up an industry now estimated to be worth about 10 million Straits Dollars. Mackerel was first caught in appreciable quantities in 1928 when there were about 10 country crafts operating. Mechanisation began in 1935 when a Chinese by name Neeh Eng Hwa built the first motor fishing vessel. The fishing industry received a serious set back during the second world war but came round quickly with the exit of the Japanese. In 1956 there were 52 vessels all owned by Chinese, employing a crew of 1213 fishermen (1148 Chinese and 65 Malays). The strength in 1960 was 55 vessels and 1470 fishermen exclusive of shore labour. Normally 44 boats fish regularly. Though there is in the island a small colony of a little over 100 Indian fishermen hailing from the Districts of South Arcot, Tanjore and Ramnad in Madras State, they are all engaged in operating shore seines known in Malay as *Puket tarek*.

*The Pangkor Mackerel*: The mackerel at Pangkor is the same as the Indian species viz., *Rastrelliger kanagurta*. Locally they are called Kembong or \**Ikan Kembong*. Some people call the large sized ones Mambong or *Ikan Mambong* and their occurrence is only seasonal and they are said to come comparatively nearer to the coast, than the smaller ones. The broader species of mackerel viz., *R. brachysoma* is reported to occur there in stray numbers but were not available during the time of my visit. *R. kanagurta* of two size groups viz., 186 mm. to 193 mm. (total length) and 226 mm. to 235 mm. (total length) were present in the catches.

*Shore establishments*: Each boat owner or *Towkay* as he is called has a permanent shore establishment from where the landing platform or *Pelantah* extends in the form of a pier about 75 to 100 feet long. It is built on stout wooden piles driven into the bed of the sea and paved with split stem of the Malayan palm. A series of long poles are fixed on the *Pelantah* in the form of scaffolding to dry the nets (Plate II, Fig. 1) and the whole structure gives a weird appearance from a distance. The shore buildings are spacious and are electrified with accommodation for office, living quarters for the fishermen crew and space for handling fish. There is a community kitchen and a common dining table with a radio in the background which gives out almost continuously broadcasts in Chinese. Most of the establishments make their own ice and all have freezing chambers, store rooms and curing and packing sections. All the offices in the shore establishments have telephone connections.

*Craft and gear*: The boat used (Plate 1, Fig. 1) is plank built and power driven with about 50 to 90 B.H.P. engines with holds in front to store ice and fish and with bunk spaces for the crew in the aft behind the pilot's cabin and immediately above the engine room. It is generally owned by a single person known as *Towkay* who may have more than one vessel at a time. There are no radio-telephone communications with the shore base and no echo sounding or depth recording equipments. There are no winch arrangements and all hauling is done manually. Belief in the supernatural still holds sway and each boat has at the prow a piece of red cloth and some leaves called *Tonkong* to propitiate the Lord of the Sea.

† Another important mackerel fishing centre in Malaya is Kula Kedah to the north of Penang which I could not visit for want of time.

\* *Ikan* means fish in Malay and this term precedes the names of all fishes.



- PLATE I.** 1. A purse seine boat anchored close to a landing Platform at Pangkor. The scaffoldings in the background are for drying nets (By courtesy of the Director of Fisheries, Malaya).
2. A morning scene near the shore base showing the removal of the mackerel catches from the boats to the shore buildings in the background (By the courtesy of the Director of Fisheries, Malaya).

Each boat is on an average about 18 m. long and about 4.2 m. broad with a draft of about 1.5 m. and is locally called *Kembong choon* in Chinese and *Motor Pukat jerut* or *Kapal pukat jerut* in Malay. It carries in front immediately above the holds two large boats or *Sampans* locally known as *Jalor* with the net stacked inside and a small dinghy known as *Thing kier* in Chinese (*Jalor* in Malay) behind. The latter is used by the master fisherman for scouting purposes after reaching the fishing grounds. The *Sampans* averages about 8.5 m. in length with 2 m. beam and .75 m. draught and the dinghy about 5.4 m. with 1.2 m. beam and 0.5 m. draught.

The net\* used is the round haul net of the purse seine type known locally as *Pukat jerut* varying from 150 fathoms to 220 fathoms in length and 20 to 40 fathoms in depth made of cotton twine. It is made of yarn, 3×4 ply of 20 counts 13 mm. mesh. In many cases the owner of the net is not the *Towkay* (who owns the boat) in which case the former is known as the *Laupan*.

