SCS/DEV/73/8
indo-pacific fisheries council
SOUTH CHINA SEA FISHERIES
DEVELOPMENT AND COORDINATING
PROGRAMME

THE SOUTH CHINA SEA FISHERIES
marketing and trade

UNITED NATIONS DEVELOPMENT PROGRAMME

FOOD AND AGRICULTURE ORGANIZATION
OF THE UNITED NATIONS

South China Sea Fisheries Development and Coordinating Programme
Indo-Pacific Fisheries Council SCS/DEV/73/8/Rome

FISH UTILIZATION, MARKETING AND TRADE IN COUNTRIES BORDERING THE SOUTH CHINA SEA - STATUS AND PROGRAMME PROPOSALS

by

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This analysis of fish marketing and trade was carried out on behalf of the South China Sea Programme as a desk study at FAO Headquarters. It reveals some aspects of domestic and export trade in the region and its recommendations, in the form of projects, can be carried out largely by Programme staff within the proposed framework, whereas some of the suggested activities will be further identified by the Programme for supplementary financing.

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS

UNITED NATIONS DEVELOPMENT PROGRAMME

Rome, December 1973

THE SOUTH CHINA SEA FISHERIES
DEVELOPMENT AND COORDINATING PROGRAMME

The South China Sea Fisheries Development and Coordinating Programme (Phase I) was formally conceived by the Indo-Pacific Fisheries Council and its activities have been conducted in close collaboration with that body. The Programme is supported by the UNDP and is being carried out by the FAO Department of Fisheries. This paper, as well as others in a series referred to in SCS/DEV/73/1/Rome, forms the basis for the long-term Phase II programme outlined in that document. The Phase I programme was conducted as an identification project to reflect the wishes and needs of the participating countries for collaborative long-term comprehensive fisheries development.

A.G. Woodland
Programme Leader

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SUMMARY

This report, based on a review of information available at FAO Headquarters concerning utilization, marketing and trade in fishery products, suggests that the work programme of Phase II of the South China Sea Programme should give priority to the following problems and proposed activities.

1. Processing methods vary widely and much is largely a cottage industry, which needs to be improved with regard to product standards, hygienic conditions, processing and marketing. Proposed activities: a project within the framework of the South China Sea Programme could assist local technological stations or institutes to carry out comprehensive investigations of possible low cost improvement measures and work out a plan for training of extension workers and extension activities.

2. Work on quality control, plant sanitation and export marketing is needed, especially for the export industries. Proposed activities: a team of a technologist and an export marketing adviser could be stationed in the area which could, upon request from governments or industry, provide short-term assistance at short notice. In addition to the advisory service, the team would have a fact-finding function for longer-term assistance which may be needed.

3. The catch of small species, which are so far not used for direct human consumption, is considerable and likely to increase significantly as trawl and pelagic fisheries develop. It is necessary to find more rational uses for these catches. Proposed activities: a marketing-processing programme should be undertaken to find suitable processes and test the products on a pilot scale. Following these, projects for implementation will be prepared for which appropriate funding would be sought.

4. There is a strong interest in the area to rationalize the marketing process by creating fishermen's associations which could successfully assist in improving the producers' market strength. The efforts, so far, have in many cases, not been fully successful. Proposed activities: in order to reduce the lack of organizational expertise, a training course should be held in Hong Kong for executive personnel of the respective government agencies. This should be to study in detail the Hong Kong scheme and to provide a basis for exchanging positive and negative experience between the participants. The course should be carried out within the framework of the South China Sea Programme and the national organizations involved.

5. Traditional fresh fish marketing faces particular problems in distributing fish to inland areas and in transporting fish from distant fishing areas to consumption areas. Proposed activities: other product forms, particularly using freezing as a preservation method, should be applied and the necessary inputs for larger scale introduction of product

forms alternative to fresh fish be determined. These will include requirements for production, marketing and consumer acceptance.

6. Marketing the catch of artisanal fishermen in remote areas is hampered mainly by marketing and handling problems. This limits the economic development of the fishing population and reduces the fish supply to consumption areas. Proposed activities: a model scheme to determine the input for a large-scale project, in terms of handling practices, ice supply, transport, sales procedures and administration, should be carried out and transport schedules and a collection system established as a model for larger artisanal fishery development measures. Other disciplines should be involved as required.

The South China Sea Programme team should include marketing and fish product development programmes which should be responsible for a regular and frequent flow of relevant information between governments, industries and the Programme in respect of market and product data. It should prepare the ground for other utilization and marketing projects, organize training courses, coordinate the various short-term assignments of export assistance teams, and assist in the coordination and collaboration of the technological stations in the area.

The South China Sea Programme should give priority to such activities as are of interest to more than one country, demonstrate within a relatively short period the capability of the Programme and, where diffusion of knowledge is quick enough, that the positive consequences of development measures are felt by all parties concerned without an undue time lag.

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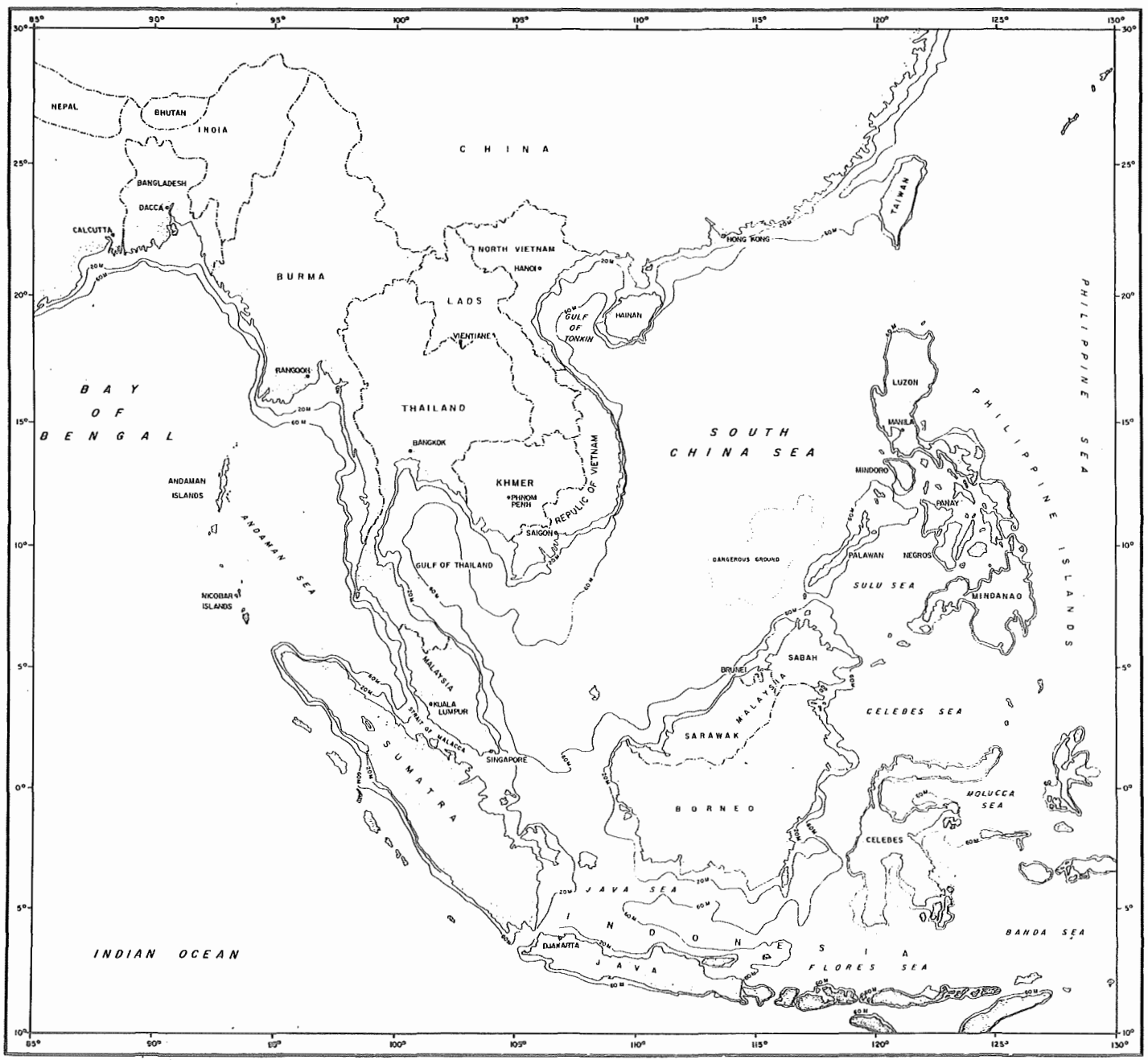

FISH UTILIZATION, MARKETING AND TRADE IN COUNTRIES BORDERING THE SOUTH CHINA SEA - STATUS AND PROGRAMME PROPOSALS

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1. INTRODUCTION

This report has been prepared from material available at FAO Headquarters, as the author could not visit the countries and gather firsthand information. To complement this analysis, additional data would be useful on disposition of catch, industrial processing facilities, their capacities and capacity utilization and processes employed, present export markets and products and obstacles to increased exports, as well as provincial differences in fish supply and consumption. It is, however, believed that this desk study reveals the basic patterns of fish utilization and trade in the South China Sea area and indicates priorities for development efforts in these fields, which should be further investigated and elaborated as projects in Phase II of the South China Sea Fisheries Development and Coordinating Programme (SCSP).

2. DOMESTIC DEMAND

2.1 Present fish utilization patterns and marketing arrangements

2.1.1 Hong Kong

Consumers have a strong preference for fresh fish. A limited quantity of the catch is used for fish balls destined for export. Table 1 below indicates the growing importance of fresh fish versus salted/dried fish on the Hong Kong market.

Table 1

Marine fish and other marine products marketed through the Hong Kong Fish Marketing Organization

Period	Fresh marine fish and invertebrates			Salted/dried marine fish and processed marine products			
	t	HK.$ (million)	HK.$/t	t	HK.$ (million)	HK.$/t	% of total quantity
Average April 1950 to March 1955	26 127	31.7	1 215	7 996	8.9	1 000	23.4
Average April 1955 to March 1960	39 538	41.8	1 058	5 267	3.8	726	11.8
Average April 1960 to March 1965	49 974	57.9	1 158	3 174	3.1	989	6.0
Average April 1965 to March 1970	60 856	79.7	1 309	2 171	3.6	1 665	3.4
April 1970 to March 1971	75 689	135.8	1 795	2 159	5.2	2 427	2.8

Source: Fish Marketing Organization Hong Kong, Annual Report 1970-71 and DSE 1969.

