

GENERAL REVIEW

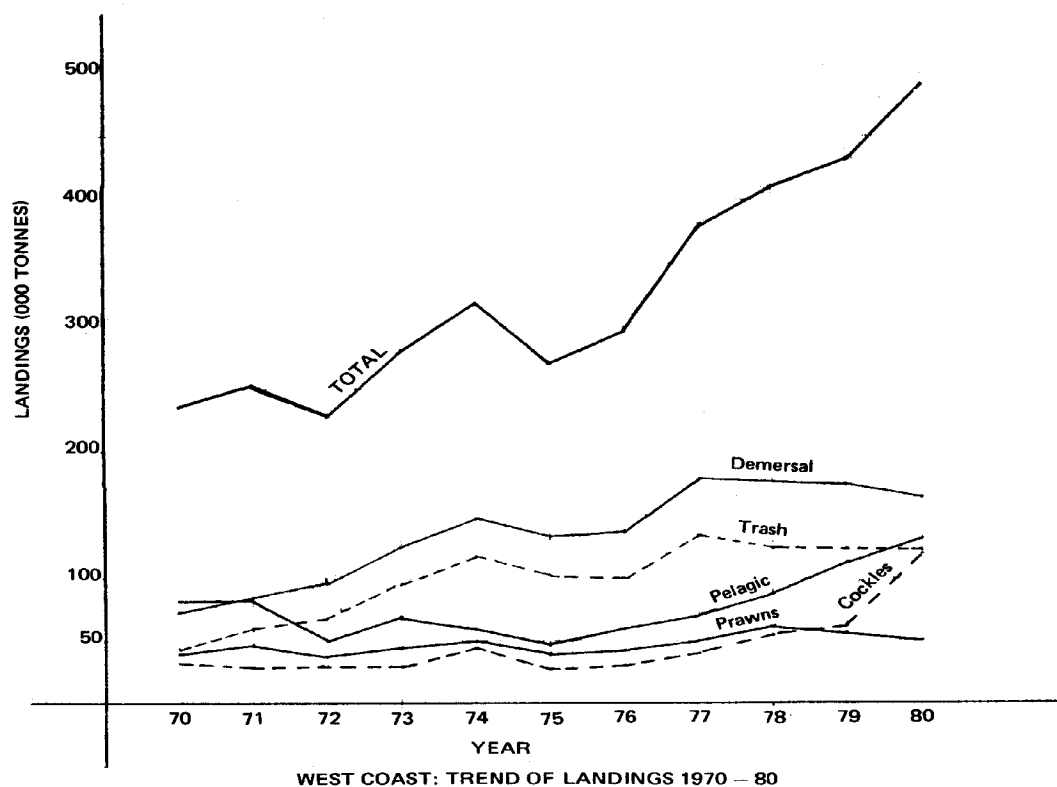
PENINSULAR MALAYSIA

Trend Analysis of Marine Fisheries Landings and Cultures

Marine fisheries landings through the 1970s to 1980 show the growth of Peninsular Malaysian coastal fisheries to have reached a level where any further expansion of the fisheries could lead to a disastrous outcome. Though the total landings are continuing to increase, a closer look at the landing data reveals a fishery that is beyond the point of optimum exploitation or, in short, has more or less surpassed the level of Maximum Sustainable Yield. As the level of exploitation of the fisheries on the West and East Coast are different they are therefore analysed separately.

West Coast

The West Coast Fisheries are dependent on the fish resources of the Malacca Straits. This stretch of water, though narrow, is reasonably abundant in fish resources easily accessible to fishermen throughout the year and has a long coastline which is bordered by good infrastructure and numerous urban markets. These combination of factors have contributed to the tremendous growth of the fishery here from the mid 60s to the present time. Both mechanization of the fishing industry as well as the advent of the trawler during this period expedited growth of the fisheries on the West Coast. From a total landings of 234,227 tonnes in 1970, landings have increased by 111% to 493,495 tonnes in 1980. However, when the total landings are analysed by type of fish resource the picture that emerges gives rise to serious concern to both fisheries planners and managers.



