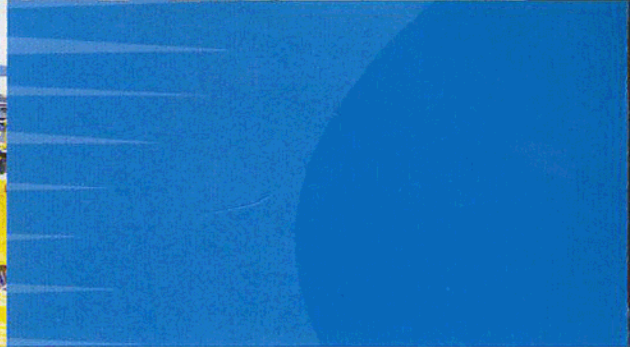




PERANGKAAN TAHUNAN PERIKANAN

ANNUAL FISHERIES STATISTICS

**JILID 1
1958**



JABATAN PERIKANAN MALAYSIA

Cawangan Pengutipan Data, Tingkat 7, Blok 4G2, Wisma Tani,
Presint 4, Pusat Pentadbiran Kerajaan Persekutuan
62628 PUTRAJAYA, MALAYSIA
Tel : 03-8870 4034 Faks : 03-8870 4033

KEMENTERIAN PERTANIAN DAN SHARIKAT KERJASAMA

(Ministry of Agriculture and Co-operatives)

MALAYSIA

BAHAGIAN PERIKANAN
(Fisheries Division)

PERANGKAIAN TAHUNAN
(Annual Statistics)

1958

KEMENTERIAN PERTANIAN
SHARIKAT KERJASAMA
MALAYSIA
(Bahagian Perikanan)
JALAN SWETTENHAM
KUALA LUMPUR

FEDERATION OF MALAYA
ANNUAL REPORT 1958 - DEPARTMENT OF FISHERIES

The rapid rate of modernization of the Malayan fishing industry has been maintained and in some respects accelerated in 1958. The basic progress in mechanization of fishing craft, use of more efficient materials and gears and improvement of shore facilities has been followed by the first signs of major industrialisation with the opening of negotiations for establishment of a tuna processing plant as part of a Japanese-Malayan joint venture to develop the unexploited oceanic fisheries in the waters to the west of Malaya. The fish stocks of these waters offer the only realistic hope for the rapid increase in fish supplies to the Federation to meet the ever increasing demand of the growing population.

The fishing grounds all round Malaya, with the exception of the southern part of the Malacca Straits, have been extended in the past few years as a result of mechanization of fishing craft. The extension is particularly evident on the East Coast where the area covered by local craft has been more than doubled since 1953. The extension of these inshore grounds is not sufficient to provide adequate fish supplies in the Federation, however, and the development of oceanic fisheries is essential although the difficulties are formidable. New techniques are required involving large capital investment in gears and vessels and the re-education of fishermen to meet the changed circumstances is vital. A change in the traditional way of life of the Malay fishermen is already evident as it is now common for the fishermen to follow the shoals of fish round the coasts of Malaya, remaining away from home for lengthy periods, a practice which was virtually non-existent before the introduction of engines made the boats largely independent of the vagaries of the wind.

Although no new types of gear have been introduced successfully into Malaya in recent years, the local gears are being modified to meet changing conditions and certain of the traditional gears are becoming less widely used as a tendency towards the use of more versatile and efficient gears such as the purse seine (pukat jerut) and the shore-seine (pukat tuabang) grow in emphasis. In addition, the use of new materials, principally synthetic fibres, in fishing nets has increased the catching power of certain gears, especially the drift nets (pukat hanyut), as well as providing the fishermen with nets which, although initially more expensive, are more durable, stronger and require less maintenance than do nets of ramie or cotton. Drift net catches in the Malacca Straits have doubled with the replacement of cotton by synthetic fibres resulting in increased supplies of "Tenggiri" and "Parang" to the west coast markets and a subsequent reduction in the retail prices of these fish. There is evidence that the increased efficiency of the drift nets has adversely affected the catches of the fishing stakes off the west coast but the evidence is as yet inconclusive.

The 1958 fishing season was a poor one on the whole due to adverse weather conditions. Unsettled weather conditions prevailed all round the Malayan coasts, restricting operations and reducing landings. On the East Coast strong currents and poor conditions resulted in low landings until the second half of the year when conditions improved slightly.

This improvement was welcomed as an indication that the fishing in the month or two prior to the onset of the North East Monsoon in November would be good and would compensate for the preceding months. The early onset of the monsoon dashed these hopes, however, and there was little consolation in the fact that unusually quiet conditions at the close of the year permitted fishing on a larger scale than is normally possible at this time, and landings improved.

On the West Coast conditions were not satisfactory, particularly later in the year, but the pukat jerut landings in Pangkor and the drift net landings in Malacca and Selangor played a major part in raising the total landing figures to well above those of 1957. Trouble with Indonesia marred fishing operations in the Southwest and forced the drift net fishermen to explore new fishing grounds as far north as Langkawi as well as those off the East Coast which are being visited each year before the onset of the North East Monsoon.

The adverse effect of local conditions on the industry was aggravated by the world-wide trade recession as the fall in the national income resulted in reduced demand for fish and fish products and a consequent fall in their prices to the fishermen. Many fishermen had to postpone the building of new boats and the purchase of engines and other equipment. But for this, the rate of mechanization would have shown a much greater increase than it has done.

Fish Prices

Although there was some fluctuation in retail prices of fish throughout the year, particularly in the lower grades of fish, the general pattern was, as usual, a depression of prices in the middle months of the year with high prices in the early and late months. Prices were, throughout the year, considerably lower than in 1957 (see Appendix VI) particularly for the better grades of fish, and, indeed, the average prices for the year were lower than at any time since 1951.

The position of ice supply has shown no change in the past year but there is a growing urge among fishermen, particularly in Cooperative Societies to reduce expenditure on ice by establishing their own ice factories. A large part of the ice produced in Malaya is used by the fishermen and fish dealers for preservation of the catches during transport to the markets and any economy that can be effected in the production and price of ice to the fisherman and fish dealer would be quickly reflected in lower prices to the consumer and better returns to the fishermen.

The total landings for the year amounted to 112,104 tons as compared with 110,863 tons for 1957. Contrary to the position in 1957, lower annual landings on the East Coast were more than compensated for by increased landings on the West Coast.

Structure of the Industry

A radical change is taking place in the structure of the fishing industry in Malaya as a result of the Ministerial decision to allocate top priority in fisheries matters to the promotion of the Cooperative movement among fishermen. The formation of cooperatives should enable

collection and distribution of fish to be managed efficiently and economically; thus cutting down wastage and losses due to delay in getting fish to the consumers, and combines the fishermen into bodies which are strong enough to ensure that the fish is sold at fair prices and that adequate returns are made to the fishermen. Redundant middle men are eliminated and the proportion of the retail price of the fish which went to them now goes to the Cooperative Societies and their members. There are other advantages in the formation of cooperatives as the group has bargaining power which the individual does not possess. Commercial firms are prepared to offer discounts at dealer's rates to the societies and the Government is prepared to grant loans to the Societies in the knowledge that there is virtually no risk involved in granting the loans - a very different state of affairs to granting of loans to individual fishermen.

Work in the establishment of Fishermen's Cooperative Societies has been concentrated on the East Coast of Malaya and there is now a string of societies covering the whole of the East Coast from Tumpat in the North to Kuantan in the South while plans for the extension of the area covered to Endau, South Pahang are now being implemented.

On the West Coast there are several fishermen's Cooperative Societies, some long established which have carried on without the encouragement of Government loans. In particular the Malacca Heng Hwah Fishermen's Cooperative Credit & Marketing Society has proved itself a very efficient and progressive organization and, with guidance by the Fisheries Department has benefitted greatly by being able to negotiate as a registered society with the various firms which supply the members' requirements of fishing materials, boats engines, etc. This Society now plans to open its own ice factory.

Salt Fish Industry

Except in Kelantan where the amount of fish salted and dried was more than 50% in excess of 1957 production, the salt fish industry on the East Coast was badly hit by the poor fishing season and by the lack of suitable fish for drying. In Pahang only 21,383 pikuls were processed as against 70,043 pikuls in 1957, in Trengganu only 56,920 pikuls as against 104,960 in 1957 and in East Johore 44,316 pikuls as against 55,192 in 1957. The picture on the West Coast was similar but in a lesser degree as dried fish production in Perak fell from 71,402 pikuls to 51,878 pikuls and in Selangor from 10,920 pikuls to 7,587. Only in Kedah was there an improvement where production rose from 307 pikuls in 1957 to 2,242 pikuls in 1958.