When one analyses the average price increases of both product groups over time and the decline of the salted/dried products in value terms, there seems to emerge a trend to higher-priced salted/dried products. Following the price decreases of 12.9 percent for fresh fish and 27.4 percent for salted/dried fish during the period 1950-55, the increases of the average prices were 9.4 percent, 13.1 percent and 37.8 percent for fresh fish and 36.3 percent, 68.4 percent and 45.7 percent for salted/dried products between the other periods indicated in Table 1. The percentages of salted/dried fish in the total value were 20.1 percent, 8.4 percent, 5.1 percent, 4.3 percent and 3.7 percent, again referring to the same periods. Hence, up to 1965 salted/dried products were on the average cheaper than fresh fish and became on the average more expensive thereafter.

Another reason could, however, be that the increase in productivity of fresh fish production was higher over the years than for salted/dried fish production. In this case, the above-mentioned trend toward higher priced salted/dried products would not necessarily be conclusive. The market evolution should be analysed in greater detail to determine long-term requirements of the consumers.

2.1.2 Indonesia

Around 1960 it was estimated that about 75 percent of the total marine fish production was salted and dried and the remainder consumed fresh or processed by other methods. Estuarine and freshwater fish were consumed mainly fresh (50 percent), 30 percent were salted and dried and 20 percent processed by other methods (Anon., 1961a). There are, however, considerable regional differences in fish consumption by area. Whereas fresh fish consumption reached 2.6 kg *per caput* and year in Java and Madura, consumption in the outer islands was calculated at 16.1 kg *per caput* annually in 1964. *Per caput* consumption of dried and salted fish was 3.1 kg per year in Java and Madura and 5.2 kg/a in the outer islands (Penny, 1969). The influence of income on fish consumption is revealed in Table 2.

Table 2

Fish Consumption in Java and Madura by Household Expenditure Classes[a/], 1964
(kg *per caput* per year)

Product	Up to N.Rp 6 000	N.Rp 6 001 to 10 000	N.Rp 10 001 to 16 000	N.Rp 16 001 to 30 000	Over N.Rp 30 000	Average
Fresh	1.2	1.8	2.9	4.7	7.4	3.4
Dried and salted	1.6	2.8	4.2	5.3	7.0	4.1
Shrimps, etc.	0.2	0.2	0.3	0.7	0.7	0.4

a/ Expenditure per week

Source: Penny, 1969

If the information contained in Table 2 is to a reasonable degree also representative for Indonesia as a whole, a rather high income elasticity of fish consumption (in all forms) can be expected and hence a growing *per caput* demand as income levels rise.

Since the Indonesian areas of main concern to the SCSP are Sumatra and a part of Kalimantan, these figures have to be interpreted in the light of a higher consumption level, which was given with 16.1 kg *per caput* per year for the outer islands.

In view of the importance of small-scale and cottage level processing methods, it could be worthwhile to investigate possible improvements with regard to hygienic conditions and to improve the quality of cured products. This should be done with special regard to the areas which are not yet covered by aggressive improvement programmes of the government and are not likely to be covered in the immediate future. This activity can also be expected to be relevant for other areas where, so far, large quantities of low value fish are not fully utilized for human consumption.

2.1.3 Khmer Republic

The second five-year plan (1968-72) estimated the availability of fish and fishery products in Khmer as set out in Table 3.

Table 3

Fish and Fishery Products Available in Khmer Republic, 1960-1972

	1960	1967	1972
Freshwater fish	138 000 t	124 000 t	128 000 t
Marine fish	40 000 t	44 000 t	50 000 t
Dried fish	15 000 t	9 000 t	12 000 t
Oysters, mussels	10 t	20 t	20 t
Brine (Tuc Trey)	15 000 hl	21 000 hl	25 000 hl
Fish paste (Prahoc)	15 000 t	12 000 t	14 000 t

Source: UNDP 1971

Statistical data on fish production and consumption in the Khmer Republic is scarce and of limited reliability. The FAO Yearbook of Fishery Statistics (Vol. 32, 1971) indicates a total nominal catch of 171 000 t, of which there are 125 000 t from inland waters and 46 100 t of marine origin for 1968. A production of 11 100 t of cured fish and 2 200 t of canned fish is also reported.

In addition, 100 t of canned and 200 t of fresh or frozen shellfish were produced in 1968. For 1957, a domestic consumption of freshwater fish in the order of 95 000 t was estimated (including Prahoc, oil, etc.). Fifteen thousand tons were exported fresh, mainly to Vietnam, and 20 000 t exported dried (fresh weight equivalents). Of the marine catch of 12 000 t, 9 000 t were exported to Thailand and 3 000 t consumed in the country (Bardach, 1959). Bardach also quotes estimates of informed non-government sources which assumed a total freshwater catch of 165 000 t. Of these 110 000 t were consumed fresh or partly exported, 45 000 t were used to produce 15 000 t of dried fish for export and about 10 000 t used for production of smoked fish, Prahoc, oil and dried fish for local consumption. Although both estimates disagree on the production level of freshwater fish, they both assume that 27 percent are used for dried fish for export at a conversion rate of 3:1 and 73 percent are consumed in various forms in the country.

Whereas drying, smoking (very small quantities) and Prahoc production are carried out as a cottage industry, Tuc Trey is produced on a semi-commercial scale. It is believed that Khmer has a potential of producing 200 000 hl of this product as compared to present production of 20 000 hl. This product, which is similar to the Vietnamese nuoc-mam should find a ready demand in Southeast Asia, provided the quality is acceptable. A detailed proposal should be developed to improve the production of cured products and to study means of restoring and enhancing the country's export capabilities of these products. It is not expected that fish meal production will be feasible as the fishery is highly seasonal.

2.1.4 Malaysia (West)

For the development of Malaysian fisheries M.$ 21 million for West Malaysia and Sarawak and an additional M.$ 1.3 million for Sabah were foreseen in the first five-year development plan 1966-1970. These plans include the provision of infrastructure facilities in the landing places of Kuala Kedah, Pedang and Lumut, an experimental processing laboratory at Glugor, Penang and a pilot processing plant in Kuala Trengganu (Ministry of Agriculture and Cooperatives, 1969).

This very effective development has also led to a considerable increase in trash fish which rose from about 48 000 t in 1969 to 75 000 t in 1971 and thus accounted for over 20 percent of West Malaysian fish production. Together with other low grade fish it represented about three quarters of West Malaysian landings in 1967, whereas grade I and grade II fish, together with tuna, reached only one quarter of the total (Kim, 1969).

As Kim indicates in his study, there may well be a surplus of fish in West Malaysia and, in particular, low grade fish may become difficult to sell. It appears that efforts to remove market obstacles and to find better uses for the low grade fish would be timely.

Belachan, a condiment produced from small shrimp, is one of the fermented products manufactured in Malaysia. In 1968 production was about 1 160 t. The yield is about 40-50 lb of paste from 100 lb of shrimp. The processing needs improvement in order to make the product more uniform, reduce the salt content, speed up the process and to make the product more hygienic (Sidaway and Balasingan, 1971). Similarly, it is recommended to investigate Keropuk production and to suggest improved processing methods. Budu, an anchovy-based fermented product, is presently produced in small quantities on the east coast of Malaysia, but it may merit serious consideration for increased output.

Canning of fish is not well developed in Malaysia. The small tuna canning venture could be expanded considerably. Also small amounts of chub mackerel and cockles are canned. There is much room for expansion and particularly the following possibilities could be considered: canning of bonito on the east coast; cockles products other than canned, and production of local sauces to replace imported tomato purée.

The feasibility of fish meal production on the east coast should be studied.

Fresh fish marketing in West Malaysia is in many ways inefficient, e.g., transport, inadequate ice supply, unhygienic conditions of markets, boxes, etc. (Bérubé, 1968). Therefore, an advisory service provided by the SCSP could be very effective to assist in the introduction of low cost improvements.

Marketing and processing following the intended expansion of trawling on the east coast are not specifically considered, at this time, because it is felt that such problems should be dealt with in conjunction with the trawl scheme.

2.1.5 Malaysia (Sabah)

The Fisheries Department is establishing a Fisheries Research Centre (Likas) for conducting marine fisheries experiments under local conditions, designing and making of fishing gear and also for conducting experiments on fish processing (Department of Fisheries Sabah, 1972).

2.1.6 Malaysia (Sarawak)

Construction work for a Technological Block and Research Laboratories at Bintawa in Kuching was scheduled to commence in 1972 (Pejabat Parikanan Laut Sarawak 1972). There is, however, no information as to the nature and magnitude of the work programme foreseen.

Sarawak is at present still a net importer of fish but the authorities endeavour to make it a net exporting country; therefore, it remains to be seen whether the suggestion (Kim, 1969) that West Malaysia should try to increase its share in Sarawak imports is feasible.

2.1.7 Philippines

In the Philippines, the utilization of trash fish is a problem to be solved. Other areas where the SCSP could make a very valuable contribution is the marketing of artisanal

fishermen's catch, a serious problem because of the country's transport problems and fragmented marketing areas. The development and initial operation of a model scheme could be the means to assist in this matter. This may also be relevant for the other countries, e.g., Malaysia, Vietnam, Khmer, Thailand and Indonesia.

Improvement of fish utilization in the Philippines is needed inter alia with regard to upgrading traditional processing methods and utilization of so far underutilized species for new products for direct human consumption. The feasibility of fish meal production should be investigated (Anon., 1961b).

The geographical fragmentation of the country presents especially difficult marketing problems for fresh fish and it appears that these could be solved by the introduction of frozen rather than fresh fish. Consumer preferences against frozen fish are very strong and very intensive work is required in order to achieve a successful introduction of frozen fish in the market, taking due account of adequate production and distribution techniques. A pilot operation comprising all relevant aspects could be organized in order to determine the details of the strategy to be followed when introducing frozen fish on a larger scale. It is felt that the development of industrial fishery activities will have to rely eventually to a large degree on freezing. It is, therefore, necessary to organize these activities in advance and the implementation of such pilot operations by the SCSP would hence appear to be timely. Furthermore, this case should produce insights and knowledge beneficial also to the other countries and particularly Malaysia, Thailand, etc. Special attention should be paid to measures suitable for a rationalization of the marketing process.

2.1.8 Singapore

The characteristic feature of Singapore as a market for fishery products is the high share of imports in domestic consumption which will be dealt with in the chapter on trade aspects.

2.1.9 Thailand

Government plans include the development of improved fish storage and processing methods. The Cold Storage Organization, which has the objectives of increasing income of fishermen and aiding consumers by reducing seasonal fluctuations in fish prices, has so far been operating at a loss (NMFS, 1972).

In 1968 the number of establishments for the production of various cured fish products were for salted fish 64, fish sauce 108, shrimp paste 48, steamed fish 35, dried salted shrimp 14, and one cannery. There were also 10 small-scale fish meal factories.