The demersal fish landings which has been increasing, given natural fluctuations, throughout the 1970s reached a peak in 1977, remained stable with almost zero growth in 1978, and for the last two years has been on the decline. Not only that, the trash fish component of demersal fish landings which on the average constituted about 73% of the total demersal fish landings during the 1970s, is also declining, though the decline is only marginal. What is also interesting is that the prawn landings have also begun to decline after 1978. Thus 1978 becomes an important year for both demersal fish and prawn landings as it was the year during which both these resources began to decline.

This trend is very disturbing because the trawl fishery, which is the most important fishery on the West Coast, relies almost exclusively on the demersal fish and prawn resources. Whereas in 1978 trawl landings accounted for 54% of total landings on the West Coast, in 1980 it only accounted for 29% of total landings.

Estimates of the Maximum Sustainable Yield (MSY) for demersal fish is estimated at 110,000 tonnes and the West Coast landings had already reached this level in 1972. Although there was some restraint in the number of new vessels entering the fishery since 1973, there was almost complete lack of control over other forms of fishing effort. The Malacca Straits is such that it is narrow, with low density of fish resources in the deeper parts, and bordered by the Indonesian coastline on the other side, and as such the scope for the expansion of the fishery is limited. In order to survive, the fishing fleet intensified its effort by going on longer trips and increasing its hauling time as the catch rates declined. This action almost doubled the fishing effort in this area. This was especially true of the trawl fishery. This resulted in increased landings though the bulk of it (about 73%) was trash fish. This increase in effort since 1973 definitely had a negative effect on the resources as expected and the decline during the last two years consecutively is an indication of over fishing. If no control is exercised to halt this trend the whole demersal fish resource based fisheries, especially the trawl fishery, may collapse in the near future.

The trawl fishery has been able to survive under these circumstances largely due to prawns. But even the MSY of prawns, estimated at 35,000 – 40,000 tonnes, had been surpassed in 1977. Though prawn landings have fluctuated slightly above 40,000 tonnes in the years preceeding 1977, they reached a peak in 1978 and during the last two years they have been declining. The chances are this trend is likely to continue in 1981 and this does not auger well for the trawl fishery which is the main stay of the West Coast fishery. In view of the deteriorating situation in the demersal fish and prawn landings, there has to be some serious action to halt this decline before any irreversible damage is done to the West Coast fisheries.

In the case of the pelagic resources, being a seasonal as well as migratory resource, their chances of being over-exploited is less likely. However this does not remove the fact that trends similar to the demersal landings are also evident in pelagic landings. The estimated MSY for pelagic fish on the West Coast is around 81,000 tonnes and this level was exceeded in 1967. But pelagic species by nature are migratory and therefore there have been continuous fluctuations below and above the estimated MSY level. For a period of five years, 1967 – 1971, pelagic landings have been either above or around the MSY level and thereafter declined for a period of six years (1972 – 1977). Pelagic landings again increased above the MSY level in 1978 and have continued to increase until 1980. If the past cycles are taken as a basis for estimation, then by all probability pelagic landings may continue to increase until 1982 and thereafter decline in 1983. Unlike demersal fish resources, fishing effort for pelagic fish resources is dependent on the seasons. If the season is good the number

of fishing units increase and vice-versa when the season is poor. Under such circumstances the possibility of over-exploitation appears remote. The fisheries presently benefiting from the good season for pelagic fish are the purse seines and the drift/gill nets.