Difficulties in the barter trade with Indonesia continue to depress the salt fish industry which is dependent to a considerable extent on export.

Utilisation

An analysis of the utilisation, import of fish from and the export of fish to other territories shows that out of a total production of 1,883,358 pikuls of fish (including prawns, etc.) in 1958 (compared with 1,862,503 pikuls in 1957) the nett available supply amounted to 1,021,059 pikuls or 60,777 tons (903,888 pikuls in 1957). Of the total 692,277 pikuls were processed; 226,660 pikuls to salted/dried fish; 197,209 pikuls to agriculture fertiliser, pig and duck food, etc; 196,059 pikuls

to dried prawns, and 72,349 pikuls to blachan, leaving a balance of 1,191,081 pikuls sold as fresh fish. Fresh fish was also imported from various sources, mainly Singapore (29,590 pikuls) and Sumatra (11,340 pikuls), and the balance (50,136 pikuls) from other sources. The total imports (91,065 pikuls) were somewhat lower than the imports in 1957 (109,645 pikuls).

Exports, mainly to Singapore, amounted to 266,357 pikuls, a considerable increase on 1957 exports (237,950 pikuls). A more detailed breakdown is given in Appendix X.

Mechanisation

The progressive mechanisation of the fishing craft in respect of inboard diesels has continued in 1958 and the rate of mechanisation has even been speeded up, a noteworthy fact as the number of craft which are potentially capable of having engines installed in them is outnumbered by the boats which are too small or whose operations are too restricted to justify the installation of engines. Outboard engines are still favoured in the North West of Malaya but are being ousted by inboard diesel engines on grounds of economy and reliability in all other areas except where the weight and rigid installation of the diesels render their use impracticable.

The introduction of smaller marine diesel engines capable of being installed in moderate sized boats has resulted in larger, stronger fishing boats being built which are capable of withstanding rough seas and which can voyage far from land in search of fish. This has resulted in extension of fishing grounds previously referred to and has also enabled the fishermen in the East Coast to put to sea during the North East Monsoon under conditions which would have completely immobilised the fishing fleets five years ago.

	<u>Landings</u>	<u>Number of</u>	<u>Number of</u>	<u>Powered</u>	<u>Non-Powered</u>
	<u>Tons</u>	<u>Fishermen</u>	<u>Gears</u>	<u>Boats</u>	<u>Boats</u>
1949 ..	104,880	71,403	21,139	327	21,793
1954 ..	109,934	49,532	18,654	4,052	17,789
1955 ..	109,422	61,212	17,606	4,550	18,879
1956 ..	111,083	50,690	19,427	5,641	17,730
1957 ..	110,863	49,443	21,276	6,283	17,541
1958 ..	112,104	51,616	21,296	7,296	17,749

General Developments in Different Zones

In the North East mechanization has continued and a further 263 new diesel driven boats were registered during the year. The majority of larger boats capable of being fitted with engines have already been modified and the smaller craft are now receiving most attention. The increased efficiency of the mechanised craft helped to some extent in reducing the adverse effects of high winds, too clear sea, lack of rain, occurrence of jelly fish and other factors detrimental to the fishery but the total landings for Kelantan and Trengganu at 270,108 pikuls were 38,274 pikuls below those of 1957.

The increased landings of "tenggiri" (*Scomberomorus* sp) and "parang" (*Chirocentrus dorab*) on the West Coast resulted in a drop in their prices on the East Coast, since East Coast tenggiri and parang normally find their main outlets in the West Coast, while catches of the smaller fishes, which are popular on the local markets, fell and there was a drop in the export of dried and salted fish.

Conditions similar to those in the North East prevailed in the South East and the total of 277,698 pikuls of fish landed in 117,600 pikuls below the 1957 figure. It is possible that the intensive inshore operations off the East Coast have resulted in these waters being over-fished as fishing near the coral reefs where pukat jerut units recently started to operate has been very poor and, elsewhere, the nets such as pukat tangkol have been catching only small fish which are unacceptable to the markets. Many boats did not operate in 1958 as conditions were unsuitable and the returns were not worthwhile.

In the North West the weather was again to blame for poor landings but, in fact, the total landings for the area at 856,581 pikuls were higher than in 1957 (743,041). The increase is due almost entirely to heavy landings by the Pangkor pukat jerut fleet and good landings in Perlis. Penang had similar landings to 1957 but landings in Kedah and North Perak were poor. Mechanisation has continued in the zone, a peculiar feature being that outboard engines are still highly favoured here and in 1958 there were, out of a total of 7,570 boats, 447 inboard-engined and 2,459 outboard-engined.

The first part of 1958 in the South West was a period of industry and optimism. The new synthetic nets which have replaced the traditional ramie and cotton nets were bringing in good catches and this had resulted in many new boats being built and new engines being fitted.

At the beginning of the year the demand for synthetic nets exceeded the supply and cost \$70.00 per piece but later, as demand fell off and supplies were ample, the price fell until by the end of the year it was about \$55.00 per piece.

Unfortunately, however, this minor 'boom' was hit by a period of poor fishing which was followed by action by the Indonesian Government against the fishermen, which forced the fleets to move to new fishing grounds, and, finally, weather conditions changed for the worse. However, the total landings for the year (478,971 pikuls) are very much higher than in 1957 (415,782 pikuls) mainly due to the increased catches by drift nets.

Licence figures for the South West show that of a total of 7,548 boats, 1,880 had outboard engines and 742 inboard engines. The figures for total number of boats and number of outboard-engined boats are approximately the same as for 1957 while the number of inboard-engined boats has more than doubled.

Fishing Stakes

Dissension between fishing stake operators and net fishermen remains the major problem in administration of Malayan fisheries and 1958 saw a deterioration in the general situation rather than an improvement as conditions in the North West became critical.

Fishing stakes land a considerable proportion of the fish supplies in the Federation but their mode of operation results in abandoned stakes being left in the sea which damage the nets of fishermen operating in the area. Although there is legislation to penalise operators who abandon stakes without removing them and in many areas a large deposit is required before a licence is granted, which deposit is used to finance removal of the stakes if the operator does not remove them, many operators persist in leaving abandoned stakes and the Fisheries Department is then faced with the arduous task of clearing the sites and calming irate net fishermen.

Illegal erection of stakes is another problem which can only be solved by constant surveillance of the whole coastal areas and a number of prosecutions were made on this count in 1958.

Fishermen's Co-operative Societies

Although there has been little expansion of the Cooperative movement among fishermen on the West Coast the position on the East Coast has improved tremendously and the number of Fishermen's Co-operative Societies was brought up to a total of 44 by the addition of 14 new Societies in 1958. 41 of the Societies are affiliated to the East Coast Fishermen's Transport & Marketing Union which looks after the distribution and sale of their fish to various markets. The Societies have a total membership of 3,311; 15.4% of the estimated number of eligible fishermen.

Loans to fishermen are arranged through the respective Societies which, in turn, arrange their loans through the Transport & Marketing Union. The Union draws its funds for loan transactions from the Rural Cooperative Apex Bank. Although there were considerable delays in funds being made available to the Societies which caused considerable dissatisfaction among the fishermen, a total of \$822,097.00 was released in 1958, bringing the sum released since the Union was organized to \$1,030,914.00 of which \$965,324.69 was for loans for purchase of boats, engines and other equipment. Repayment of the loans started slowly but has steadily accelerated and by the end of 1958 \$32,075.69 was repaid with indications that future repayment will be at a much higher rate particularly after the North East Monsoon.

A trial Marketing Scheme similar to that carried out at Beserah in 1957 was carried out between Kuala Trengganu and Kota Bharu in 1958. The trial indicated that collective marketing of fish is an economic proposition and could, if properly organized, bring increased profits to Co-operative Societies.

The Transport & Marketing Union has been of further service to the fishermen by arranging bulk supplies of fuel oil and lubricants to its member societies at special rates. The following table indicates the reduction of price of diesoline fuel at a few centres:-

Retail Price Per Gallon

	<u>Before Bulk Supply</u>	<u>After Bulk Supply</u>
Seberang Takir	75¢	72¢
Batu Rakit	85¢	80¢
Seberang Marang	80¢	75¢
Pulau Serai	85¢	80¢
Telok Bidara	85¢	80¢

- 7 -

Salt is another commodity on which savings can be effected by purchase in bulk and the Seberang Takir Society profits from this. Bulk supply of rice is also receiving the attention of Cooperative Societies whose members are rapidly becoming aware of the benefit to be obtained by acting as a unified group.