It has been estimated that, due to inadequate handling, 15 to 20 percent of the landings are wasted (FAO, 1972b).

The utilization of the marine catch is reflected in Table 4.

Table 4

Utilization of 1965 and 1971 Marine Catch in Thailand

	Mackerel	Shark	Misc.	Shrimp	Crab	Molluscs	Total 1965	Total 1971
Total catch (1 000 t)	69.9	7.4	338.9	35.2	11.7	66.2	529.5	1 584.9
Sold fresh (1 000 t)	49.8	4.7	114.7	21.8	9.4	39.6	240.0	640.5
Sold fresh (%)	71	64	34	62	80	60	45	40.4
Dried and salted (1 000 t)	11.6	2.1	34.3	0.8	1.0	6.6	56.5	272.0
Dried and salted (%)	17	28	10	2	9	10	11	17.2
Boiled (%)	7	3	1	ø	ø	ø	2	... a/
Shrimp paste (%)	-	-	ø	18	-	-	1	... a/
Fish sauce (%)	4	-	8	ø	-	-	6	... a/
Fish meal (%)	-	-	42	ø	4	30	31	20.2
Other (%)	1	5	5	18	7	ø	4	22.2

a/ Included under "other"

Source: Tongyai, 1968; FAO Yearbook of Fishery Statistics, Vol. 33, 1971

As the report by Graham (FAO, 1973b) suggests, there is considerable scope for improvement in the present practices of fish meal production, freezing and cold storage, drying, transport of fish and ice manufacture, as well as in the utilization of trash fish and small shrimp.

With regard to fishery products marketing, a strengthening of fishermen's associations would be advantageous (Philipp and Jatuthong, 1969) and the role of government agencies in the development of fish marketing should be studied in sufficient detail in order to achieve the highest possible impact with these organizations (Jatuthong et al., 1971).

2.1.10 Vietnam (Republic of)

Almost the entire Vietnamese catch is consumed in the country and it is estimated that half of it reaches the consumer fresh and the other half in cured form. Fish sauce (nuoc-mam) production was 610 000 hl in 1967 (586 000 in 1966), 1.3 million fish cans, 15 020 t of dried fish, 35 024 t of fish paste and about 1 000 t of fish meal (Obdensky, 1969). The marketing of fresh fish is hampered by inadequate refrigeration, transportation and storage facilities and practices.

The main centre for fish sauce (nuoc-mam) production is Phan Thiet (Binh Thuan Province) where 277 000 hl were manufactured in 1967. Breakage of fish sauce containers is responsible for an estimated loss of 5 percent of the production. The availability of a durable container should lead to the elimination of this problem (Obdensky, 1969). Small sized fish is sold to nuoc-mam producers and the larger fish is destined to the fresh fish market. Sun-drying is practised if the fish cannot be transported to a nuoc-mam factory or to landing places where ice is available. Whereas sun-drying is practised during the dry season, wet-salting is used during the monsoon season. Boiling is a method to extend the shelf life of the fish for some days without using ice, in that local means of transport may be used to send the fish to distant consumption centres (Anon., 1962).

Table 5

Disposition of Catch in Selected Countries of the SCSP Area

Countries	1966		1968		1970		1971	
	1 000 t	%	1 000 t	%	1 000 t	%	1 000 t	%
Hong Kong	...	...	...	...	135.4	100	127.1	100
Marketing fresh	...	...	...	...	128.5	95	119.7	94
Curing	...	...	...	...	3.6	3	3.7	3
Reduction	...	...	...	...	1.8	1	2.6	2
Misc. purposes	...	...	...	...	1.5	1	1.1	1
Malaysia (West)	239.8	100	345.0	100	299.1	100	323.2	100
Marketing fresh	193.5	81	266.0	77	175.0	59	212.7	66
Curing	28.0	12	43.6	13	41.6	14	37.6	12
Canning	6.3	3	4.0	1	5.9	2	6.3	2
Misc. purposes	12.0	5	31.4	9	76.6	26	66.6	21
Malaysia (East, Sabah and Sarawak)	30.4	100	49.8	100	40.9	100	41.7	100
Marketing fresh	17.5	58	32.8	66	25.8	63	26.1	62
Freezing	3.2	11	3.6	7	5.4	13	5.3	13
Curing	6.0	20	6.0	12	6.0	15	6.0	14
Reduction	2.0	7	2.0	4	1.5	4	2.0	5
Misc. purposes	1.7	6	5.4	11	2.2	5	2.3	6
Philippines	726.0	100	944.8	100	989.8	100	1 024.7	100
Marketing fresh	484.3	67	634.6	67	567.1	67	689.7	67
Curing	241.7	33	310.2	33	322.7	33	335.0	33
Thailand	708.1	100	1 089.0	100	1 448.4	100	1 584.9	100
Marketing fresh	338.6	48	533.6	49	680.5	47	640.5	40
Freezing	10.8	2	34.7	3	21.8	2	34.7	2
Curing	164.1	23	20.8	2	204.9	14	272.0	17
Reduction	...	..	...	...	325.1	22	321.3	20
Misc. purposes	194.6	27	499.9	46	216.1	15	316.4	20
Vietnam, Rep. of	380.5	100	410.0	100	517.4	100	587.5	100
Marketing fresh	256.9	68	280.0	68	351.0	68	373.2	64
Freezing	0.6	0	0.1	0	0.0	0	0.2	0
Curing	78.5	21	85.5	21	118.4	23	161.6	28
Canning	0.2	0	0.1	0	-	-	-	-
Misc. purposes	44.3	12	44.3	11	48.0	9	52.5	9
Summary of five countries								
Marketing fresh	1 290.8	61.9	1 747.0	61.0	2 027.9	59.1	2 061.9	55.9
Freezing	14.6	0.7	38.4	1.3	27.2	0.8	40.2	1.1
Curing	518.3	24.9	466.1	16.3	697.2	20.3	815.9	22.1
Canning	6.5	0.3	4.1	0.1	5.9	0.2	6.3	0.2
Reduction	2.0	0.1	2.0	0.1	328.4	9.6	325.9	8.8
Misc. purposes	252.6	12.1	607.5	21.2	344.4	10.0	438.9	11.9
Total	2 084.8	100	2 865.1	100	3 431.0	100	3 689.1	100
thereof for direct human consumption a/	1 830.2	87.8	2 255.0	78.7	2 758.2	80.4	2 924.3	79.3
other purposes b/	254.6	12.2	609.5	21.3	672.8	19.6	764.8	20.7

a/ Total of marketing fresh, freezing, curing and canning
b/ Total of reduction and miscellaneous purposes
Source: FAO Yearbook of Fishery Statistics, Vol. 33 (1971)
Note: Due to rounding off, individual percentages may not add up to 100

The main problem areas seem to be in introducing more effective handling and preservation methods for fresh fish and improved curing, including packaging, storage and distribution (Anon., 1962).

2.2 Trends in utilization

Statistics on the utilization of the catch in the SCSP countries are not complete and depend on estimates which can be debated. The data contained in the FAO Yearbook of Fishery Statistics are computed in Table 5. Since data for Hong Kong refer only to the period 1969-71 and the figures for the Philippines seem to be based on an established ratio of two thirds (fresh) to one third (cured), merely Malaysia, Thailand and Vietnam (Rep. of) can be considered here. In West Malaysia a trend of a decreasing share of fish marketed fresh can be discerned, a trend which may be present also in Thailand. In the latter case, however, the absolute quantities distributed fresh during the six-year period increased considerably, whereas in West Malaysia fresh fish seems to decrease even in absolute terms. The average for 1966-68 being 230 700 t as against 197 600 t for 1969-71. Also in Malaysia (Sabah) fresh marketing seems to slightly lose importance. The case of Vietnam (Rep. of) exhibits a similar feature as Thailand, namely, increasing absolute quantities but slightly reduced share. Because of the weight of Thailand and Vietnam (Rep. of), as compared to Malaysia, and the fast growing quantities marketed fresh, as reported for the Philippines, the summary of all countries reflects the same picture of increasing quantities and decreasing share. Nevertheless, the countries covered are far above world average in respect of utilizing fish for human consumption and also with regard to marketing fresh. Freezing, on the other hand, is only of very low significance. Essentially, only shellfish for export and some tunas are frozen, the quantities of which are very small compared to the total aquatic production.

Curing the catch is, however, an outstanding feature of utilization and it is generally known that there is a long tradition of a great variety of products manufactured by salting/drying and fermentation. From the information available, however, it is difficult to determine whether these methods are applied on an increasing scale or not. The Philippines' statistics show a definite increase in quantities but, as already mentioned, their figures do not suggest that they be based on continuous data recording in respect of utilization. Similarly, the quantities given for Malaysia (Sarawak) are identical for all six years (6 000 t). Thailand, however, shows increasing quantities cured, particularly if the figures for 1967 and 1968 are disregarded. Despite the above mentioned reservation, it is believed that an estimate of 20 to 25 percent of the catch being cured in the area is acceptable for working purposes, although with rather dispersed figures for individual countries, as can be seen from Table 6 below.

Table 6

Utilization of Catch for Cured Products in Selected Countries, 1971

Country	t	% of total catch
Hong Kong	3 700	3
Malaysia (West)	37 600	12
Malaysia (Sabah)	6 000	22
Philippines	335 000	33
Thailand	272 000	17
Vietnam (Rep. of)	161 600	28

Source: FAO Yearbook of Fishery Statistics, Vol. 33, 1971

Although a clear indication of an upward trend does not emerge from the available data, the fact that curing is to a very large extent a cottage industry and that cured products have a ready demand in the region (and are, therefore, not expected to disappear when the application of more effective preservation methods would make it possible to find other uses) suggest that this product group offers considerable scope for development and should receive the necessary attention in the efforts of the South China Sea Programme. Due to the high labour intensity of this production, assistance in this area could also be desirable for social reasons. Canning is of low importance in the area and the raw material input seems to stagnate at around 6 000 t/a in the five countries covered by Table 5 and almost exclusively relate to Malaysia.

With regard to products not used for direct human consumption, e.g., for fish meal or as manure fertilizer, the statistics show that about one fifth of the total catch is used this way, with a rising trend over the years. The reason is probably the increasing catch of trash fish associated with the trawl fishery for which other uses have not been developed on a larger scale. With the expected increased effort on trawling in the future, special consideration should be devoted to the rational utilization of these resources. In some cases the quantities shown under "miscellaneous purposes" may be calculated as residues with no link to reality and therefore careful interpretation is suggested. The region seems to be fortunate to have the tradition of using fish for pastes and sauces and such products should be mainly aimed at when developing products for direct human consumption. The potential of fish meal production should, of course, not be overlooked, always bearing in mind, however, that commercial production must be matched by a degree of industrialization in the catching sector.