The other major fishery on the West Coast is the cockle industry. Though this industry also fluctuates due to spatfall fluctuations, since 1976 cockle culture has been expanding gradually. However 1980 was a spectacular year because cockle production increased by a spectacular 91% over 1977 to 121,269 tonnes in 1980. This big increase is possibly due to the following factors:

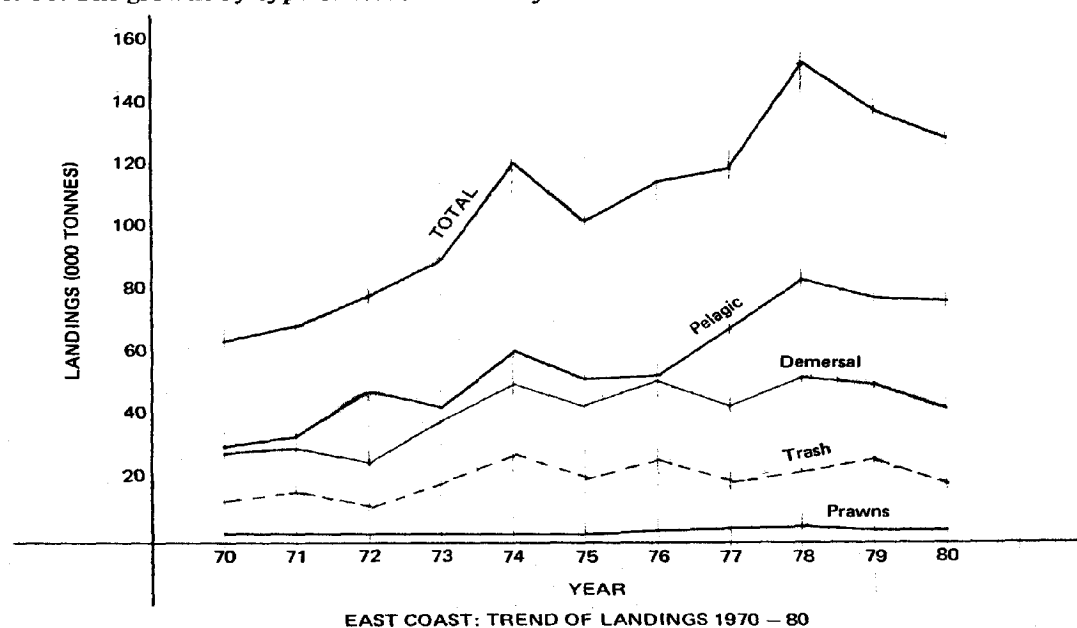
- (i) the good spatfall season in late 1979 and possibly in 1980;
- (ii) more acreage under cockle culture in 1979 and 1980
- (iii) under-reporting of production from illegal cockle beds in 1979

The trend in the cockle industry will sustain itself unless there is a poor spatfall in 1981 or in later years.

The other major crustaceans and molluscs fluctuate annually but there is no possibility of any dramatic changes in their landings. The present trend is likely to continue.

East Coast

Compared to the West Coast the fisheries on the East Coast is not as intensely fished as on the West Coast. Though there has been considerable growth in the fisheries here during the 1970s, the pace of development is much slower than the West Coast. Total landings on the East Coast have doubled itself by 101% from 64,777 tonnes in 1970 to 130,403 tonnes in 1980. The growth by type of resource is analysed below.



Demersal fish landings on the East Coast have fluctuated around 50,000 tonnes since 1974. However, in 1980 demersal landings declined to about 40,000 tonnes. The estimate of the MSY for demersal fish resource on the East Coast is about 95,000 – 100,000 tonnes and the 50,000 tonnes annual landings is far below the MSY estimate to indicate over-fishing. But one factor that has to be borne in mind is that, the quantum of catch taken by Thai trawlers on the East Coast has not been taken into consideration. If the Thai catch is taken into consideration then the present landings on the East Coast should be quite close to the lower MSY estimate of 95,000 tonnes. Though demersal landings have declined during 1979 and 1980, this trend is likely to change in 1981 but the possibility of demersal landings exceeding the 50,000 level is quite remote in the near future.