In addition to the engine driver and helmsman who do not take part in the fishing operations each boat has 18 to 25 fishermen crew. The above includes one master fisherman or *Langkong* and two assistants known as *wooi boey* in Chinese.

*Fishing operations* : Unlike along the west coast of India mackerel seldom come close to the coast and fishing is always carried out only during night time. The vessels go out in the sea between 5 p.m. and 6.30 p.m. to the fishing grounds which may be 10 to 25 miles away from Pangkor and generally fish in depths varying from 20 to 30 fathoms. The main fishing ground extends from about 10 miles north of Pangkor to about 20 miles to the south beyond the Sembilan group of islands, where it is about 50 fathoms deep as a broad belt about 15 miles wide lying on the western side of the island and more or less parallel to the coast. Fishing is done only during dark nights as the shoals are located by the luminescence caused by the movement of the fish. Usually there is no mackerel fishing five days before and five days after the full moon. All operations cease when there is either sun light or moon light.

As soon as the *Langkong* or master fisherman who stations himself on the look out platform half way up the centre mast discovers the presence of mackerel by the characteristic luminescence, the vessel is stopped and he proceeds in the dinghy to study the shoal. In the meanwhile all lights are switched off and the engine is cut out to minimise disturbance to the shoals. If he feels that the net could be cast he signals back to the vessel for the two *sampans* which slip into the water and encircle the shoal as directed by the master fisherman. When the encircling is complete the two boats come very close together and start the hauling of the net. In the meanwhile the ground rope is pursed bringing together all the fish in the bag that is formed at the centre. By this time the motor vessel comes along side the boats and all the catch is transferred into the hold along with crushed ice. It makes 1 to 1½ hours to complete one haul depending on the size of the shoal encircled. Generally 3 hauls are made and for any haul over and above this the fishermen are entitled to extra wages. On occasions when a vessel is overloaded and is not in a position to take into the hold all the catch, a red flag or light is displayed from a long hook shaped structure called *Singki* at the top of the central mast. At the sight of this signal other vessels close in and take in the catches paying the first vessel a royalty in proportion to the quantity taken in by them.

The vessels generally return early if the moon rises early and late if there is darkness till day-break. The fish taken out of the hold are unloaded (Plate 1, Fig. 2) at the pier or *pelantah* owned by the respective boat owners. From here they are removed in cane baskets to the packing and curing shed on trolleys pushed by the shore labour engaged for the purpose.

*Disposal of catches* : The catches are disposed in three ways viz. (1) fresh, packed in crushed ice; (2) brine boiled frozen fish; (3) salt cured dry fish. Generally 2/3 of the catch is marketed as iced or brine boiled frozen fish and 1/3 is used for curing.

\*For details of the purse seines used in Malaya the account by K. Gopinath in the *Journal of the Malayan Branch of the Asiatic Society*, 1950, 23(3) : 75-96, may be referred to.