2.3 Demand projection

As a regional project, the South China Sea Programme should pay special attention to future demand for fish and identify possible surplus of supplies and unsatisfied demand on a country basis, with a view to adjusting national surpluses or deficits on a regional level. Whereas supply projections are outside the scope of this report, projected demand should be dealt with in some detail. Table 7 below, which was computed by FAO's Fishery Economics and Development Branch, gives the projection of *per caput* and total demand for 1980 based on an average of the years 1969-71.

Table 7

Projection of per caput and Total Demand for Fishery Products in 1980, South China Sea Area

Countries	Average p.c. supply kg (live weight) 1969/71	p.c. demand kg (live weight) 1980	Population (1 000) 1980	Total demand 1 000 m.t. (l.w.) 1980	Function a/	Elasticity of demand
Hong Kong	44.5	51.8	5 314	275.3	3	0.5
Indonesia	10.0	10.5	161 362	1 694.3	1	1.0
Khmer Rep.	24.4	24.4	9 724	237.3	2	1.0
Malaysia	24.3	25.8	14 342	370.0	3	0.48
Philippines	29.4	31.6	54 095	1 709.4	2	0.7
Singapore	40.3	45.3	2 645	119.8	3	0.4
Thailand	23.4	28.0	49 775	1 393.7	2	0.76
Vietnam Rep. of	27.0	29.2	21 763	635.5	2	1.0

a/ Functions 1 = double log
2 = semi log
3 = log - inverse

Source: FAO Fishery Economics and Development Branch

Even though the projection method has limitations and must not be confused with a forecast, it shows that if present conditions persist (prices, elasticities), the total demand for fishery products will be in the order of 6.4 million t (live weight equivalent). Compared with a total catch of 5.2 million t in 1971, a large proportion of which is used for animal feed and fertilizer, and taking into account the trade deficit, it becomes obvious that both production increases and significant improvements in the area of marketing and utilization are needed.

Assuming that in 1971 20 percent of the total production was used for purposes other than direct human consumption, about 4.3 million t were available for human consumption, or 4.5 million t if exports and imports are considered. For the period 1969-71 this amounts only to an average of 4.0 million because of the considerable production increase which occurred during this period. Since the projection is based on the average of 1969-71, the increase required until 1980 would amount to 60 percent or from 4.0 to 6.4 million t. Population growth alone (assuming an unchanged per caput consumption until 1980) would be requiring an increased availability of fish in the order of 45 to 50 percent or from 4.0 to 5.9 million t. An additional 0.5 million t would be needed to satisfy the demand increase induced by rising incomes. The quantity of fish so far not used for direct human consumption was in 1971 probably over 1 million t. Although this will not be entirely usable for direct human consumption the figure indicates the magnitude of this potential.

The only national projection available is the Philippine Four-Year Expanded Fish Production Programme 1974-77, which already expects an effective demand of 1.7 million t in 1974. The FAO projection (Table 7) indicates a total demand of 1.7 million t for 1980.

This example shows however the need for establishing more definitely future demand by appropriate forecasting methods. If the South China Sea Programme is to be involved in medium- and longer-term planning of fishery development in the countries concerned, it is necessary to improve, based on reliable data, the projections for specific major products as they depend on changes of income and relative prices. This work seems to be a basic requirement in order to be able to give meaningful assistance in planning fishery development policies and fish production and utilization facilities and infrastructure in a longer-term perspective.

This chapter on domestic demand can be summarized by emphasizing the following points:

(i) Increasing quantities are marketed fresh and, in view of the consumer preference for fresh products, it is important to improve the performance of the fresh fish marketing system, to reduce waste and to achieve a wider distribution of fresh fish, as well as to open up more effective marketing channels for artisanal fishermen in remote areas.

(ii) The feasibility of using freezing as a preservation method for fish to be distributed to inland areas should be seriously investigated and pilot operations carried out.

(iii) The prevailing curing methods should be improved and methods developed to especially upgrade product standards and yields of the cottage industries.

(iv) For catches which are, so far, not fully used, processes should be developed to use them for direct human consumption, in the main probably as cured products and by using deboning devices. These processes must be in accordance with the requirements of a commercial trawl fishery. The feasibility of fish meal production will also require some further investigations.

(v) Collaboration of the various technological stations and institutes is highly desirable to avoid overlapping and to coordinate efforts.

(vi) Any medium- or long-term planning on a national level concerning investment in processing facilities and marketing infrastructure will require a detailed projection of future demand by major products related to changing income and prices.

3. OPPORTUNITIES FOR TRADE IN FISHERY PRODUCTS

Tables 1 to 3 of Appendix 2 show imports, exports and trade balances of the countries covered by this survey. Again it must be pointed out that statistics are incomplete. Nevertheless, it can be assumed that total imports in 1971 amounted to 377 000 t worth U.S.$ 154 000, whereas total exports reached 212 000 t valued at U.S.$ 108 000. The trade deficit can therefore be estimated at 165 000 t with a value of about U.S.$ 50 000. Table 3 (Appendix 2) also shows that this overall picture has not significantly changed over the years because increasing exports were accompanied by rising imports. It should, however, be noted that exports grew faster than imports.

For a more detailed discussion of trade patterns, the trade of the main exporting and importing countries is to be analysed. Singapore is the biggest importer, with about one third of the region's total. Hong Kong, Malaysia (West) and the Philippines account for about one fifth each. With nearly 50 percent, Malaysia (West) is the biggest exporter of the area, followed by Thailand with 26 percent. Singapore's exports account for 12 percent. A comparison of the values, shows Hong Kong as a high value product importer (45 percent of the total) and exporter (23 percent of the total). The value of Malaysia (West) imports contributes only 10 percent to the total and her exports 29 percent. Table 4 of Appendix 2 indicates that Hong Kong, Malaysia, Singapore and Thailand are the principal exporting and/or importing countries of fresh and frozen fish. Exports of Malaysia (West) are at 40 percent chilled or frozen tuna and 60 percent other chilled or frozen fish. A small fraction of the latter (300 t in 1970) is exported to Thailand. The bulk of Thailand's exports of fresh or frozen fish goes to Malaysia, 16 000 t in 1971 after 13 600 t in 1970. Malaysia's imports in 1971 included 2 200 t of saury and 200 t of albacore from Japan, whereas Singapore imported 400 t of saury from Japan in 1971.

As can be seen from Table 5 of Appendix 2, Hong Kong and Singapore are the main importers of cured fish. Exports principally originate from Malaysia (West), Singapore and Thailand. The bulk of Malaysia's exports consist of cured marine fish (9 500 t in 1970) and some shark fins (100 t in 1970) and fishmaws. Of the 1971 cured fish exports of Thailand 100 t were destined for Hong Kong, 1 500 t for Malaysia and 600 t for Singapore. Hong Kong imported 700 t of dried shark fins from Japan and Singapore 400 t in 1971.

Table 6 of Appendix 2 summarizes imports and exports of shellfish, which amounted to 61 300 t of imports and 76 900 t of exports for the countries covered during 1971. Their value was U.S.$ 46.4 million for imports and U.S.$ 86.4 million for exports. Of those 14 000 t (U.S.$ 14.9 million) were imported shellfish preparations and about 9 500 t (U.S.$ 3.9 million) exported shellfish preparations. Both imported and exported fresh, frozen or cured shellfish increased over recent years, whereas imports of shellfish preparations declined and exports remained static, however rising in value. Major importers are again Hong Kong, Malaysia (West), Singapore and Thailand. The Philippines' imports of fresh, frozen or cured products being insignificant, this country has some importance as an importer of shellfish preparations. Malaysia (West) and Singapore are the main exporters of shellfish preparations and fresh, frozen or cured shellfish come mostly from Indonesia, Malaysia (West) and Thailand and about 10 percent from Hong Kong. In 1971 this country exported 5 200 t of chilled or frozen shrimp, 200 t of salted or smoked shrimp and 600 t of other fresh or cured shellfish. Also during 1971, Hong Kong exported 800 t of dried cuttlefish and squid, 500 t of which went to Singapore and 100 t to Thailand. One hundred t of other fresh or cured molluscs were also exported. In 1970 Malaysia (West) exported 10 600 t of chilled and frozen shrimp and 800 t of dried or boiled crustaceans. Fresh or frozen mollusc exports were 9 100 t and 400 t salted, dried or boiled molluscs during the same year. Thailand's crustacean exports declined during 1969-71 from 8 600 t to 5 600 t; thereof 1 400 t

were exported to Hong Kong and less than 50 t to Malaysia (compared to 600 t in 1969). Cuttlefish exports, on the other hand, rose from 400 t in 1969 to 6 000 t in 1971 when 1 500 t were destined to Hong Kong and 600 t to Singapore. Mussel exports increased in value terms from U.S.$ 36 000 to U.S.$ 79 000, equivalent to 100 t and 200 t, respectively.

In 1971, the Philippines imported 700 t of fresh shellfish from the U.S.A., as against 300 t in 1969. Malaysia (West) in 1970 exported 5 100 t of belachan and 1 000 t of canned shellfish, which were not packed in airtight containers. Mollusc products in airtight containers were imported from Japan in decreasing quantities, as shown below (1 000 t):

	1969	1970	1971
Malaysia	0.2	0.6	-
Philippines	1.4	0.6	0.1
Singapore	0.3	0.8	0.0

The SCSP countries' participation in the international trade in canned fish, is visible from Table 7 Appendix 2. As can be expected from the discussion in Chapter 2, the exports of canned fish are rather low. Only Indonesia, Malaysia (West) and Singapore export more than 1 000 t a year. It should, however, be noted that exports experienced an upward trend over recent years. Unfortunately, there is no information at hand where these exports went to.

One specific aspect is the importance of the Philippines as a market for canned fish. This country imports (with 56 700 t in 1971) over 70 percent of the area's total. The Republic of Vietnam imported 15 000 t in 1969 but later data are not available. Singapore is clearly a growing market (1971 imports 13 700 to as against 5 600 t in 1968) while Hong Kong imports have remained stable. There is a growing import tendency also in Malaysia. Although the limited information does not permit a clear picture, the number of open questions suggests that this market be further studied. The FAO Yearbook of Fishery Statistics gives additional information on canned fish imports by countries in the South China Sea area as computed in Table 8 below.