This last point is perhaps best illustrated by the case of the Malacca Hengwha (Chinese) Fishermen's Cooperative Credit & Marketing Society Ltd., which has extended its activities to include purchase of diesel engines, engine spare parts, synthetic fibre nets and ropes and fuel and has finalized plans for wholesaling of its members' fish. Societies are in course of formation in five other places in Malacca.

Marine Fisheries School

The problem of equipping the Malayan Fishermen to cope with the repair and maintenance of the engines which drive the fishing boats and with the control of their boats at sea is being solved to some extent by the training given to suitable fishermen at the Marine Fisheries School, Glugor. Trainees are given a thorough grounding in the theory of internal combustion engines and in practical repair and maintenance and are also given training in boat management and navigation. Since the most rapid development in the case of engine driven craft has taken place on the East Coast the attention of the Fisheries Department has been concentrated on the East Coast fishermen although a certain number of West Coast fishermen have been accepted for the courses.

Each course at the School lasts for approximately 3 months during which period the trainees are under full time instruction, at the end of the course they are examined in all the subjects they study and, if suitably qualified, are allowed to sit for the 3rd Class Engine Driver's Certificate. In the past they were also able to sit for a Helmsman's Certificate but the Marine Department is so short staffed that it has not been possible to arrange examination in Helmsmanship for recent courses.

In 1958 three courses were held commencing in February, May and September. 20 students attended each course, the maximum for which facilities are available. All the trainees were Malay. Of the total of 60 students, 58 completed the course and of these only 4 failed in the Departmental Helmsmanship examination and 5 failed in the Departmental Engine examination. A total of 45 sat for the 3rd Class Engine Driver's Certificate and only 1 failed, a tribute to the competence of the Junior Technical Instructor in charge of instruction on engine repairs.

The present situation at the School is most unsatisfactory from many points of view. Lecture rooms and workshop are cramped and there is no accommodation for trainees. Proposals have been put up and plans finalised for a new Fisheries School and it was hoped that this would be constructed in 1958. This did not take place, however, and it is now hoped that 1959 will see completion of the School with adequate classroom and living accommodation for a greater number of trainees than can now be handled.

A principal-designate was selected for the School in 1958 and was sent under the Colombo Plan for training in all aspects of fisheries work in Canada. The state is thus set for the provision of the urgently required training facilities for our fishermen and, it is hoped, for the development of the School into an institution which will supply the fishing industry with highly skilled fishermen adequately trained in modern fishing techniques and in all aspects of advanced fisheries technology.

Brackish Water Fisheries - Prawn Ponds & Cockle Culture.

Survey work in order to find suitable sites for experimental prawn ponds was continued in 1958 and the Panchor area of Perak was chosen for detailed study. An officer experienced in establishment of prawn ponds was placed at the disposal of the Fisheries Department for a short time in mid-1958 by the Chief Fisheries Officer, Singapore and several sites near Bagan Panchor were surveyed. Detailed records on tide data, salinity and the results of sampling were not available until late 1958 when it was judged that a site at Sungei Tok Imam should be developed to determine whether or not rearing of prawns is a feasible proposition in the Perak mangroves. The selection of exact site required further detailed tidal records which have since been carried out and, if funds become available, an experimental station will be set up at Sungei Tok Imam in 1959. Work at this station will determine the possibility of establishment of prawn ponds throughout the mangrove areas of the Federation where the immense potential of prawn culture is unexploited.

The culture of cockles (krang) (*Anadara granosa*) continued to grow in popularity, particularly in Penang and Perak where there is a standing demand for the allocation of suitable areas of foreshore for establishment of culture beds.

In Perak, the main cockle producing area in the Federation, cockle production decreased from 88,711 pikuls in 1957 to 86,370 pikuls in 1958 because of inadequate supplies of seed cockles. The competition for allocation of suitable areas is very severe and demands strict control while, as has been mentioned elsewhere, it may also be necessary to impose legislation regarding the minimum size of cockle which may be gathered in order to prevent the beds from being ruined by indiscriminate harvesting without thought of future stocks. In Penang cockle production amounted to 38,400 pikuls.

Attempts to establish cockle beds have been made in other areas such as in Sementa in Selangor, in Johore and in Pahang and, although initial trials were a failure, further experiments have been carried out which, it is hoped, will indicate the possibility of formation of culture beds in all suitable areas in the Federation. In all these experiments the common cockle of the West Coast, *Anadara granosa*, has been used as it is the most popular of the family, but trials are being carried out in Pahang to assess the possibility of using cockles of other species which are indigenous to the East Coast.

Total production of cockles and other shell-fish in the Federation for 1958 is estimated at 8,358 tons with a total estimated value of \$1,404,090. Of this total production of cockles and shell-fish, which consists mainly of cockles, 2,823.16 tons valued at \$469,480 were exported to Singapore.

Freshwater Fisheries

Following the posting of Junior Fisheries Assistants to Kelantan, Trengganu, Pahang and Negri Sembilan and survey work by them in 1957, a detailed survey of fishponds in the Federation was completed in 1958. The work of the Junior Fisheries Assistants in the field and their close association with the kampong people has resulted in a fresh surge of interest in pond culture but in a much more controlled and better directed fashion than in previous years. The Junior Fisheries Assistants are in a position to supervise the siting and construction of ponds and to advise on all aspects of stocking and culture and this constant attention has maintained a high degree of interest among the rural peoples which has resulted in the completion of many new ponds of a size and condition much better than those built in previous year. The advance has been most rapid in the Raub area of Pahang where 115 excellent ponds were built in 1958, mostly by Malays, and where pond culture has become so well established on sound lines that the expansion is now continuing under its own impetus. Progress has been slower in other areas but revived interest in Kelantan should see great development there and in Trengganu in the near future.

Steady progress has been made in all the West Coast States but here the most important work has been in the stocking of mining pools as reservoirs of fish for the rural population. This work which was started in 1957 on an experimental basis has proved of very great value and the clearing and stocking of suitable pools is possibly the most important line of development in fish culture in Malaya at present. Detailed surveys have been carried out in Perak where 81 mining pools of a total acreage of 139.7 acres have been cleared and stocked and many of these pools are now regularly fished by local residents who are taking full advantage of the availability of good quality fish at their disposal. The next stage in this work is its extension into Selangor where there is scope for its development.

During the year a total of 82,940 fry were distributed for stocking of fish ponds, mining pools, irrigation canals, reservoirs, etc. more than double the 1957 total (36,294). Interesting features of the demand for fry are that Lampam Jawa (*Puntius javanicus*) and the common carp (*Cyprinus carpio*), which are now bred at the Federal Fry Breeding Station, Tapah, have become the most popular fish for stocking and the numbers of these supplied in 1958 (21,931 Lampam Jawa and 22,998 common carp) would have been greatly exceeded if supplies had been adequate. The resources of the Fry Breeding Station at Tapah have been taxed to their utmost, however, and stocks of fry were exhausted before the close of the year.

In order to improve the resources for supply of fish fry to the public an extension has been made to the Tapah Station which should enable a number of new ponds to be put into operation for fry breeding early in 1958. Plans have also been completed for a new station at Kuala Kangsar and the buildings for the Station are already in course of erection. This Station should go into operation late in 1959.

The results of stocking of reservoirs and irrigation canals with fish which, it is hoped, will establish themselves in natural waters, paddy fields, etc. indicate that sepat has established itself in the Kubang Haji Irrigation Scheme in Perak and greatly increased quantities of this fish are being taken from the paddy fields by the local people.

Experimental beam trawling for prawns was carried out in the North West and results indicated that trawling by night was much more profitable than by day and that catches were heavier on a sandy bottom than on mud. Although the results were better than had been obtained on any previous occasion, the catches were not sufficient to warrant operation on a commercial basis but it may be possible to establish commercial beam trawling if more productive grounds can be discovered.

In addition to the long line experiments for sharks attempts were made by Selangor fishermen with the help of the Fisheries Department to reduce the shark population off Selangor by the use of hooks baited with porpoise (lumba-lumba) meat. Unfortunately, the rough seas rendered the attempts fruitless and they had to be abandoned after a few trips.

Experiments to compare the catches of synthetic nets and cotton or ramie nets were started in 1957 and will continue in 1959.

A Japanese "techi ami" net, a type of large fixed net which, it is hoped, may eventually replace the controversial fishing stakes, was tried off Sabak Bernam but the results were unsatisfactory and further work with the nets will have to be carried out before their effectiveness in Malayan waters can be assessed.