Prawns too declined in 1979 and 1980 after reaching a peak in 1978. The estimate of MSY for prawns is 5,000 – 6,000 tonnes per year, and the present landings between 3,500 – 4,000 tonnes annually, excluding those taken by Thai trawlers, indicate that the prawn resource is being exploited near its MSY level and the possibility of exceeding the MSY is minimal as prawns on the East Coast are seasonal in nature and the fishing intensity on prawns is low.

Looking at the situation of the demersal fish and prawn resources one can only arrive at a conclusion that the prospects of growth for fisheries based on these resources, i.e. trawl, is very bleak within the confines of the present fishing grounds near the coast. The prospects in the offshore waters is also slim. Though estimates of resources in the South China Sea by F.A.O. indicated ample resources there, the bulk of these resources are concentrated in the inshore waters of the East Coast which are already being fished extensively. Whatever resources that were available in the off-shore areas had been fished out by Taiwanese trawlers by the 1970s and their exit at the end of the 1970s was replaced by Thai trawlers which still fish there until the present time.

The regular encroachments by these Thai trawlers into the inshore areas indicate the scarce resources in the deeper areas. In fact recent attempts to fish in the offshore areas by local fishermen have more or less confirmed this fact. These facts coupled with some recent exploratory surveys indicate the prospects for expansion of the fishery beyond its present limits is not encouraging.

In the case of pelagic landings there have been fluctuations and this is quite natural as the pelagic species are not a resident resource. However, pelagic landings reached an all time peak in 1978 but during the last two years there has been a decline. However, preliminary data indicates that there will be a recovery in pelagic landings in 1981. As the MSY estimate is within 56,000 – 75,000 tonnes, there is a possibility the landings of pelagic fish in the next few years will be oscillating within the MSY level.

As for the minor crustaceans and molluscs their contribution is insignificant to affect the landing trends on the East Coast.

Landings of marine Fisheries and cultures – 1980

Total landings of marine fisheries and cultures in 1980 were 623,898 tonnes which is a 9% increase over 1979. The improved position in 1980 was chiefly due to the good season for pelagic fish and cockles on the West Coast in 1980. The performance of the other major

groups such as demersal fish and prawns was poor. Demersal fish landings declined by 8% in 1980, i.e. from 225,230 tonnes in 1979 to 208,459 tonnes in 1980, while prawns declined by 9% from 60,426 tonnes in 1979 to 54,741 tonnes in 1980. Among the minor groups, crabs declined by 9% from 3,851 tonnes in 1979 to 3,504 tonnes in 1980, while squids and cuttlefish landings declined by 24% from 15,868 tonnes in 1979 to 12,078 tonnes in 1980.

As mentioned earlier only pelagic fish and cockles had a good season in 1980. Pelagic fish landings went up by 9% from 193,035 tonnes in 1979 to 210,916 tonnes in 1980, while cockle production increased by a spectacular 91% from 63,412 tonnes in 1979 to 121,271 tonnes in 1980. Among the minor groups which showed increases in 1980 were sergestid shrimps which went up by 35% from 7,897 tonnes in 1979 to 10,621 tonnes in 1980, and other molluscs which increased by 79% from 1,186 tonnes in 1979 to 2121 tonnes in 1980.

West Coast Landings

West Coast Landings increased by 14% in 1980 from 432,347 tonnes in 1979 to 493,495 tonnes in 1980. The reason for this year's increase is the continued good season for pelagic fish and the spectacular increase in cockle production. Pelagic fish landings and cockles increased by 16% and 91% respectively in 1980. All other types of landings declined in 1980. Demersal fish landings declined by 5%, prawns by 10% and other minor crustaceans and molluscs by 2%. However these declines were not big enough to depress total landings of the West Coast in 1980.