Table 8

Selected canned fish imports by countries in the South China Sea Area (tons)

Country of destination	1969	1971	Product	Country of origin
Malaysia	5 000	4 800	Mackerel	Japan
Malaysia	100	100	Fish products	Japan
Philippines	100	0	Salmon	U.S.A.
Philippines	500	400	Pilchard in oil	Portugal
Philippines	500	400	Pilchard in sauce	Portugal
Philippines	50 000	52 300	Mackerel	Japan
Philippines	200	200	Fish products	Japan
Singapore	900	12 600	Mackerel	Japan
Thailand	1 400	1 300	Pilchard	Morocco
Vietnam (Rep. of)	11 400	5 500	Mackerel	Japan
Total	70 100	77 600		

Source: FAO Yearbook of Fishery Statistics, Vol. 33, 1971

From Table 8 it is obvious that imports of canned fish are essentially canned mackerel from Japan (97 percent of the total quantities).

Since fish oil production is very small (hence no exports) and imports probably not more than 800 t, this item is omitted.

Fish meal imports in 1971 were in the order of 60 000 t as compared to over 73 000 t two years earlier. This reduction can be attributed to increased production in the area (from 16 200 t in 1969 to 33 200 t in 1971). The fish meal exports reported for Malaysia (West), Singapore and Thailand equal those countries' production for the year 1971 and this indicates a flexible pattern of fish meal trade. Thailand's fish meal exports were 18 300 t in 1971 and 12 800 t of these were exported to Singapore and 2 200 t to Malaysia. Singapore also received 7 100 t from Japan, the country of origin of 800 t for Hong Kong and 3 000 t for the Philippines. Singapore received further 1 700 t from Angola, which country also exported 500 t to Malaysia. It should be noted that Angola's exports to Malaysia were 1 500 t in 1969 and 8 500 t to Singapore. Singapore in turn exported 6 500 t to Malaysia out of a total of 8 100 t in 1971. Singapore's exports have been decreasing from 10 000 t in 1969 when 8 700 t were destined to Malaysia. In 1971 Singapore also shipped 800 t of prawn meal to Malaysia. Imports of Peruvian fish meal in 1969 were 900 t to Malaysia and 11 200 t to the Philippines.

These changing figures suggest a dynamic market behaviour and for this reason fish meal production should be seriously taken into account when considering the utilization of fish not usable for direct human consumption.

On the average about five percent of Hong Kong's imports of fishery products in 1970 were re-exported, ranging up to 14 percent (fish oil) for single items. Fresh or frozen imports were mainly freshwater species (25 100 t). Shark fin imports amounted to 2 500 t, cured squid to 2 300 t and bêche-de-mer to 650 t. Cured fish imports were mainly marine species, 5 500 t, as against 800 t of freshwater fish. 7 300 t of shrimp were imported fresh or frozen and 1 800 t cured whereas both fresh or frozen and cured oysters amounted to 320 t each. Oyster sauce reached 570 t after 1 100 t in 1969. Abalone imports were 2 260 t. Exports from Hong Kong (excluding re-exports of imported products) consisted mainly of 3 800 t of frozen shrimp and 1 090 t of oyster sauce. Fresh or frozen marine fish exports amounted to 380 t in 1970 after 1 560 t in 1969.

Indonesia's biggest single export item was frozen shrimp in 1971 (13 780 t). Frog leg exports started in 1969 with 28 t and reached 500 t in 1971 after a peak in 1970 with 640 t. Their value however increased from U.S.$ 286 000 in 1970 to U.S.$ 335 000 in 1971. The shrimp exports attained a total of U.S.$ 13.7 million. Processed shrimp (other than frozen are a minor item in Indonesia's foreign trade, with 330 t valued at U.S.$ 40 000. Fresh fish exports to Japan increased from 80 t in 1968 to 1 300 t in 1971, whereas deliveries to Malaysia declined from 2 100 t (1968) to 250 t in 1971. An even larger decrease was experienced by trassi (shrimp paste) exports to Malaysia which were 3 400 t in 1968 and only 700 t in 1971. Shellfish exports (other than trassi, frozen and dried shrimp) also decreased from 560 t in 1968 to 180 t in 1971.

Principal countries of origin of Malaysia (West) imports are Japan for fresh and frozen fish (over 50 percent of value in 1967-68), as well as canned fish (over 75 percent) and Singapore for dried fish (about 40 percent). The bulk of fresh shellfish (nearly 90 percent) comes from Thailand, from where considerable quantities of fresh and dried fish also originated. The main markets for Malaysia (West) exports are Singapore to where 50 percent of the fresh fish and 65 percent of the dried fish are destined. Following Japan with 50 percent, Singapore received also 28 percent of the shrimp exports in 1967-68.

Imports of Malaysia (Sabah) kept at a level of 2 000 to 3 000 t per year since 1962 and are slightly higher than exports. However, the import value rose only from U.S.$ 2.7 million in 1962 to 4.1 million in 1971, whereas exports earned U.S.$ 2.9 million in 1962 and 10.6 million in 1971. The main export items in 1971 were frozen shrimp, with 1 600 t, worth

U.S.$ 9.7 million. Other important products are coral (300 t), fresh or frozen freshwater fish (100 t) and salted/dried marine fish (87 t in 1971). Major items imported were 1 190 t of unspecified canned fish and 110 t of canned sardines. Salted/dried marine fish reached about 360 t. 138 t of coral was also imported. Belachan imports amounted to 116 t, shellfish preparations (not canned) to 83 t and canned cuttlefish to 127 t. Imports of canned shellfish preparations are recorded as 183 t.

National statistics of Malaysia (Sarawak) indicate a total import of fishery products of 2 400 t, the main items being salted/dried marine fish (1 670 t), fresh or frozen marine fish (260 t) and belachan (220 t). Shellfish preparations (not canned) accounted for 100 t. About 900 t of fishery products were exported, of which 616 t were frozen shrimp. Salted/dried crustacean exports amounted to about 120 t and fresh or frozen marine fish to 145 t. The figures available suggest that total imports are decreasing, from 3 250 t in 1968 to 2 400 t in 1971, exports rose during the same period from 100 t to 900 t.

The main items of Philippine exports in 1971 were tuna with 2 770 t which was shipped mostly to the U.S.A. (1 270 t) and Japan (1 090 t). Japan also received 1 220 t of the 1 470 t total exports of shrimp and lobster. Cured fish exports amounted to 470 t, which consisted of 146 t of fish sauce (patis), mainly destined to the U.S.A. (143 t), 260 t of wet salted fish, of which 254 t went to the U.S.A. and 64 t dried/smoked fish and squid. Exports increased significantly from the 1970 level when tuna exports were 820 t, shrimp and lobster 570 t, cured fish 280 t, patis 80 t, wet salted fish 160 t and dried/smoked fish and squid 30 t. Principal imported products in 1971 were canned mackerel from Japan (53 570 t), canned sardine from Morocco (2 030 t) and canned cuttlefish and squid from the U.S.A. (1 920 t). In 1970 imports of all these items had been lower. Fish meal imports increased slightly from 9 610 t in 1970 to 10 130 t in 1971, originating essentially from Peru (4 540 t), Japan (3 090 t), Chile (1 890 t) and Thailand (600 t).

Singapore retains about 85 percent of her annual imports, and re-exports may in some cases amount to over 50 percent of the imported quantity. Principal imported items in 1969 were fresh or frozen marine fish (34 860 t), salted or dried marine fish (7 590 t), fresh or frozen crustaceans (2 870 t), cured molluscs (1 870 t), shark fins (1 450 t) and cured crustaceans (1 075 t). About half of the salted/dried marine fish was, however, exported again as were 57 percent of the cured crustaceans and nearly 70 percent of cured molluscs.

Of the salted/dried marine fish, 6 960 t originated from Malaysia (West), 200 t from China (People's Republic of) and 100 t from Hong Kong, which country imported, in turn, 300 t from Singapore. Malaysia (West) was the destination of about 740 t.

Eight hundred and ninety t of the cured crustaceans came from Malaysia (West) and 220 t went to Hong Kong, 135 t to Malaysia (West) and 120 t to Thailand. Main suppliers of salted, dried or boiled molluscs were Korea (Republic of), with 950 t and China (People's Republic of) with 335 t. 760 t of these products were exported to Malaysia (West). Singapore is an important transshipment point also for the following products:

	Main suppliers	Main buyers
Bêche-de-mer	Sri Lanka (115 t)	Malaysia (West) (205 t)
Oysters, fresh or frozen	China (People's Rep. of) (120 t)	Malaysia (West) (150 t)
Other molluscs, fresh or frozen	Malaysia (West) (4 650 t)	Malaysia (Sarawak) (185 t)
Marine fish, boiled and steamed	Malaysia (West) (6 960 t) China (People's Rep. of) (200 t)	Malaysia (West) (725 t)
Fishmaws	India (95 t) Pakistan (50 t)	Hong Kong (65 t) Malaysia (West) (15 t)
Shark fins	Japan (330 t) Yemen (People's Rep. of) (200 t) India (150 t) Malaysia (West) (76 t)	Hong Kong (305 t) Malaysia (West) (110 t)

It should be noted that the above figures for imported and exported quantities may not refer in all cases to identical products. For instance, it cannot necessarily be said that of the 4 650 t of other fresh or frozen molluscs imported from Malaysia (West), 185 t were exported to Malaysia (Sarawak). However, there is a strong indication that Singapore is a market place for a considerable amount of fishery products traded between cuuntries in the area. Therefore, special consideration should be given as to how the services of the Singapore market could be used in efforts to expand the exchange of fishery products between the countries in the area and of exports from the areas to other parts of the world. Possible activities could be a certain concentration of sales promotion efforts (e.g., establishment of sales offices) in Singapore, a market news service from Singapore and an export advisory team (quality control, inspection, product specifications, export operations) based in Singapore.

Thailand's exports of fishery products are in the first instance fresh or live fish shipments to Malaysia, about 50 percent of total exports, or 9 570 t out of 20 720 t in 1969. In 1970 exports of fresh or live fish reached 15 330 t when total exports rose to 30 960 t. Malaysia is also the biggest buyer of salted fish. Dried mussel exports, shipped to Hong Kong and Singapore, mainly declined from 166 t in 1967 to 106 t in 1969. Fresh and frozen crustacean exports seem also to decline: 8 830 t in 1967 to 8 130 t in 1969 and total shellfish, other than canned, to 7 350 t in 1970. In this connexion, the declining crustacean exports to Malaysia, from 1 350 t in 1967 to 600 t in 1969, have to be noted. More important buyers of these commodities are Japan (4 950 t) and U.S.A. (1 115 t in 1969).