Offshore Fishing Bases

The two longhouses built in Pulau Penang in the Redang group of islands, Trengganu have been fully occupied by fishermen from Kelantan and Trengganu who based themselves on Redang for fishing during the North East Monsoon. Their success has been such that it is planned to add a jetty, fish store and ice store to the facilities provided and it is also planned to establish similar offshore bases on Pulau Tioman and Pulau Langkawi. The former will serve Pahang and Johore fishermen who cannot operate from the mainland during the North East Monsoon and the latter will serve the increasing number of fishermen from Malacca and other parts of the West Coast who move north to new fishing grounds and who are extending their operations out into the Bay of Bengal as Indonesian waters are closed to them. The strategic position of Langkawi makes it an ideal advanced base which will enable the immigrant fishermen to operate to the West and North West of Malaya without interfering with the intensive coastal fisheries off Kedah.

Prevention of Loss of Life at Sea

The Scheme for Rescue of Fishermen in distress at sea continued in 1958 and has developed into a very smooth working organization. The least satisfactory aspect of the Scheme is the delay on the part of fishermen in reporting missing boats and in the vagueness of their reports. This is understandable as it is in the very nature of their calling that their operations are flexible and must be adjusted to the prevailing weather conditions and other factors. Boats may leave with the intention of fishing on a certain area for a certain time but plans may have to be changed at sea. When the fishermen's families or friends on shore eventually become alarmed at their absence it is usually after they have allowed sufficient time for change of plans, often a matter of two or three days, and then the search for them is concentrated in the area for which they had stated they were making - often many miles away from the area where they finally decided to fish.

The Rescue Scheme has been improved on the East Coast, where it is of greatest benefit during the North East Monsoon, by organization of a storm-warning system. The Meteorological Department has arranged for storm warnings to be broadcast over the Radio and, in addition, warnings are issued to all police posts on the East Coast so that the fishermen can be warned of approaching storms and prevented from putting to sea in conditions which would endanger their lives.

R.I.D.A.

With the establishment of the East Coast Transporting & Marketing Union and release of funds for loans to fishermen's cooperatives through the Union, R.I.D.A. has virtually ceased to grant loans to the fishing industry and only a few loans mainly for purchase of engines were granted during the year in areas not served by the Union.

It is hoped however that R.I.D.A. will continue to play a part in the improvement of the fishing industry not only by improving conditions in the fishing villages by giving grants for developments there but, more directly, by training of fishermen and boat builders in the basic points of boat construction and in improving the standard of construction in local dockyards. Proposals have been put forward for the training of suitable men at the R.I.D.A. dockyard, Bagan Latehan, Kuala Trengganu and it is hoped that plans can be finalised in 1959.

Colombo Plan Aid

Detailed survey work has been completed for the establishment of ice factories to serve Fishermen's Cooperatives on the East Coast but it is hoped that arrangements for the supply of the plants will be finalised early in 1959. Purchase of ice is one of the main unavoidable overhead expenses in the transport of fish and the integration of ice production into the Cooperative Organization will result in considerable savings to both fishermen and consumers.

Research

Following the recruitment of Research Staff in late 1957, 1958 has seen the development of the Research Section into a well-equipped unit with a planned programme of work and some valuable determinations have already been made.

The three main lines of investigation have been in

- (1) Cockle culture
- (2) Freshwater fisheries
- (3) Research into the Rastrelliger (kembong) fisheries.

Cockle Culture - Investigations into many aspects of cockle culture and the factors affecting it have been made and are continuing. Quarterly sampling of the cockle beds at Batu Maung, Penang, during 1957-1958 has illustrated the growth rates of cockles during this period. If the samples at each quarter are sorted according to size and the largest group in each quarter taken as representative of the group then the rate of growth is as follows:-

<u>1957</u>			<u>1958</u>			
<u>April</u>	<u>July</u>	<u>October</u>	<u>January</u>	<u>April</u>	<u>July</u>	<u>October</u>
18 mm.	21 mm.	24 mm.	27 mm.	29 mm.	30 mm.	31 mm.

It may be seen that growth is rapid in the early stages but slows down considerably with age. Reliable growth data is available only for the first year after sowing on culture beds as the larger, quicker growing cockles are removed from the population and this will tend to give an erroneous picture of growth rate, over-emphasising the decrease in rate of growth in later stages.

Preliminary investigations into the effect of density of sowing or the growth rate indicate, as might be expected, that the rate of growth is inversely proportional to the density. In cockle culture as in all other forms of cultivation of living creatures the difficulty is to determine at what density the greatest yield per unit of cultivation is obtained.

Examination of gonad development and examination of regular plankton hauls reveals that in 1958 larval cockles appeared during the 1st week of August and this was followed by the maximum fall of larvae in September after which the numbers diminished until by the beginning of November it had fallen to a very low level. There is probably a second but negligible spawning in December.

Detailed salinity determinations have been carried out in certain areas but no conclusions have as yet been drawn on the effect of salinity on the cockles.

It has been known for some time that skates and the mollusc *Natica maculosa* (Siput Bintang) cause great damage to cockle beds as they feed on the cockles. During 1958 yet another predator has been discovered in the mollusc *Thais carinifera* which has caused considerable damage to the new cockle beds at Batu Maung and Pulau Aman.

There is great demand in Penang for permission to establish cockle beds on the foreshore at certain places but the possibility of pollution is obvious in otherwise suitable areas and a preliminary survey prior to recommendation of new sites has been carried out with the help of the Chemistry Department, Penang.

The release of drift bottles to determine surface currents which distribute cockle larvae have been continued but it is as yet too early to draw conclusions from the experiments. More than 1,000 bottles have so far been released of which 300 have been returned, a very fair return in experiments of this nature.

Observations on the culture beds indicate that the owners of the beds have, on the whole, little idea of the necessity to preserve a stock of adult breeding cockles in order to ensure adequate spatfalls to replenish the beds. In too few cases are mature cockles left on the beds and it may be necessary for the well-being of the industry to introduce legislation to conserve the stocks for the benefit of the culturists and the public.

A paper "Some Aspects of Cockle Culture in Malaya" was presented at the 8th Session of the Indo-Pacific Fisheries Council, in 1958.

Freshwater Fisheries Research

In connection with the work of the Fisheries Department in stocking old mining pools with fish for the benefit

of the rural population, experiments on the use of chemicals to kill off all predators from the mining pools prior to stocking them were carried out at the Research Station and in the field. Comparative work on the effectiveness of various chemicals, both natural and synthetic, were carried out and eventually it was determined that the most suitable is Endrex which was then tried in the field in concentrations which had been determined as optimum in the laboratory. The use of Endrex has been an outstanding success and it has been applied to numerous mining pools and fish ponds throughout the Federation. Operations involving its use must be carefully controlled, however, as its accidental release into established fish ponds will destroy all the fish there and too little is as yet known about its toxicity to humans and animals at high concentrations to permit of its indiscriminate application by untrained persons.

A paper on the use of Endrin as a piscicide was presented at the 8th Session of the Indo-Pacific Fisheries Conference in December 1958.

A limnological study of mining pools was carried out in the Batu Gajah Area of Perak in which the Research Staff took part.

A study of the fish fauna in mining pools has been made by collecting the fish killed by the application of Endrex. The following species have so far been recorded:

1. *Cyclocheilichthys opogon* (C & V)
2. *Osteochilus hasselti* (C & V)
3. *Hempala macrolepidota* (Van Hasselt)
4. *Puntius binotatus* (C & V)
5. *Rasbora* spp.
6. *Trichogaster trichopterus* (Pallas)
7. *Oxygaster* sp.
8. *Notopterus notopterus* (Pallas)
9. *Puntius hexazona* (Weber & Beaufert)
10. *Puntius partipentazona* (Fowler)
11. *Oxygaster oxygastroides* (Bleeker)
12. *Trichogaster pectoralis* (Regan)
13. *Macrobrachium carinus* (freshwater prawn)
14. *Rasbora trilineata* (Steindachner)
15. *Cryptopterus* sp.
16. *Anabas testudineus* (Bloch)

Of these, the most common were *Cyclocheilichthys opogon* (C & V) and *Osteochilus hasselti* (C & V).

A study has also been made of the aquatic plants and algae in mining pools and other waters and a considerable list is being compiled.

Experiments in the use of Sodium Amytal as a sedative for fish being transported for stocking purposes were carried out and it was determined that the respiratory movements of the fish could be slowed down effectively, and the fish thus prevented from damaging itself by thrashing about, for a period of four to six hours. Further work on this line of research is continuing.

Research on *Rastrelliger* (Kembong)

A preliminary survey to study the conditions under which investigations into the Kembong fishery will have to be made was carried out and the initial plans revised as a result. The investigations are to be made as part of a United Nations plan to determine the factors which govern the productivity of the important mackerel fisheries of the Indo-Pacific area.