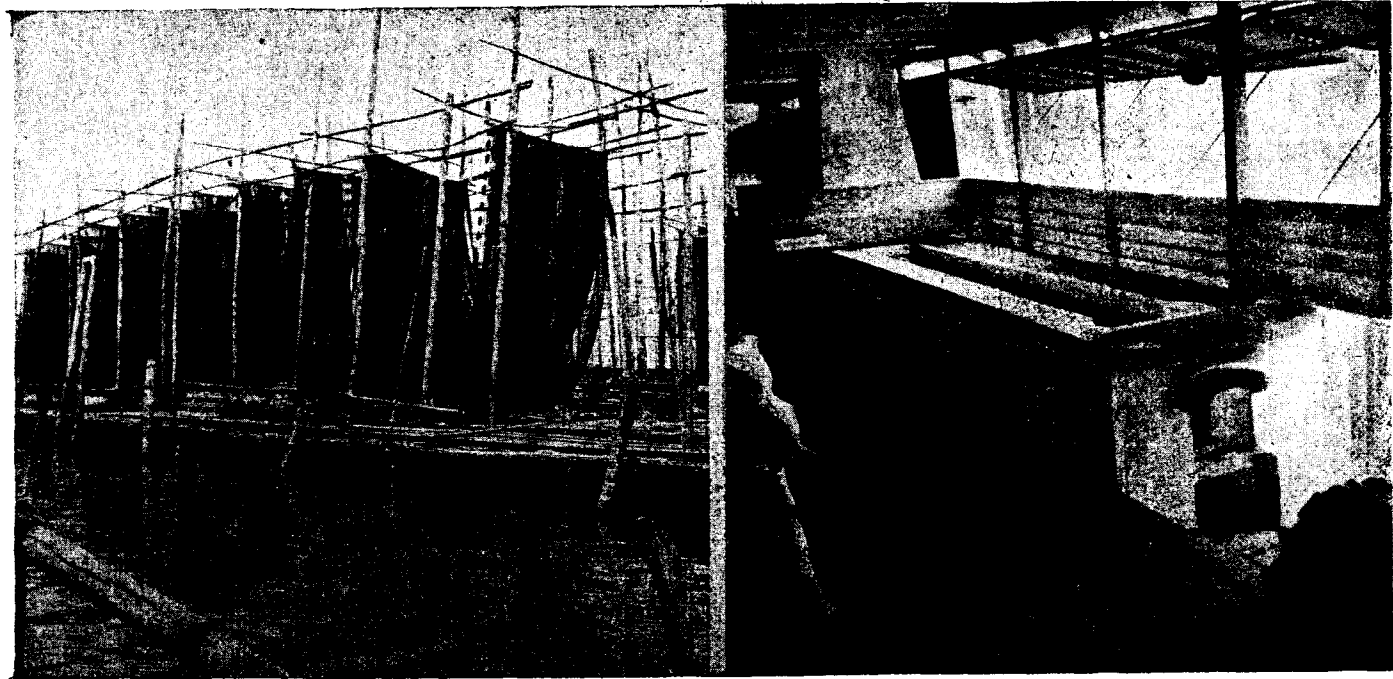


PLATE II. 1. Drying the purse seine nets. (By courtesy of Mr. R. C. Cole through the Director of Fisheries, Malaya).  
2. A view of the *Sek hoo chow* or cooling vat used for the preparation of brine boiled mackerel (By courtesy of the Director of Fisheries, Malaya).



(1) *Iced mackerel*: Known locally as *Si'ng kembong hoo*, it is packed in wooden boxes with crushed ice and sent in carrier boats to Lumut and from there transported in lorries to the various markets.

(2) *Brine boiled mackerel*: This is locally known as *Sek kembong hoo*. The fish are washed in salt water and then arranged inside open split bamboo baskets (46 cm. in diameter and 15 cm. high) known as *Kembong kheng* and over this a small quantity of crushed salt is sprinkled. The work is generally done by women. The baskets of fish are put in a row in a long galvanised iron vat known as *Sek hoo chow* in Chinese about 6½ m. long and 58.5 cm. wide in which salt water is kept boiling (Plate II, Fig. 2). The main boiling pan in which the fish baskets are kept first has a diameter of 79 cm. Split bamboo covers are placed over the baskets and are pressed down with hoops to prevent the fish from floating away. The basket kept in the main boiling pan is gradually pushed towards the channel of the pan to give room to those that follow. Over a dozen baskets could be kept in a row at a time and it takes about 15 minutes time for one basket to reach the extreme end of the vat when it is taken out and chilled to be sent as such in carrier boats to Lumut and from there in lorries to the consuming centres. Each basket would hold about 2 piculs of fish which is said to remain in good condition for about 3 days.

(3) *Salted mackerel*: The salt cured mackerel is known as *Kiam kembong hoo*. Curing is done only during the time of heavy catches and those that remain at the bottom of the hold are used for the purpose. The fish are washed and gutted by Chinese women workers who are paid at the rate of \$ 1.50 per picul.\* The gutted fish are then washed in salt water or brine solution and then arranged in bamboo baskets in which they are kept for some time to allow the excess water to drain off. The fish are then mixed with salt in the proportions of 2 parts of salt to 5 parts of fish by weight and are put inside large wooden tubs known as *Thung* or concrete vats. Stone weights are kept on the fish which absorb the salt and give out water. They are kept in the above condition upto about 2 weeks depending on the local catch trends and general market demand. The salted fish are taken out, washed in sea water and dried in the sun for 2 to 3 days in the landing platform or *pelantah*. When dry they are packed in wooden boxes of 2 picul or 4 picul capacity lined with paper and despatched to the marketing centres.