About one third of 1969 imports was canned fish, mainly from Japan (1 320 t), Morocco (790 t) and South Africa (710 t), whereas, in 1968, these countries had supplied 410, 450 and 310 t respectively. Another third of total imports is shrimp paste (belachan). In 1969 Malaysia supplied 3 370 t and Burma 250 t of this product out of a total of 3 640 tons. Imports of dried cuttlefish amounted to 420 t, of which 340 t came from Korea (Republic of) and minor quantities from Japan and Korea (People's Republic of), 30 t each. Salted fish, totalling 770 t, came mainly from Japan (110 t), India (80 t) and Hong Kong (50 t). Over 80 percent of the fresh or live fish (1 720) originated from Malaysia (1 425 t) and 220 t from Burma. Imports of salted, dried and smoked fish are declining, from a record high of 9 500 t in 1965 to 4 280 t in 1969.

Exports of marine fish and fresh shrimp from Vietnam (Republic of) amounted to 200 t worth U.S.$ 200 000 and frozen shrimp, 185 t, valued at U.S.$ 462 500 in 1971. Fish sauce exports were 85 500 t worth U.S.$ 67 500. Exports of fresh or frozen shellfish to Japan rose from 26 t worth U.S.$ 81 200 in 1970 to 1 241 t valued at U.S.$ 5.4 million in 1972, after 106 t worth U.S.$ 468 000 in 1971. Several companies applied in 1971 for permission to export directly to Singapore but the request was still under consideration by the Government at the end of 1972. 1/

The considerations of the trade aspects reveal that:

(i) the market in the area for cured fish, in particular fish pastes and sauces, should be further developed by raising the product standard;

(ii) the value of the shrimp industry should be enhanced by improving quality control, inspection and plant sanitation;

(iii) the feasibility of producing other frozen products for export to developed markets should be determined;

(iv) greater advantage should be taken of Singapore as the major collection and distribution centre for fish products from the area entering international trade.

1/ The following references were used specifically as background for the country reviews

Hong Kong: Fisheries Bulletin, No. 2 (December 1971), Agriculture and Fisheries Department, Hong Kong.

Indonesia: Facts and Figures, Directorate General of Fisheries, Jakarta, 1972. Indonesian Export of Marine Products, Directorate General of Fisheries, Jakarta, 1971.

Malaysia (West): Fish Processing Industry in West Malaysia (see Wahby O. et al., in list of references).

Malaysia (Sabah): 1971 Annual Report of the Department of Fisheries Sabah, 1972.

Malaysia (Sarawak): Kementerian Pertanian dan Perikanan Malaysia, Pejabat Perikanan Laut, Sarawak, 1971.

Philippines: Fisheries Statistics of the Philippines 1971, Philippines Fisheries Commission.

Singapore: Trends in Singapore's Fisheries 1969, N.M.F.S., Foreign Fisheries Leaflet No. 159, March 1971.

Thailand: Thailand's foreign fishery trade, N.M.F.S., Foreign Fisheries Leaflet No. 97-A, March 1970. Fisheries record of Thailand 1969, Department of Fisheries of Thailand 1971. Fisheries of Thailand 1970, N.M.F.S., Foreign Fisheries Leaflet No. 72-5, March 1972.

Vietnam (Republic of): South Vietnamese Fisheries in 1971, N.M.F.S., Foreign Fisheries Leaflet No. 72-9. December 1972.

4. DEVELOPMENT OBJECTIVES IN FISH UTILIZATION, MARKETING AND TRADE

4.1 Objectives

Considering that the emphasis of South China Sea Programme activities should be of direct interest to more than one country and should lead to the closer collaboration and cooperation of personnel and institutions active in fisheries development in the area, the following objectives for South China Sea Programme activities are relevant.

(i) To improve traditional processing methods
(ii) To foster trade in fishery products
(iii) To make better use of fish of low unit value
(iv) To demonstrate feasibility of marketing alternative forms of products to inland areas
(v) To improve performance of public marketing organizations
(vi) To develop a model scheme for marketing catches from remote areas.

In order to achieve these goals it should be aimed at the establishment of a free flow information system for relevant market data and at institutionalizing the collaboration of technological stations and institutes working in the area. It is felt that the South China Sea Programme should take the opportunity to act as a catalyst in this respect and include these activities in the work of the programme team.

With regard to specific project-oriented work, a prime consideration for the selection of an activity needs to be the resources available for the Programme and the possibility of demonstrating a success within a rather short period of time. Particularly in the collaboration with other development agencies, this point must be taken into account because a slow action at a subsequent stage may remain as a limited success or failure with the originator, the South China Sea Programme.

Another point to consider is the need to spread the knowledge and knowhow provided by the South China Sea Programme rather quickly, in order to multiply the application of improved utilization and marketing technology. All South China Sea Programme activities should, wherever feasible, be designed to have a "snowball" effect. In this way, the scarce resources of the programme would be largely combined with national activities and very much enhance the effectiveness of the programme. The proposals made later in this report have also been selected with a view to establish contact and collaboration with a large number of people related to the fishery industry and government personnel working in the field of fish utilization and marketing. This is hoped to promote collaboration and to strengthen the role of the SCSP as a clearing house for fishery development efforts in the area.

In view of the above, the following activities should receive priority in the field of utilization and marketing during Phase II of the South China Sea Programme.

4.2 Project proposals

4.2.1 Improving traditional processing methods

Background and purpose - Traditional processing methods are highly important for the utilization of the catch in almost all countries participating in the South China Sea Programme. It is known that these cottage industries, however, operate under precarious conditions and that significant improvements could be achieved, in particular by raising the standard of facilities and methods. A large share of the fishing population and consumers would benefit from such improvements. In order to increase the output of this sector it is necessary to investigate ways to improve the production at low cost and to find suitable means to inform the processors on improved procedures.

Outline of work programme - The technological stations and institutes in the area should coordinate their activities in this field and a plan should be developed as to which products

are to be handled and by which station. The station entrusted with a specific task under this scheme should elaborate a report with a detailed action programme. This action programme must include investigations on consumer reaction to the possibly changed product, marketing requirements, diffusion of knowledge to processors, costs involved for the processor to improve the process, availability and marketing inputs (e.g., salt) and the applicability of the recommendations for action in several countries. The work in the station(s) will, therefore, be based on a simulation of cottage industries' processing methods in collaboration with a fishing community. The relevant station will set up a task force to carry out this work. To assist in this work the South China Sea Programme should find ways and means to provide a technologist and some working funds. It may generally be assumed that equipment which would be required to carry out the programmes will be available at the station(s) selected but well defined priority projects may be afforded with supplementary finances for equipment and material through bilateral sources.

4.2.2 Export marketing assistance

Background and purpose - In view of the strong interest in the countries in expanding their shrimp exports to developed countries, a team consisting of a marketing adviser and a fish technologist should be based possibly in Singapore to provide assistance with regard to quality control, plant sanitation and export marketing operations. The team should also suggest other products to be frozen and exported, whereby a fuller utilization of capacities can be achieved.

Exports of shrimp, prawn and lobster to Japan in 1972 were on average valued as follows (U.S.$ per kg):

Hong Kong	4.34	Philippines	3.32
Vietnam (Rep. of)	4.38	Indonesia	3.34
Singapore	3.90	Thailand	3.23
Malaysia (West)	2.31	Brunei (1970)	2.25
Malaysia (Sarawak)	3.97	Khmer Rep. (1970)	2.86
Malaysia (Sabah)	3.10		

Composition of exports and counts, of course, influence the average value to a high extent but quality differences may also play an important role. Specifically, this point should be taken up by the team and assistance be rendered or arranged to enhance the export value of the respective industries. Particular emphasis should be given to suggestions for an inspection system and national certification of quality standards, the details of which may be worked out by specialized consultants.

Outline of work programme - The team will establish, plan and schedule for advice to individual countries and companies and after sufficient analysis of the problem areas make recommendations for improvements. It will also be present during the implementation phase. Generally, the team should work upon requests from governments or industry. Since the basic concept is high flexibility and trouble-shooting, tasks which require longer periods of time to accomplish in any country will not be dealt with in any detail, but the team will make appropriate recommendations on the ways to render assistance in such cases. The flexibility of the team will allow a quick response to problems requiring immediate solutions. Also, it will be possible to follow up recommendations made and to assist in the implementation. The team will have a fact-finding function for longer-term tasks. If properly organized, this team can, in a relatively short time, establish a very positive image of the South China Sea Programme and will ensure that the programme activities are closely linked with the changing requirements of the countries as development goes on.

The task of the marketing adviser will mainly be assistance in export operations and identification of markets and the fish technologist will mainly deal with production problems. For very specific problems high level consultants should be employed.

4.2.3 Trash fish utilization

Background and purpose - There seems to be a very great need for improving the utilization of small low-value species which at present are used for fertilizer or discarded at sea. Because of the large quantities involved, it will probably not be possible to use them entirely for fermentation. Fish meal production may be a viable alternative, in particular as fish meal demand increases. Since trawling operations can be expected to further increase, this problem area deserves urgent attention. The merits of deboning devices and the feasibility of using the fish meat for minced products or employing rapid salting or fermentation should receive high priority in this work. In collaboration with a technological station or institute where trash fish utilization is a particular problem (e.g., Malaysia or Thailand), a group consisting of a fish technologist, a marketing economist and various consultants in handling, processing (fish meal), refrigeration of vessels, etc., should have these specific goals:

(i) to define in sufficient detail the economic, technical and logistic requirements for increasing utilization of trash fish;

(ii) to demonstrate on a pilot scale their findings and test the recommendations;

(iii) to make specific proposals for projects destined to increase trash fish utilization which may be financed by bilateral or multilateral sources.

Outline of work programme - The economist should initially briefly survey the amount of trash fish caught and its present use and estimate future quantities. A technologist should briefly survey potential uses and the requirements of possible new processes in terms of expertise and equipment. After this initial period, trials with promising processes (promising in respect of market demand, investment required and production methods adjustment needs) will be carried out on a pilot scale. It is necessary that this work eventually comprises all stages from catching preservation and processing to marketing.

When designing the pilot programme, attention should be paid to the availability of suitable equipment at the location selected. Upon completion of the pilot operations, for which about one year will be needed, project requests for interested countries should be drafted and potential financing sources located.

4.2.4 Training of fish marketing personnel

Background and purpose - In view of the great interest of governments in rationalizing the marketing of the catch, particularly from artisanal fishermen, by the creation or strengthening of fishermen's associations which could also take over the marketing of the catch, it seems appropriate to organize a training course in Hong Kong where such a scheme is running effectively. Participants should be officers who are entrusted with the grouping of fishermen and the organization of marketing in their home countries and who have the responsibility of directing the implementation of such a scheme.

It is felt that an intimate knowledge of the system used in Hong Kong can both provide additional know-how and create awareness of difficulties that can be expected to occur.