-----/15

Trial sampling has been carried out and specimens despatched to India for comparative work. Plankton sampling stations were also established for day and night sampling and it was determined that horizontal net hauls yielded greater returns than either pumping or vertical hauls although horizontal hauls would not be practicable where it was necessary to collect samples at various depths in deep water.

With the help of the Marine Department sea water samples have been collected daily from three stations, Pulau Angsa, Pulau Rimau and Muka Head and the variation in salinity determined from April - December 1958. These salinity determinations are being continued and the results will eventually outline the annual salinity pattern of the Straits of Malacca from Angsa Bank to Muka Head. As work had already been done for the stretch from Singapore to Angsa Bank, the above research will complete the picture of the annual salinity pattern for the whole of the Straits of Malacca. Analysis of water samples to determine phosphate content has also been carried out as a means of estimating the fertility of the water.

Training in 1958

Two Fisheries Assistants in the Freshwater Section were sent to India in April, for a 10 months course on Freshwater extension work, under the Colombo Plan Aid.

Two officers in the Research Branch attended a UNESCO course on the use of Radio-Isotopes in Japan from 23rd August - 19th September, under the auspices of UNESCO.

All three Research Officers attended a course at the "International Training Centre on the Methodology & Techniques of Research on Mackerel (Rastrelliger)" held at Bangkok from 20th October to 28th November, under the auspices of F.A.O.

Four Fisheries Assistants attended a short course on Cooperation for Officers in Departments serving the Rural Population at the Cooperative College of Malaya, Kuala Lumpur in March.

A Principal-Designate for the Marine Fisheries School was selected and left for a course of training in all aspects of fisheries works in Canada under Colombo Plan Aid.

One Fisheries Assistant completed a six months' training course in Canada in Co-operative Development and Administration, under the Colombo Plan Aid.

General Interest

The Director of Fisheries and the Ag. Fisheries Officer, North East Malaya, attended the 8th Session of the Indo-Pacific Fisheries Council at Colombo in December 1958 at which two papers from the Fisheries Department were submitted: "Some Aspects of Cockle (*Anadara granosa* L.) Culture in Malaya" and "The Use of Endrin as a Piscicide in Mining Pools and Fish Ponds in Malaya".

A number of civics courses were participated in by officers of the Department throughout the year and the Marine Fisheries School and Research Station at Glugor have been visited by many groups of interested persons.

One Fisheries Officer (Research), Mr. Khoo Tiang Lim, was transferred to the Education Department and his place was taken by Mr. A.B.O. Merican, an Honours graduate in Botany from the University of Malaya.

Five new Fisheries Assistants were recruited during the year. The Department is badly understaffed in the more senior grades where three Fisheries Officer posts are at present filled by the Senior Fisheries Assistant and two Special Grade Fisheries Assistants in acting capacities.

Visitors

During the course of the year the Department received visits from the following:-

1. Mr. Sving Suwananontti of the Department of Fisheries, Bangkok on 2nd February 1958
2. Mr. Shaikh A. Jaleel, Asst. Director, Socio-Economics, Central Fisheries Department, Government of Pakistan on 2nd February 1958
3. Ceylon High Commissioner on 15th November 1958
4. Dr. D.S. Johnson, Department of Zoology, University of Malaya, and party on 17th December 1958
5. High Commissioner for Canada on 26th December 1958.

Financial Provision

The total cost to the Federation of Malaya for annual recurrent expenditure and personal emoluments of the Pan-Malayan Department of Fisheries was \$659,535.00. The amount voted for Fish Culture Research Institute at Malacca was \$8,500/- making a total of \$668,035.00. There was no State Expenditure. The revenue collected in respect of fishing, fishing gear and boats etc. was \$246,003.57. The revenue collected in respect of tax on export of salt fish was \$207,797.07.

The following Appendices are attached:-

- I. Monthly Landings (In Piculs) of Marine Fish in 1958 -
By State.
- II. Monthly Landings (In Piculs) of Marine Fish in 1958 -
By Gear Groups. (excluding Johore West)
- III. Monthly Landings (In Piculs) of Marine Fish in 1958 -
By Types of Fish. (excluding Johore West)
- IV. Total Landings (In Piculs) of Marine Fish in 1958 -
By State and Gears. (excluding Johore West)
- V. Total Landings (In Piculs) of Marine Fish in 1958 -
By State and Types of Fish. (excluding Johore West)
- VI. Monthly Average Market Retail Prices of Fresh Fish in 1958
- VII. Retail Market Values of Landings of Marine Fish in 1958.
(excluding Johore West)
- VIII. Statement of Imports and Exports of Fish and Marine
Products in 1958.
- IX. Statement of Fresh Fish Supplies - 1958.
- X. Fishermen - 1958 and Fishing Boats - 1958.
- XI. Fishing Gears - 1958.
- XII. Fishing Revenue - 1958.

FEDERATION OF MALAYA

APPENDIX I

MONTHLY LANDINGS (IN PICULS) OF MARINE FISH IN 1958 - BY STATE

State	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL	
													Piculs	Tons
Perlis	2,933	3,413	3,883	3,349	2,707	2,463	2,715	3,138	3,278	3,275	2,870	4,267	38,291	2,279
Kedah	8,408	8,685	7,181	4,369	3,526	4,258	4,809	3,014	3,313	4,804	4,117	7,905	64,389	3,833
Penang including P.Wellesley	10,630	11,391	11,557	14,811	11,553	14,246	10,495	8,962	8,323	8,356	8,967	7,842	127,133	7,568
Perak	47,524	44,837	49,002	74,716	51,904	61,478	54,496	62,859	46,135	51,984	37,543	44,290	626,768	37,307
Selangor	29,577	28,258	32,229	31,546	27,969	27,585	30,589	26,243	25,629	24,883	22,256	25,261	331,975	19,760
Negri Sembilan	764	578	631	919	775	471	550	389	424	503	601	451	7,056	420
Malacca	4,546	4,016	4,089	5,481	6,374	7,118	7,178	5,258	3,555	7,290	3,753	3,850	62,508	3,721
Kelantan	1,370	14,120	10,612	15,637	9,010	3,677	4,368	8,287	8,598	8,756	2,739	1,627	88,801	5,286
Trengganu	8,068	7,869	20,856	25,184	9,511	17,541	11,906	22,668	21,168	17,797	6,279	12,460	181,307	10,792
Pahang	3,921	6,035	10,079	9,204	12,029	11,382	15,302	16,880	19,063	17,336	5,358	8,573	135,162	8,045
Johore	8,287	8,880	12,192	14,058	21,197	24,913	26,835	25,300	29,227	28,510	12,351	8,218	219,968	13,093
Total-Piculs	126,028	138,082	162,311	199,274	156,555	175,132	169,243	182,998	168,713	173,444	106,834	124,744	1,883,358	#
" -Tons	7,502	8,219	9,661	11,861	9,319	10,425	10,074	10,893	10,042	10,324	6,359	7,425		112,104

Note: One ton = 16.8 piculs

FEDERATION OF MALAYA
MONTHLY LANDINGS (IN PICULS) OF MARINE FISH IN 1958 - BY GEAR GROUPS
(excluding Johore West)

APPENDIX II

Gear Group	January	February	March	April	May	June	July	August	September	October	November	December	TOTAL	
													Piculs = Tons	
Fishing Stakes (large)	23,684	20,457	19,907	16,783	13,506	16,876	18,515	19,309	20,529	21,954	13,909	18,819	224,248	13,348
Fishing Stakes (small)	11,002	9,487	8,708	7,072	7,214	11,228	12,143	11,104	12,165	10,068	7,951	8,705	116,847	6,955
Seine Nets	27,970	23,155	33,700	55,782	43,905	58,967	51,650	54,946	40,320	47,329	26,205	34,219	498,148	29,652
Drift/Drift Nets	16,946	20,161	26,137	28,798	26,255	19,590	20,873	22,176	22,522	25,605	12,108	11,470	252,641	15,038
Drift Nets	4,610	10,658	14,923	12,194	10,698	19,723	17,820	26,560	23,141	18,629	6,709	9,413	175,078	10,421
Push Nets	752	1,578	6,917	10,410	1,718	594	687	732	1,360	926	558	1,759	27,991	1,666
Bag Nets	7,478	11,851	12,403	13,543	11,689	12,430	15,232	13,087	12,171	12,411	10,324	9,849	142,468	8,480
Barrier Nets	407	499	394	351	478	540	524	468	468	513	450	659	5,751	342
Lines	8,748	10,614	11,419	12,966	13,087	13,704	13,354	14,250	13,731	14,605	10,470	11,823	148,771	8,855
Traps & Pots	4,081	7,401	5,645	11,097	6,237	4,114	3,908	4,717	4,536	4,720	4,046	3,512	64,014	3,810
Shellfish Collection	12,826	14,260	15,411	23,073	14,070	10,425	7,385	8,567	8,522	8,132	8,706	9,032	140,409	8,359
Miscellaneous	759	821	955	860	718	691	737	697	738	792	893	899	9,560	569
Total - Piculs	119,263	130,942	156,519	192,929	149,575	168,882	162,828	176,613	160,203	165,684	102,329	120,159	1,805,926	107,495
* " Johore West	6,765	7,140	5,792	6,345	6,980	6,250	6,415	6,385	8,510	7,760	4,505	4,585	77,432	4,609
Grand Total-Piculs	126,028	138,082	162,311	199,274	156,555	175,132	169,243	182,998	168,713	173,444	106,834	124,744	1,883,358	
" " -Tons	7,502	8,219	9,661	11,861	9,319	10,424	10,074	10,893	10,042	10,324	6,359	7,425		112,104

Note: One ton = 16.8 piculs.