The good season for pelagic fish was due to the continued abundance of most of the significant pelagic species such as selar scads, round scads, sardines, eastern little tuna and indian mackerels. The exceptions were anchovy, hardtail scads, goldbanded scads, pomfrets and spanish mackerels which declined in 1980. Despite this, the increases in the other significant species were sufficient to warrant the 16% increase in 1980 over 1979. This trend in pelagic landings has been going since it began in 1976, though the 1980 increase is far less than the 31% increase in 1979.

As result of the good season for pelagic fish, the purse seine and drift/gill net fisheries had another successful season this year. Purse seine and drift/gill net landings increased by 17% and 18% respectively in 1980 over 1979.

The cockle industry showed a spectacular increase in 1980. The 91% increase in production from 64,596 tonnes in 1979 to 123,391 tonnes in 1980 was largely due to a good spatfall in 1979 which resulted in more areas under culture in late last year, and also partly due to underreporting in earlier years. The improvement in the data collection system in 1980 included illegal cockle beds and this was a contributory factor for the big jump in cockle production in 1980.

Unlike pelagic fish and cockles, there were decreases in the other two major resources, namely demersal fish and prawns. Demersal fish landings declined in 1980 by 5% while prawns declined by 10%. In 1979 these two types also declined by 2% and 10% respectively. In the demersal fish group the major species that declined were jewfish, tongue sole, marine catfishes, threadfin bream, grouper, conger eel, red snapper and lizard fish. This species list almost includes the whole demersal fish species in the country. Trashfish, which constitutes about 78% of demersal landings, remained almost stable with a 0.5% increase in 1980,

whereas the foodfish component of demersal landings declined by a hefty 19%. The situation in prawns was no different. The 19% decline in demersal foodfish and the 10% decline in prawns greatly affected the trawl fisheries which relies heavily on these two resource types for its survival. Trawl, which accounts for 84% of total demersal landings suffered a 8% overall decline in 1980 over 1979 brought about by a decline of 3% in its demersal fish landings and a 23% decline in its prawn landings. Bagnets, the other major demersal and prawn fishery, also declined by 10% in 1980. So did minor fisheries like portable traps and handlines which declined by 48% and 14% respectively in 1980 over 1979. However these fisheries managed to survive largely due to the high value of their landings brought about by high fish prices.

Among the minor crustaceans and molluscs there was also a decline of about 2% in 1980. However they were too insignificant to affect total landings in anyway.

East Coast Landings.

As for the east coast, total landings declined by 6% from 138,558 tonnes in 1979 to 130,403 tonnes in 1980. Pelagic fish landings declined by a marginal 0.7% in 1980. This decline was brought about by the declines in most of the major pelagic species like the eastern little tuna, sardine, anchovy, hardtail scad, selar scad, goldbanded scad and round scad. The only exceptions were indian mackerel and spanish mackerel. These two species increased by 40% in 1980 and it was their season which helped to prevent a big slide in the total pelagic landings in 1980. The fisheries adversely affected by these decreases in pelagic fish were the purse seine and lift net fisheries which declined by 6% and 24% respectively. The exception was the drift/gill net fishery which had a 54% increase in landings, mainly brought about by the good season in eastern little tuna, indian and spanish mackerels.

Demersal fish species took a bad beating in 1980 with landings declining by 15%. Though some of the major demersal species like yellow goatfish, jewfish and threadfin bream had a poor year, the foodfish component of demersal fish landings almost remained static with a marginal overall increase of 1% in 1980. The big decline in demersal landings was however caused by the decline in its trashfish component. Trashfish, which constitutes 44% of total demersal landings, declined by a hefty 30% in 1980. The most adversely affected fishery as a result of this was the trawl fishery whose landings declined by 30% in 1980. The decline in overall east coast landings in 1980 was caused chiefly by the decrease in trawl landings, as trawl constituted 26% of total east coast landings.

Among the minor groups, prawns declined by 2% while other crustaceans and molluscs increased by 2%.

Value of Marine Fisheries Landings and Cultures.