Outline of programme - The participants should have the opportunity to study all major aspects of the Hong Kong system in detail and to discuss by means of case studies the application and any modifications required for their own countries. The course should last for about two weeks and should cover the following subjects:

- Organizational structures
- Administration
- Marketing and handling
- Marketing facilities
- Rationalization and planning
- Artisanal fishery development
- Accounting
- Credit

If the South China Sea Programme team will organize the course, it is possible that short-term assistance can be rendered in follow-up activities on a national or provincial level at short notice. Thus, the course should not be regarded as one single activity but rather as the initiation of a continuous exchange of assistance and information on work which should principally be carried out by the countries themselves. This course also ties in and should provide a platform for the development of a model scheme for marketing the catch from remote fishing areas.

4.2.5 Inland distribution of fish

Background and purpose - Inland areas are only occasionally supplied with marine fish and in some cases where trials have been made these have failed. Some countries have a geographically fragmented area and for this reason fresh fish marketing is very difficult. At the same time, consumer preference for fresh fish appears to be very strong and the introduction of product forms which would be better suited to the present geographical and infrastructure pattern can be expected to meet with considerable difficulties. Since it is highly desirable to both solve the problem of fish transport from producing areas and the marketing of marine fish in inland areas (as far as they are mainly related to the product form) it should be an urgent task to find a solution by introducing different product forms. Frozen fish could be a possibility. In order to provide a basis for larger investments and other development measures, a pilot programme should be initiated to determine the requirements in terms of know-how, facilities, operational capabilities, product technology and consumer education, which will be needed to produce and to offer fish to consumers in a form not very well known so far.

Outline of work programme - Various fish products can be produced on a small scale and market tests carried out to test consumer reactions and to analyse consumers' expectations. Several products should be selected and used in a second pilot operation with larger quantities and using new and/or existing trade channels for distribution to consumers. Special attention should, in this phase, be given to transport and storage. Also at this stage the consumer education programme will be designed, based mainly on the feedback from local promotional activities.

Having collected experience on all basic components of a comprehensive programme, a pilot operation covering a larger area can be planned and implemented. Of specific value should be to identify and use available practices in order to keep the cost for the new personnel and infrastructure as low as possible. The pilot operation can be carefully monitored and procedures adjusted as may be required. The relative success must be evaluated and put in relation to costs involved. The detailed account of the pilot scheme should then provide the basis for planning and implementing larger schemes of introducing products in forms which are alternative to fresh fish.

In some countries, for instance Indonesia and the Philippines, major producing areas are distant from consuming centres and, if fish has to be transported over longer distances, in other than fresh form, distribution of fish should be investigated. Freezing may present advantages but has so far not been used, inter alia because of the expected consumer resistance to frozen fish. This pilot programme would also provide much needed information on marketing infrastructure and consumer education required to overcome this obstacle. Therefore, consumer education must play an important role in the pilot scheme. Of utmost importance is the need to ensure that only suitable raw material is used and to inform potential producers accordingly, otherwise the scheme is in great danger of creating a prejudice against frozen fish.

This project requires expertise in processing, transport, refrigeration, consumer education and marketing operations. Some input from home economics may also be necessary.

4.2.6 Marketing fish production from remote areas

Background and purpose - Marketing the catch of artisanal fishermen in remote areas is a big problem in many countries in the South China Sea area. This means both a loss to the

fishermen in terms of limitation of economic development and for the country as a whole in so far as much-needed fish supplies are not made available to consuming areas. The authorities are aware of this restraint and it is believed that they should be assisted in their efforts to open up marketing channels for catches from remote areas. Complementary to the above proposal for improving traditional processing methods, a model scheme for fish collection and transport from these areas to consumption centres should be developed. Being essentially a transport (and preservation) problem and because of the need to minimize the cost, the model should develop suggestions and plans for low cost infrastructure needed and determine the economic implications of possible transport modes. This small-scale project should possibly be combined with national activities and the South China Sea Programme should provide a fishery development officer experienced in work with small-scale fishery communities.

Outline of work programme - The programme of work of the model scheme would include the demonstration of adequate handling practices, organization of ice supply and transport, determination of sales procedures and administration of the scheme. Training would have to be provided for operational personnel on the community level and suggestions for an extension service should be developed. After a trial period, a transport and delivery schedule should be established and the scheme entirely taken over by local personnel. The fishery development officer should return after a certain time, review progress and implement necessary changes. A manual should be prepared for instruction of extension officers.

4.3 Proposals for activities of the South China Sea Programme Marketing and Utilization team

The prime area of work of the marketing and utilization team, which should be assigned to the South China Sea Programme for the Programme's duration, should be to diffuse information on the achievements of ongoing projects, to interest governments in follow-up and to collect and distribute all information which may be relevant to these projects. The team members also would prepare the ground for the task force on export marketing and coordinate the requests which will be made for their assistance.

They should also initiate a closer collaboration of the existing technological stations and institutes and assist in the harmonization of work programmes. The collection and dissemination of market data would also be the responsibility of these officers. The organization of the training course in Hong Kong will be mainly the responsibility of the marketing economist.

The SCSP team members should also be in a position to give advice on problem solutions in their respective fields at very short notice and to monitor developments in the area and make proposals for useful contributions from the programme. They should be fully informed about the potential for fishery development activities in the region, in that they can effectively coordinate and collaborate with other donors of development aid by supplying information on and identification of possible projects and ventures.

Appendix 1

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Appendix 2

TABLES SHOWING TRADE IN FISHERY PRODUCTS IN SCS AREA

Table 1

Imports of Fishery Products
(Q = 1 000 t - V = U.S.$ million)

Countries		1958	1962	1965	1966	1967	1968	1969	1970	1971	1971* a/	% increases 1971* over 1962	% increases 1971* over 1969
Hong Kong	Q	58.4	48.6	67.3	72.9	72.5	63.3	58.4	61.1	73.0	73.0	50	25
	V	20.3	20.0	31.3	34.5	41.8	41.6	45.4	56.0	69.2	69.2	246	52
Indonesia	Q	17.7	1.7	...	...	2.2	2.7	2.1	1.3	...	1.3	-24	-38
	V	2.9	0.3	...	...	0.6	0.4	0.4	0.3	...	0.3	0	-25
Khmer Republic	Q	-	0.4	0.2	...	0.0	...	...	...	...	0.0	...	...
	V	-	0.3	0.1	...	0.0	...	...	...	...	0.0	...	...
Malaysia (West)	Q	24.4	34.8	40.7	48.8	52.8	59.5	54.8	71.8	...	71.8	106	31
	V	7.2	10.8	11.3	14.0	14.5	14.3	13.7	18.5	14.7	14.7	36	7
Malaysia (Sabah)	Q	1.4	2.1	...	...	2.1	2.3	2.3	3.1	3.1	3.1	48	35
	V	0.6	0.9	0.9	1.0	1.1	1.1	1.2	1.4	1.5	1.5	67	25
Malaysia (Sarawak)	Q	3.9	6.3	...	...	5.2	5.6	5.4	6.0	5.5	5.5	-13	2
	V	1.4	2.0	2.3	...	1.8	1.9	2.0	2.3	2.0	2.0	0	0
Philippines	Q	65.3	38.5	51.8	50.4	71.7	...	71.2	...	69.0	69.0	79	-3
	V	16.0	9.2	15.8	15.3	21.4	...	19.9	...	22.2	22.2	141	12
Singapore	Q	63.9	76.5	89.9	90.7	90.9	100.1	106.8	111.8	120.1	120.1	57	12
	V	15.7	17.5	20.7	19.7	21.7	22.4	25.7	28.9	33.1	33.1	89	29
Thailand	Q	5.2	8.0	11.8	10.0	10.3	9.8	12.4	14.2	15.5	15.5	94	25
	V	2.3	2.7	3.3	3.1	3.2	3.2	4.3	3.9	3.8	3.8	41	-12
Vietnam (Rep. of)	Q	2.8	0.1	0.1	1.3	1.4	17.2	16.2	...	...	16.2	16 100	...
	V	0.7	0.1	0.0	1.8	0.5	5.4	6.3	...	...	6.3	6 200	...
Total	Q	243.0	217.0	261.8	274.1	309.1	(260.5)	329.6	269.3	286.2	375.5	73	14
	V	67.1	63.8	85.7	89.4	106.6	(90.3)	118.9	111.3	146.5	153.1	140	29

a/ Using last available figures as estimates for 1971 where 1971 data lacking
Source: FAO Yearbook of Fishery Statistics, Vols. 25, 31 and 33

Table 2

Exports of Fishery Products
(Q = 1 000 t - V = U.S.$ million)

Countries		1958	1962	1965	1966	1967	1968	1969	1970	1971	1971* a/	% increases 1971* over 1962	% increases 1971* over 1969
Hong Kong	Q	10.7	11.6	14.9	13.4	10.8	9.2	11.9	8.2	9.4	9.4	-19	-21
	V	7.9	7.9	13.3	14.7	14.1	16.0	23.0	18.4	24.5	24.5	210	7
Indonesia	Q	0.7	0.6	...	...	2.0	7.6	11.1	10.2	...	10.2	1 600	-8
	V	0.3	0.2	...	...	1.1	1.4	1.4	4.5	...	4.5	2 150	221
Khmer Republic	Q	5.3	5.3	0.5	1.7	3.2	...	...	...	...	3.2	...	...
	V	0.8	0.9	0.1	0.2	0.7	...	...	...	...	0.7	...	...
Malaysia (West)	Q	28.9	36.7	65.5	70.0	66.2	88.5	79.8	100.6	...	100.6	174	26
	V	5.0	6.1	12.4	...	13.3	18.3	21.2	31.1	...	31.1	410	47
Malaysia (Sabah)	Q	1.0	1.6	1.3	...	2.1	2.0	1.6	1.7	2.0	2.0	25	25
	V	0.3	0.7	1.2	2.0	2.3	2.6	2.3	2.6	3.3	3.3	371	43
Malaysia (Sarawak)	Q	0.1	0.1	...	...	0.2	0.1	0.1	0.4	1.0	1.0	900	900
	V	0.1	0.1	...	...	0.2	0.1	0.1	0.2	0.7	0.7	600	600
Philippines	Q	0.1	0.0	0.5	1.5	1.5	...	1.7	...	6.0	6.0	...	...
	V	0.1	0.0	0.2	0.7	0.8	...	1.3	...	6.7	6.7	...	...
Singapore	Q	22.0	23.6	17.1	20.3	22.0	23.7	24.0	26.5	24.7	24.7	5	3
	V	7.9	8.5	6.6	7.7	7.7	8.0	8.6	11.5	12.2	12.2	44	42
Thailand	Q	12.2	9.1	17.0	25.7	23.9	18.6	23.7	44.1	54.5	54.5	499	130
	V	1.7	2.0	7.2	11.9	14.2	15.0	16.0	17.7	24.0	24.0	1 100	50
Vietnam (Rep. of)	Q	0.5	0.7	1.1	0.9	0.6	0.1	0.1	...	...	0.1	...	...
	V	0.2	0.5	1.0	0.8	0.4	0.1	0.2	...	...	0.2	...	...
Total	Q	81.5	89.3	117.9	133.5	132.5	149.8	154.0	191.7	(97.6)	211.7	249	37
	V	24.3	26.9	42.0	38.0	54.8	61.5	74.1	86.0	(71.4)	107.9	301	46

a/ Using last available figures as estimates for 1971 where 1971 data lacking
Source: FAO Yearbook of Fishery Statistics, Vols. 25, 31 and 33