*Breakdown figures of landings in Johore West are not available.

MONTHLY LANDINGS (IN PICULS) OF MARINE FISH IN 1958

BY TYPES OF FISH

APPENDIX V (contd.)

(excluding West Johore)

Types of Fish		January	February	March	April	May	June	July	August	September	October	November	December	TOTAL	
Local Name	English Name													Piculs	= Tons
Alu2	Barracuda	201	-	570	513	417	600	900	1,593	2,616	4,054	-	-	11,464	682
Aya	Bonito	851	810	1,363	1,474	1,742	1,816	1,505	1,949	3,410	2,352	726	965	18,963	1,129
Bawal	Pomfret	1,469	1,588	2,290	2,596	1,718	2,282	1,678	1,596	1,706	1,624	1,454	1,414	21,415	1,275
Belanak	Mullet	309	170	-	-	-	-	-	-	-	24	30	27	560	33
Bilis	Anchovy	3,270	3,353	4,897	6,381	3,538	6,375	6,030	8,529	10,838	7,569	3,098	2,624	66,502	3,962
Chincharu	Trevally	1,954	1,795	2,677	3,767	3,520	2,631	2,474	1,806	4,749	2,995	3,171	1,903	33,442	1,989
Demudok	Horse Mackerel	459	-	-	177	321	165	223	215	573	427	82	18	2,720	162
Duri	Sea Catfish	320	126	283	522	731	250	1,028	973	300	468	292	340	5,633	335
Gelama	Jewfish	3,470	2,579	2,088	2,297	1,401	1,923	1,670	2,291	3,257	3,499	1,514	1,297	27,286	1,624
Jenahak	Snapper	205	90	370	656	457	312	300	304	266	359	240	198	3,757	224
Kachi	Sweetlip	208	285	508	845	409	352	370	449	557	404	822	545	5,794	344
Kembong	Chub Mackerel	13,135	7,552	11,558	32,852	25,710	39,461	28,072	29,397	11,274	22,689	8,514	17,087	247,301	14,720
Kerapu	Grouper	453	789	1,239	1,160	618	711	784	980	926	804	1,042	765	10,271	611
Keresi	Threadfin Bream	160	467	863	2,203	687	919	904	839	860	1,158	858	1,276	11,214	667
Kikek	Ponyfish	856	-	52	150	146	380	1,074	701	863	1,269	-	-	5,491	327
Kurau	Threadfin	1,210	1,115	936	1,275	1,367	869	751	662	824	908	728	934	11,579	690
Merah	Red Snapper	4,449	7,446	5,844	8,554	5,549	4,074	3,864	4,273	4,662	5,276	4,141	3,519	61,651	3,670
Parang2	Dorab	5,788	5,941	8,779	10,614	8,545	6,047	7,920	6,037	6,037	6,516	2,683	3,194	78,101	4,649
Pari, Yu	Ray, Shark	1,241	631	568	476	511	620	644	1,036	982	1,277	1,154	1,056	10,216	608
Pelata	Scad	1,872	1,646	1,762	924	1,361	776	658	766	979	1,202	814	1,453	14,213	846
Selar	Scad	1,056	3,638	5,719	5,343	3,816	7,382	10,685	9,982	12,813	11,755	3,927	2,153	78,269	4,659
Selayang	Scad	1,035	471	333	1,478	1,226	5,152	1,299	11,377	5,399	2,718	583	1,326	32,347	1,925
Tamban	Sardine	4,807	8,164	8,799	5,587	5,267	3,457	5,152	8,315	8,951	7,980	2,859	5,363	74,741	4,448
Tenggiri	Spanish Mackerel	9,490	9,890	13,061	13,354	10,862	10,592	10,161	9,532	8,320	8,883	5,496	6,799	116,440	6,931
Timah	Ribbon Fish	656	-	752	-	-	38	31	-	-	-	-	619	2,096	125
Buat Baja	Manure Fish	21,670	23,118	23,176	22,877	19,746	26,411	29,234	27,949	26,268	23,743	21,873	23,849	289,893	17,255
Miscellaneous Fish		15,201	21,428	23,362	20,822	24,875	23,775	24,535	24,635	21,877	25,596	17,018	19,612	262,736	15,639
Udang	Prawns	5,890	9,524	9,458	10,338	6,907	7,367	7,831	7,711	8,002	7,948	6,777	7,816	95,609	5,691
Udang	Haring Shrimp	3,627	3,089	8,598	11,551	3,042	2,836	4,759	3,000	3,466	3,100	2,723	3,949	53,744	3,199
Sotong	Squid	43	36	58	5	69	-	-	112	-	-	-	-	323	19
Ketam	Crabs	1,082	941	1,145	1,065	947	884	907	884	906	955	1,004	1,026	11,746	699
Kerang	Shellfish	12,826	14,260	15,411	23,073	14,070	10,425	7,385	8,567	8,522	8,132	8,706	9,032	140,409	8,358
Total - Piculs		119,263	130,942	156,519	192,929	149,575	168,882	162,828	176,613	160,203	165,684	102,329	120,159	1,805,926	= 107,495
* " West Johore		6,765	7,140	5,792	6,345	6,980	6,250	6,415	6,345	8,510	7,760	,505	4,585	77,432	= 4,609
Grand Total - Piculs		126,028	138,082	162,311	199,274	156,555	175,132	169,243	182,958	168,713	173,444	106,834	124,744	1,883,358	
" " - Tons		7,502	8,219	9,661	11,861	9,319	10,425	10,074	10,845	10,042	10,324	6,359	7,425		= 112,104

Note: 1 ton = 16.8 piculs.

* Bawah Johore

FEDERATION OF MALAYA
TOTAL LANDINGS (IN PICULS) OF MARINE FISH IN 1958 - BY STATE AND GEARS
(excluding Johore West)

14
APPENDIX III

Gears	Perlis	Kedah	Penang & Province Wellesley	Perak	Selangor	Negri Sembilan	Malacca	Kelantan	Trengganu	Pahang	Johore (East) *	Total		
												Piculs	≠	Tons
Fishing Stakes (large)	20,583	22,122	5,776	59,608	57,020	2,090	5,687	-	649	26,568	24,145	224,248		13,348
Fishing Stakes (small)	5,775	2,242	7,136	35,744	48,393	29	4,959	-	4	7,930	4,635	116,847		6,955
Seine Nets	5,431	34,775	26,166	329,304	9,085	1,614	192	10,137	32,520	25,460	23,464	498,148		29,652
Gill/Drift Nets	1,878	456	9,793	13,755	120,469	1,331	41,436	29,694	16,002	12,812	5,015	252,641		15,038
Lift Nets	1,238	2,391	627	1,006	-	5	-	26,813	61,140	21,524	60,334	175,078		10,421
Push Nets	-	-	1,460	3,131	4,030	-	1,069	405	17,896	-	-	27,991		1,666
Bag Nets	-	1,311	12,940	77,286	48,753	-	2,178	-	-	-	-	142,468		8,480
Barrier Nets	-	-	1,011	775	2,383	555	348	-	19	-	660	5,751		342
Lines	1,764	1,092	13,881	14,659	19,261	1,179	6,632	8,894	34,400	26,926	20,083	148,771		8,855
Traps & Pots	1,622	-	8,825	1,872	1,961	209	7	12,827	18,549	13,942	4,200	64,014		3,810
Shellfish Collection	-	-	38,469	86,370	15,570	-	-	-	-	-	-	140,409		8,359
Miscellaneous	-	-	1,049	3,258	5,050	44	-	31	128	-	-	9,560		569
Total - Piculs	38,291	64,389	127,133	626,768	331,975	7,056	62,508	88,801	181,307	135,162	142,536	1,805,926 =		
" - Tons	2,279	3,833	7,568	37,307	19,760	420	3,721	5,286	10,792	8,045	8,484	107,495		

Note: One ton = 16.8 piculs.