Distribution of Iced, Boiled and Cured mackerel is given below. Distances shown are from Lumut on the mainland opposite Pangkor.

Name of Place	Distance	Iced	Boiled	Cured
<i>South</i>				
Singapore	449 mls.	Yes	Yes	Yes
Johore Bharu	431 "	"	"	No
Batu Pahat	352 "	"	"	"
Muar	321 "	"	"	"
Malacca	294 "	"	"	Yes
Seremban	242 "	"	"	No
Kuantan	368 "	"	"	"
Kuala Lumpur	200 "	"	"	"
Telok Anson	115 "	"	"	"
Ipoh	65 "	"	"	"
<i>North</i>				
Kuala Kangsar	58 "	Yes	Yes	No
Taiping	64 "	"	"	"
Bukit Mertajam	98 "	"	"	"
Penang	121 "	"	"	Yes
Sungei Patani	140 "	"	"	No
Alor Star	177 "	"	"	"

\* Malayan weights : 100 katties=1 Picul ; 16.0 piculs=1 Ton.

*Landings of Mackerel in piculs*

	1955	1960	1961*
January .. .. .	1,600	7,291	8,887
February .. .. .	6,083	5,613	303
March .. .. .	4,533	22,145	1,126
April .. .. .	12,800	28,558	7,795
May .. .. .	26,538	53,630	4,738
June .. .. .	29,490	29,536	26,275
July .. .. .	22,017	20,221	15,809
August .. .. .	14,900	18,621	8,534
September .. .. .	20,900	12,649	3,074
October .. .. .	8,031	10,318	10,618
November .. .. .	14,940	5,337	1,3927
December .. .. .	9,615	8,038	13,639
	<u>171,447</u>	<u>221,957</u>	<u>120,725</u>
In tons (approx.).. .. .	10,205	13,212	7,186

\* 1961 has been comparatively a year of poor fishing for mackerel.

*System of wages* : The *Towkay* who owns the fishing establishment has the right to receive the catches at an agreed fixed rate of \$ 9.11½ per picul. The total amount derived at the above rate is divided into 135 parts and is shared as follows :

<i>Laupan</i> (Net owner) .. .. .	30 shares
<i>Langkong</i> (Master fisherman) .. .. .	5 "
Fishermen crew .. .. .	100 "
	<u>135 shares</u>

In addition to the above the *Towkay* gives free to each fisherman the following every month:

1. 6 piculs of free rice
2. 10 katties of cooking oil
3. Fire wood.

They are also provided with free lodging and normal medical aid. The average monthly income of an ordinary fisherman was about S.\$100.00 in 1956. The *Towkay* meets all the fuel expenditure and maintenance charges of the boat and pays the wages of the engine driver and the helmsman. The selling price of mackerel varies from S.\$ 25 to S.\$60 per picul according to the availability of fish locally and any profit made after meeting all the expenditure towards the wages of the crew, share price to the fishermen and *Laupan* and maintenance of the vessel and shore establishments goes to the *Towkay*.

*General remarks* : The mackerel fishing industry in Malaya is in a comparatively more prosperous condition than in India evidently due to better economic condition of the consuming public. The standard of living of the fishermen is also high.

In India fishing for mackerel is done along the Malabar Coast (N. Kerala), taking advantage of the luminescence caused during night time, with the help of a kind of boat seine, known locally as *Ayila kolli vala* (*Ayila*=mackerel, *kolli*=killing, *vala*=net) on account of its efficiency. It is operated from two boats in the form of a subsurface trawl both during night-time and daytime. The possibility of fishing for mackerel from mechanised boats with purse seines by locating the shoals during night by the characteristic luminescence could be explored. This would help to extend fishing operations to comparatively more distant fishing grounds than at present. Popularisation of brine boiled chilled mackerel in this country with suitable transport arrangements to facilitate quick distribution should help to make available the fish to the consuming public in distant places in a comparatively wholesome condition.