Though total landings increased by 9% in 1980, its wholesale value however declined by 1% from \$988 million in 1979 to \$978 million in 1980. This decline in value, despite an increase in landings was caused by a decline in the landings of higher-priced fish and prawns. However, lower-priced fish landings increased substantially to prevent any serious slide in the value of landings in 1980. This was further enhanced by the general increase in prices of most fish and prawns.

Landings of grade I fish declined by 12% in 1980. This category of fish, though constituting only 8% of total landings, accounted for 30% of total value. Thus despite an increase of 8% in its unit price, its decline in landings contributed to the decline in total value of landings in 1980. Grade II fish similarly declined by 10% in 1980. However its contribution to total quantity and value was only a insignificant 2% to have any serious effect on total value. The exception was the grade III category of fish, the landings of which increased by 7% in 1980. As this category constituted 39% of total landings and 27% of total value, its increased landings coupled with an increase of 5% in its unit price helped to arrest any serious decline in the total value of landings.

Landings of big prawns also declined by 9% in 1980. Though big prawns constitute a small 1% of total landings, it accounted for 10% of total value. Despite an increase of 4% in its unit price, the decline in its landings was big enough to cause a decline in its value landed. Medium prawns too declined by 23% in 1980. Besides this, its unit price also declined marginally by 0.2%. As this category of prawns constitute 3% of total landings and 13% of total value, this decline in its landings and price helped to depress the value of total landings in 1980. The only exception was small prawns, the landings of which increased marginally by less than 1%. Though they form 5% of total landings and 10% of total value, the marginal increase in its landings did not help much to arrest the decline in total value despite a 6% increase in its unit price.

Had there been a substantial increase in their landings they could have helped to offset the decline in landings of the big and medium prawns.

Manure fish, though constituting 23% of total landings, however accounted for only an insignificant 2% of total value. This group's landings declined by 5% in 1980 and its unit price too declined by 18%. However its contribution to total value was too small to seriously affect the value of total landings.

Shellfish (98% of which is cockles) constituted 2% of total landings but only 6% of total value. In 1980, prices of shellfish declined by 24% from \$0.41 per kati* to \$0.31 per kati. However landings increased by 91% to boost its value landed by 44%. This hefty increase in value was the reason why the decline in total value was kept to a small 1% this year.

Foreign Trade in fishery Commodities

The fish trade trend in 1980 was the same as in past years where imports exceeded exports in quantity terms although value wise it showed a surplus trade balance. Total imports in 1980 were 139,819 tonnes valued at \$130 million while exports were 115,206 tonnes valued at \$243 million. There was thus a trade deficit of 24,613 tonnes in quantity whereas in value terms it showed a surplus of \$113 million.

However there were some changes in the trade in 1980 when compared to 1979. Imports in 1980 declined by about 12% in quantity terms though value wise the decline was insignificant. Exports too declined in 1980 by 8% in quantity terms and 21.5% in value terms.

Analysing the fish trade entirely in value terms, it was found that the major imports in 1980

*1 kg = 1.6535 kati

were: Canned fish products (\$47m or 36%) Fresh or chilled fish (\$30m or 23%), Fish meal (\$15m or 11%) and Fresh or chilled prawns (\$11m or 9%). Whereas the canned fish products were mainly imported from Japan, all the other major imports were mainly imported from Thailand.

Major exports in 1980 were: Frozen prawns (\$79m or 32%), Prepared or preserved fish products in non-airtight containers (\$55m or 23%), Canned fish products (\$54m or 22%) and Fresh or chilled fish (\$17m or 7%).

Frozen prawns were mainly exported to Japan and the United Kingdom, prepared or preserved fish products to the United Kingdom and the U.S.A., Fresh or chilled fish to Singapore, and Canned fish products to the United Kingdom, Sweden, Canada, West Germany and Switzerland.

From the above it was noted that our major trading partners were mainly Thailand, Japan, Singapore and the United Kingdom.