*Breakdown figures of landings in Johore West totalling 77,432 piculs (4,609 tons) in 1958 are not available.

TOTAL LANDINGS (IN PICULS) OF MARINE FISH IN 1958
BY STATE AND TYPES OF FISH
(excluding Johore-West)

APPENDIX IV (contd.)

Types of Fish		Perlis	Kedah	Penang including Province Wellesley	Perak	Selangor	Negri Sembilan	Malacca	Kelantan	Trengganu	Pahang	Johore (East) *	TOTAL	
Local Name	English Name												Piculs	Tons
Alu2	Barracuda	-	201	-	-	-	-	-	-	278	-	10,985	11,464	682
Aya	Bonito	6	-	-	2,341	-	-	-	1,181	10,315	-	5,120	18,963	1,129
Bawal	Pomfret	2,815	1,899	3,987	4,290	4,400	43	402	1,133	1,613	833	-	21,415	1,274
Belanak	Mullet	-	-	420	25	57	-	-	38	20	-	-	560	34
Bilis	Anchovy	-	25	-	26,065	4,610	309	-	3,810	13,341	17,392	950	66,502	3,958
Chincharu	Trevally	-	2,007	1,068	16,044	6,440	503	4,016	-	794	-	2,570	33,442	1,991
Demudok	Horse Mackerel	-	459	-	-	-	-	-	526	1,475	-	260	2,720	162
Duri	Sea Catfish	-	5	-	1,560	-	-	-	237	2,111	-	1,720	5,633	335
Gelama	Jewfish	1,033	11	10,509	3,423	1,896	-	478	2,903	7,033	-	-	27,286	1,624
Jenahak	Snapper	-	-	2,576	205	18	-	-	430	528	-	-	3,757	224
Kachi	Sweetlip	-	-	-	-	-	-	-	561	417	4,791	25	5,794	345
Kembong	Chub Mackerel	2,739	6,059	-	198,876	-	-	-	8,617	16,829	3,723	10,458	247,301	14,720
Kerapu	Grouper	-	-	-	130	140	-	-	464	2,557	6,848	132	10,271	611
Keresi	Threadfin Bream	-	-	-	-	-	-	-	184	6,409	4,379	242	11,214	667
Kikek	Ponyfish	465	370	-	21	-	-	-	694	3,941	-	-	5,491	327
Kurau	Threadfin	108	33	1,071	1,153	6,823	-	549	754	54	-	1,034	11,579	689
Merah	Red Snapper	1,168	20	12,310	6,521	7,090	538	-	10,410	11,567	6,611	5,416	61,651	3,670
Parang	Dorab	1,650	306	1,100	2,085	50,674	666	14,229	116	444	5,667	1,164	78,101	4,649
Pari & Yu	Ray, Shark	238	599	225	3,087	4,974	-	-	34	434	-	625	10,216	608
Pelata	Scad	4,143	7,317	1,250	-	580	-	-	442	481	-	-	14,213	846
Selayang	Scad	-	-	-	-	-	-	-	-	27,967	-	4,380	32,347	1,925
Selar	Scad	-	217	-	-	-	-	-	11,857	10,909	8,330	46,956	78,269	4,659
Tamban	Sardine	-	3,902	-	26	622	-	-	32,717	16,894	15,760	4,820	74,741	4,449
Tenggiri	Spanish Mackerel	3,190	1,017	632	233	56,819	588	19,827	3,281	10,799	7,640	12,414	116,440	6,931
Timah	Ribbon fish	-	433	-	202	-	-	-	624	837	-	-	2,096	125
Buat Baja	Manure fish	6,063	7,206	22,321	138,383	106,358	682	8,627	-	253	-	-	289,893	17,256
Miscellaneous Fish		12,353	28,913	27,224	53,510	20,136	3,421	10,299	6,218	14,547	53,188	32,927	262,736	15,639
Udang	Prawns	2,320	3,276	626	74,354	11,428	262	1,743	1,144	118	-	338	95,609	5,691
Udang Baring	Shrimp	-	-	1,460	3,131	28,290	-	2,338	426	18,099	-	-	53,744	3,199
Sotong	Squid	-	102	-	-	-	-	-	-	221	-	-	325	19
Ketam	Crabs	-	12	1,885	4,733	5,050	44	-	-	22	-	-	11,746	699
Kerang	Shellfish	-	-	38,469	86,370	15,570	-	-	-	-	-	-	140,409	8,358
Total - Piculs		38,291	64,389	127,133	626,768	331,975	7,056	62,508	88,801	181,307	135,162	142,536	1,805,926	
" - Tons		2,279	3,833	7,568	37,307	19,760	420	3,721	5,286	10,792	8,045	8,484	= 107,495	

Note: One ton = 16.8 piculs.

*Breakdown figures of landings in West Johore totalling
77,432 piculs (4,609 tons) in 1958 are not available.

FEDERATION OF MALAYA
MONTHLY AVERAGE WHOLESALE RETAIL PRICES OF FRESH FISH IN 1958
 (Price per katty)

APPENDIX VIII

Type of Fish	January	February	March	April	May	June	July	August	September	October	November	December	Average 1958
Bawal Putih	\$2.17	\$2.16	\$2.12	\$2.15	\$2.07	\$2.04	\$1.99	\$2.02	\$2.05	\$2.02	\$2.00	\$2.05	\$2.07
" Hitam	1.54	1.53	1.41	1.38	1.39	1.36	1.36	1.33	1.37	1.38	1.39	1.38	1.40
Kurau (cut)	2.82	2.80	2.67	2.43	2.36	2.41	2.54	2.50	2.58	2.60	2.60	2.63	2.58
Senangin	1.82	2.06	2.00	1.88	1.86	1.86	1.87	1.86	1.84	1.89	1.86	1.83	1.88
Tenggiri	1.50	1.39	1.31	1.18	1.16	1.15	1.17	1.17	1.21	1.29	1.33	1.36	1.27
Parang	1.26	1.17	1.12	1.08	1.06	1.05	1.07	-.82	1.15	1.17	1.19	1.23	1.11
Merah (cut)	-.98	-.96	1.05	1.00	1.04	1.06	1.09	1.07	1.09	1.09	1.07	1.12	1.05
Chincharu	-.87	-.85	-.78	-.74	-.68	-.75	-.74	-.75	-.72	-.69	-.69	-.75	-.75
Kembong	-.58	-.56	-.54	-.52	-.45	-.46	-.47	-.47	-.51	-.50	-.58	-.55	-.51
Bilis	-.56	-.49	-.49	-.47	-.49	-.41	-.54	-.51	-.53	-.51	-.61	-.52	-.51
Gelama	-.49	-.46	-.42	-.36	-.39	-.36	-.35	-.34	-.35	-.38	-.39	-.39	-.39
Tamban	-.41	-.37	-.35	-.34	-.30	-.28	-.33	-.31	-.31	-.32	-.38	-.37	-.34
Yu (cut)	-.53	-.54	-.51	-.48	-.42	-.40	-.39	-.39	-.38	-.38	-.40	-.42	-.44
Pari (cut)	-.44	-.43	-.40	-.40	-.37	-.36	-.30	-.41	-.38	-.38	-.39	-.40	-.39
Udang - big	2.42	2.45	2.24	2.36	2.43	2.22	2.20	2.24	2.33	2.28	2.28	2.31	2.31
Buat baja	-.20	-.16	-.16	-.14	-.14	-.13	-.15	-.15	-.15	-.15	-.16	-.16	-.15

Note: Average prices for Penang, Kuala Lumpur and Singapore markets.