SABAH

Landings in 1980

Sabah started off the new decade with a 18% decline in landings. This was the biggest drop in landings ever seen in recent times. As there was no significant change in the number of fishing units in operation in 1980 when compared to past years, the decline in landings could therefore only mean a poor fishing season.

Total fish production in 1980 was 34,500 tonnes out of which freshwater fish accounted for 5% or 1800 tonnes. The remaining 95% all came from the marine sector. The marine landings constituted of 24,400 tonnes of finfish, 7500 tonnes of crustaceans, 100 tonnes of molluscs and 700 tonnes of other aquatic plants and animals. With the exception of freshwater fish, slipmouths and pearls, shells, corals etc., all the other species of fish declined in 1980. The biggest declines were in molluscs (90%); Herrings, Sardines, Anchovies etc. (62%); and sharks, rays (53%). This poor season in landings were also reflected in the value of these landings which declined by 12% from \$120 million in 1979 to \$106 million in 1980.

Foreign Trade in Fishery Commodities

Like Peninsular Malaysia, Sabah is also a net importer of fish in quantity terms and a net exporter in value terms. Total imports in 1980 amounted to 11,136 tonnes valued at \$22 million, while exports were 3,588 tonnes valued at \$35 million. When compared to 1979, imports increased both in quantity (by 3,417 tonnes or 44%) and in value (by \$9 million or 72%). Exports however declined both in quantity (by 672 tonnes or 18%) and in value (by \$10 million or 22%).

The major import items in 1980 were canned fish, canned preparations of crustaceans and molluscs and fish meal. Major export items were frozen prawns, fresh or chilled prawns and frozen marine fish.

SARAWAK

Landings in 1980

Sarawak too experienced a poor fishing year in 1980 with landings declining by 6%. Total landings which had been continuously increasing since the late Sixties until 1977 began to oscillate ever since. Landings declined in 1978, increased in 1979 and again declined in 1980.

The three major gear types in operation here are the trawls which account for 68% of total landings, drift/gill nets which accounts for 14% of total landings and bagnets which makes up 12% of total landings. The other gear types make up the remaining 6%. With the exception of bagnets, which increased its landings by 75% in 1980, all the other gear types recorded a decline in their landings. Trawl and drift/gill net landings declined by 11% and 9% respectively, while the landings of the minor gears declined by 22%.

Sarawak's total landings in 1980 constituted of finfish (57,637 tonnes), Crustaceans (18,775 tonnes) and molluscs (658 tonnes). Among the major finfishes were marine catfishes, jewfish, spanish mackerel, trash fish and other unsorted and unidentified fishes. The only major crustacean was the penaid prawn. With the exception of Spanish mackerels, the landings of all the other finfishes and penaid prawns declined in 1980.

Foreign Trade in Fishery Commodities

Like the other two regions of Malaysia, Sarawak was also a net importer of fish in quantity terms, but unlike the others she was not a net exporter in value terms. Though in the past Sarawak used to be a net exporter in value terms, 1980 was the first year when the value of imports almost equaled the value of exports whereas the quantity of imports far exceeded the quantity of exports.

Total imports into Sarawak in 1980 was 23,264 tonnes valued at \$20 million. This was a 317% increase in quantity and 86% increase in value over last year's imports. The major items imported were dried or salted fish, canned fish products, canned crustaceans and molluscs, fishpaste and similar preparations not canned, and preparations of crustaceans and molluscs not canned. The bulk of the imports originated from Peninsular Malaysia, Singapore and Japan.

Exports on the other hand were 2,841 tonnes valued at \$21 million. This was a 23% decline in quantity and 22% decline in value over last year's exports. The major export items were fresh, chilled or frozen prawns, preparations of crustaceans and molluscs not canned and other edible aquatic animal products. These exports were mainly destined for Australia, Japan, Singapore and the U.S.A.