FEDERATION OF MALAYA
RETAIL MARKET VALUES OF LANDINGS OF MARINE FISH IN 1958
(excluding Johore West)

APPENDIX VII

STATE	GRADE I		GRADE II		GRADE III		MANURE FISH		COCKLES ETC.		T O T A L	
	Piculs	\$	Piculs	\$	Piculs	\$	Piculs	\$	Piculs	\$	Piculs	\$
Perlis	8,931	1,446,822	6,463	484,725	16,834	723,862	6,063	90,945	-	-	38,291	2,746,354
Kedah	3,476	563,112	13,390	1,004,250	40,317	1,733,631	7,206	108,090	-	-	64,389	3,409,083
Penang including P.Wellesley	21,676	3,511,512	4,829	362,175	39,838	1,713,034	22,321	334,815	38,469	384,690	127,133	6,306,226
Perak	14,617	2,367,954	95,131	7,134,825	292,267	12,567,481	138,383	2,075,745	86,370	863,700	626,768	25,009,705
Selangor	125,964	20,406,168	23,498	1,762,350	60,585	2,605,155	106,358	1,595,370	15,570	155,700	331,975	26,524,743
Negri Sembilan	1,835	297,270	809	60,675	3,730	160,390	682	10,230	-	-	7,056	528,565
Malacca	35,007	5,671,134	5,759	431,925	13,115	563,945	8,627	129,405	-	-	62,508	6,796,409
Kelantan	16,588	2,687,256	14,530	1,089,750	57,683	2,480,369	-	-	-	-	88,801	6,257,375
Trengganu	27,840	4,510,080	14,437	1,082,775	138,777	5,967,411	253	3,795	-	-	181,307	11,564,061
Pahang	27,599	4,471,038	13,121	984,075	94,442	4,061,006	-	-	-	-	135,162	9,516,119
Johore (East)	31,145	5,045,490	50,149	3,761,175	61,242	2,633,406	-	-	-	-	142,536	11,440,071
TOTAL	314,678	50,977,836	242,116	18,158,700	818,830	35,209,690	289,893	4,348,395	140,409	1,404,090	1,805,926	110,098,711

Note: (1) Grade I includes alu-alu, bawal, jenahak, kurau/senangin, merah, parang, tenggiri.

Grade II includes demudok, kachi, pelata, selar, udang, ketam, sotong.

Grade III includes aya, belanak, bilis, duri, gelama, kembong, keresi, kikek, pari, yu, selayang, tamban, timah and miscellaneous.

(2) Grade I price of \$1.62 per katty is calculated from the average prices of bawal, kurau/senangin, tenggiri, parang and merah.

Grade II price of 75 cents per katty is the average price of chincharu.

Grade III price of 43 cents per katty is calculated from the average prices of kembong, bilis, gelama, tamban, yu and pari.

Manure Fish - price 15 cents per katty.

Cockles etc. - price 10 cents per katty.

FEDERATION OF MALAYA

APPENDIX VII/

STATEMENT OF IMPORTS AND EXPORTS OF FISH AND MARINE PRODUCTS IN 1958

Fish and Marine Products	IMPORTS		EXPORTS	
	Tons	\$	Tons	\$
Fish: Fresh, Chilled or Frozen				
Singapore	1,761.68	1,615,842	15,825.72	8,373,588
Foreign	3,659.25	2,639,386	28.93	12,294
TOTAL	5,420.93	4,255,228	15,854.65	8,385,882
Fish: Dried & Salted but not further Preserved				
Singapore	2,388.87	2,720,519	3,371.45	2,437,079
Foreign	1,434.47	902,995	109.31	101,048
TOTAL	3,823.34	3,623,514	3,480.76	2,538,127
Crustacea: Fresh, Chilled or Frozen (including Prawns, crabs & lobsters)				
Singapore	2.24	5,343	985.69	780,698
Foreign	1,247.61	531,556	0.10	143
TOTAL	1,249.85	536,899	985.79	780,841
Crustacea: Salted, Dried or Simply Cooked (including Dried Prawns)				
Singapore	61.46	104,258	357.67	673,168
Foreign	1,008.10	1,937,501	2.14	4,566
TOTAL	1,069.56	2,041,759	359.81	677,734
Molluscs: Fresh, Chilled or Frozen (including Krang, Siput Rantai, Sotong etc.)				
Singapore	15.23	24,821	2,823.16	469,480
Foreign	34.07	20,204	0.39	104
TOTAL	49.30	45,025	2,823.55	469,584
Molluscs: Salted, Dried or Simply Cooked (including Dried Sotong, Abalone, Mussels & Oysters)				
Singapore	1,005.58	1,474,579	15.49	25,421
Foreign	1,079.78	1,606,011	47.57	60,838
TOTAL	2,085.36	3,080,590	63.06	86,259
Fish: Smoked but not further preserved				
Singapore	3.65	14,466	Nil	Nil
Foreign	0.55	986	Nil	Nil
TOTAL	4.20	15,452	Nil	Nil

APPENDIX LX

[illegible]

FEDERATION OF MALAYA

APPENDIX X

FISHERMEN - 1958

Race	Perlis	Kedah	Penang including P.Wellesley	Perak	Selangor	Negri Sembilan	Malacca	Kelantan	Trengganu	Pahang	Johore	TOTAL
Malay	1,000	1,613	2,149	1,713	648	302	984	6,355	13,685	2,466	2,993	33,908
Chinese	70	348	2,218	5,973	4,131	297	1,051	3	9	163	2,847	17,110
Indian	-	28	129	230	13	10	-	-	-	-	1	411
Siamese	-	-	-	-	-	-	-	5	10	-	-	15
Others	100	5	22	6	-	-	39	-	-	-	-	172
TOTAL	1,170	1,994	4,518	7,922	4,792	609	2,074	6,363	13,704	2,629	5,841	51,616

FEDERATION OF MALAYA

FISHING BOATS - 1958

Types of Boat	Perlis	Kedah	Penang including P.Wellesley	Perak	Selangor	Negri Sembilan	Malacca	Kelantan	Trengganu	Pahang	Johore	TOTAL
Outboard	12	255	834	1,358	786	80	83	-	268	183	1,153	5,012
Inboard	36	71	96	244	450	-	236	191	732	58	170	2,284
Non-powered	182	1,611	1,261	1,610	997	168	438	2,600	4,302	399	4,181	17,749
TOTAL	230	1,937	2,191	3,212	2,233	248	757	2,791	5,302	640	5,504	25,045

FEDERATION OF MALAYA

FISHING GEARS - 1958

APPENDIX XI

Gears	Perlis	Kedah	Penang including P. Wellesley	Perak	Selangor	Negri Sembilan	Malacca	Kelantan	Trengganu	Pahang	Johore	TOTAL
Fishing Stakes (large)	-	6	33	122	125	5	25	-	2	58	504	880
Fishing Stakes (small)	9	114	305	320	280	7	51	-	4	21	431	1,542
Seine Nets	6	199	210	565	43	29	18	178	542	56	147	1,993
Gill/Drift Nets	17	90	347	433	1,076	47	375	742	632	80	801	4,640
Lift Nets	-	63	32	72	1	1	-	143	236	32	58	638
Push Nets	-	79	108	82	46	-	1	401	352	-	45	1,114
Bag Nets	-	127	286	1,063	137	-	69	-	-	-	816	2,498
Barrier Nets	-	-	2	14	31	6	13	-	-	-	211	277
Lines	81	148	624	717	558	94	412	763	1,294	483	287	5,461
Traps & Pots	-	34	110	44	27	13	1	33	122	26	198	608
Shellfish Collection	-	-	83	301	-	-	-	-	-	-	50	434
Miscellaneous	-	34	31	122	135	11	-	713	165	-	-	1,211
TOTAL	113	894	2,171	3,855	2,459	213	965	2,973	3,349	756	3,548	21,296

FEDERATION OF MALAYA
FISHING REVENUE - 1958

APPENDIX XIII

STATE	STATE REVENUE					FEDERAL REVENUE			
	Boat	Fishing	Turtle Eggs	Miscellaneous	TOTAL	Fisheries sales (Fish & No. Board)	Hire of Launches	Miscellaneous	TOTAL
	\$	\$	\$	\$	\$	\$	\$	\$	\$
Perlis	783.50	182.00	-	-	965.50	-	-	-	-
Kedah	16,931.78	10,618.50	-	-	27,550.28	41.00	-	-	41.00
Penang including Province Wellesley	3,984.00	12,553.00	-	-	16,537.00	123.44	93.18	25.92	242.54
Perak	7,262.00	25,252.00	-	-	32,514.00	120.00	-	-	120.00
Selangor	4,728.00	11,670.00	-	-	16,398.00	156.95	-	-	156.95
Negri Sembilan	346.00	685.00	-	20.00	1,051.00	16.00	-	-	16.00
Malacca	1,664.50	3,400.00	-	82.00	5,146.50	24.00	-	-	24.00
Kelantan	6,953.50	-	1,750.70	-	8,704.20	-	-	-	-
Trengganu	12,582.57	1,339.00	70,450.40	40.00	84,411.97	-	149.13	11.00	160.13
Pahang	1,246.50	5,267.00	-	-	6,513.50	-	-	-	-
Johore	7,506.50	37,944.50	-	-	45,451.00	-	-	-	-
TOTAL	63,988.85	108,911.00	72,201.10	142.00	245,242.95	481.39	242.31	36.92	760.62