Table 3

Trade Balances SCS Area - Exports, Imports
(Q = 1 000 t; V = U.S.$ million)

Countries		1958	1962	1965	1966	1967	1968	1969	1970	1971	1971* a/	% change 1971* Over 1962	% change 1971* Over 1969
Hong Kong	Q	- 47.7	- 37.0	- 52.4	- 59.5	- 61.7	- 54.1	- 46.5	- 52.9	- 63.6	- 63.6	- 72	- 37
	V	- 12.4	- 12.1	- 18.0	- 19.8	- 27.7	- 25.6	- 22.4	- 37.6	- 44.7	- 44.7	-269	-100
Indonesia	Q	- 17.0	- 1.1	...	...	- 0.2	4.9	9.0	8.9	...	8.9	-	- 1
	V	- 2.6	- 0.1	...	...	0.5	1.0	1.0	4.2	...	4.2	-	320
Khmer Republic	Q	5.3	4.9	0.3	...	3.2	...	...	...	...	3.2	- 35	...
	V	0.8	0.6	0.0	...	0.7	...	...	...	...	0.7	17	...
Malaysia (West)	Q	4.5	1.9	24.8	21.2	13.4	29.0	25.0	28.8	...	28.8	1 416	15
	V	- 2.2	- 4.7	1.1	...	- 1.2	4.0	7.5	12.6	...	12.6	-	68
Malaysia (Sabah)	Q	- 0.4	- 0.5	...	...	0.0	- 0.3	- 0.7	- 1.4	- 1.1	- 1.1	-120	- 57
	V	- 0.3	- 0.2	0.3	1.0	1.2	1.5	1.1	1.2	1.8	1.8	-	64
Malaysia (Sarawak)	Q	- 3.8	- 6.2	...	...	- 5.0	- 5.5	- 5.3	- 5.6	- 4.5	- 4.5	27	15
	V	- 1.3	- 1.9	...	...	- 1.6	- 1.8	- 1.9	- 2.1	- 1.3	- 1.3	88	32
Philippines	Q	- 65.2	- 38.5	- 51.3	- 48.9	- 70.2	...	- 69.5	...	- 63.0	- 63.0	- 64	9
	V	- 15.9	- 9.2	- 15.6	- 14.6	- 20.6	...	- 18.6	...	- 15.5	- 15.5	- 68	17
Singapore	Q	- 41.9	- 52.9	- 72.8	- 70.4	- 68.9	- 76.4	- 82.8	- 85.3	- 95.4	- 95.4	- 80	- 15
	V	- 7.8	- 9.0	- 14.1	- 12.0	- 14.0	- 14.4	- 17.1	- 17.4	- 20.9	- 20.9	-132	- 22
Thailand	Q	7.0	1.1	5.2	15.7	13.6	8.8	11.3	29.9	39.0	39.0	3 445	245
	V	- 0.6	- 0.7	3.9	8.8	11.0	11.8	11.7	13.8	20.2	20.2	-	73
Vietnam (Rep. of)	Q	- 2.3	0.6	1.0	- 0.4	- 0.8	- 17.1	- 16.1	...	...	- 16.1	-2 783	...
	V	- 0.5	0.4	1.0	- 1.0	- 0.1	- 5.3	- 6.1	...	...	- 6.1	-1 625	...
Total	Q	-161.5	-127.7	-145.2	-142.3	-176.6	-110.7	-175.6	- 77.6	-188.6	-163.8	- 28	7
	V	- 42.8	- 36.9	- 41.4	- 37.6	- 51.8	- 28.8	- 44.8	- 25.3	- 60.4	- 49.0	- 33	- 9

a/ Using last available figures for 1971 where 1971 data lacking

Source: Calculated from FAO Yearbook of Fishery Statistics, Vols. 25, 31 and 33

Table 4

Imports and Exports of Fresh or Frozen Fish, SCS Countries
(Q = 1 000 t; V = U.S.$ 1 000)

Countries		Imports					Exports				
		1968	1969	1970	1971	1971 % of Total	1968	1969	1970	1971	1971 % of Total
Hong Kong	Q	37.9	35.0	31.2	39.4	33	0.6	1.8	0.6	0.9	1
	V	18 106	20 443	22 684	28 634	62	2 154	2 946	2 806	3 298	14
Indonesia	Q	0.8	0.0	0.0	...	...	2.5	2.4	1.3	...	...
	V	115	7	4	...	...	444	342	191	...	...
Khmer Republic	Q	...	...	...	...	...	1.0	...	...	...	...
	V	...	...	...	...	...	117	...	...	...	...
Malaysia (West)	Q	25.7	21.8	41.0	34.8 a/	29	57.1	46.6	59.0	55.7	66
	V	6 827	5 386	11 342	9 639	21	11 168	9 874	13 734	12 630	55
Malaysia (Sabah)	Q	0.0	0.0	0.0	0.0	ø	0.1	0.0	0.2	0.2	ø
	V	22	21	33	19	ø	22	10	42	53	ø
Malaysia (Sarawak)	Q	0.5	0.5	0.3	0.3	ø	0.0	0.0	0.1	0.2	ø
	V	166	189	109	96	ø	11	6	14	123	1
Philippines	Q	...	0.0	...	0.0	ø	0.7	1.3	0.8	3.8	5
	V	...	27	...	3	ø	287	575	400	2 504	11
Singapore	Q	37.2	35.2	40.0	43.3	36	1.8	1.2	4.0	2.2	3
	V	5 795	5 588	7 102	7 604	16	347	315	1 451	911	4
Thailand	Q	0.7	1.2	1.3	1.1	1	7.9	9.8	15.3	21.0	25
	V	226	314	337	315	1	1 203	1 367	2 095	3 475	15
Vietnam (Rep. of)	Q	0.0	-	...	...	...	-	-	-	-	-
	V	187	-	...	...	...	-	-	-	-	-
Total	Q	102.8	93.7	113.8	118.9	100	71.7	63.1	81.3	84.0	100
	V	31 444	31 975	41 611	46 310	100	15 733	15 435	20 733	22 994	100

% Totals may not add because of rounding off figures

a/ The quantity for Malaysia (West) has been calculated from import value at the unit price 1970 of U.S.$277 per t

Source: FAO Yearbook of Fishery Statistics, Vol. 33 (1971)

Table 5

Imports and Exports of Cured Fish, SCS Countries
(Q = 1 000 t; V = U.S.$ 1 000)

Countries		Imports					Exports				
		1968	1969	1970	1971	1971 % of Total	1968	1969	1970	1971	1971 % of Total
Hong Kong	Q	7.0	6.7	6.7	6.9	31	1.7	1.8	1.1	0.9	5
	V	5 998	7 406	7 765	7 551	50	1 932	2 997	1 630	1 620	22
Indonesia	Q	1.9	1.4	0.7	...	...	0.1	0.1	0.0	...	-
	V	282	152	77	...	...	49	5	4	...	-
Khmer Republic	Q	...	...	...	...	...	0.2	...	...	...	-
	V	...	...	...	...	...	22	...	...	...	-
Malaysia (West)	Q	2.0	1.9	2.8	2.8	13	13.8	11.3	9.6	8.9	50
	V	699	607	891	759	5	1 950	2 250	2 114	2 070	28
Malaysia (Sabah)	Q	0.3	0.3	0.3	0.4	2	0.2	0.2	0.1	0.1	1
	V	112	163	182	196	1	58	63	53	38	1
Malaysia (Sarawak)	Q	2.1	2.1	2.2	1.7	8	0.0	0.0	0.0	0.0	∅
	V	669	689	848	689	5	16	12	7	8	∅
Philippines	Q	...	0.1	...	0.0	∅	...	0.0	...	0.2	1
	V	...	18	...	8	∅	...	10	...	158	2
Singapore	Q	8.4	9.3	9.7	10.3	46	3.7	4.4	4.4	4.7	27
	V	3 795	5 060	5 173	5 158	34	2 064	2 409	2 671	2 620	36
Thailand	Q	0.3	0.7	0.7	0.3	1	0.7	1.8	5.3	2.9	16
	V	499	615	642	604	4	125	275	721	827	11
Vietnam (Rep. of)	Q	0.0	0.0	...	...	...	-	-	-	-	-
	V	5	4	...	...	...	-	-	-	-	-
Total	Q	22.0	22.5	23.1	22.4	100	20.4	19.6	20.5	17.7	100
	V	12 059	14 714	15 578	14 965	100	6 216	8 021	7 200	7 341	100

% Totals may not add because of rounding off figures

Source: FAO Yearbook of Fishery Statistics, Vol. 33 (1971)

Table 6

Imports and Exports of Shellfish, SCS Countries
(Q = 1 000 t; V = U.S.$ 1 000)

(i) Fresh, frozen, cured

Countries		Imports					Exports				
		1968	1969	1970	1971	1971 % of Total	1968	1969	1970	1971	1971 % of Total
Hong Kong	Q	12.4	10.4	15.3	18.9	40	5.9	6.9	5.6	6.9	10
	V	12 885	12 447	18 911	22 806	72	11 218	16 341	13 407	18 832	23
Indonesia	Q	0.0	0.0	0.0	...	-	2.6	5.2	6.3	14.1	21
	V	7	6	5	...	-	748	924	3 680	13 742	17
Malaysia (West)	Q	4.9	4.4	3.1	5.9	12	9.5	12.2	20.9	26.5	39
	V	2 129	2 075	1 666	2 066	7	3 971	7 404	12 823	20 967	25
Malaysia (Sabah)	Q	0.2	0.2	0.2	0.2	ø	1.6	1.4	1.4	1.7	3
	V	168	149	177	160	1	2 549	2 185	2 510	3 228	4
Malaysia (Sarawak)	Q	0.5	0.5	0.4	0.4	1	0.1	0.1	0.3	0.8	1
	V	237	242	203	161	1	65	81	210	593	1
Philippines	Q	...	0.2	...	0.0	ø	0.2	0.2	0.6	1.6	2
	V	...	52	...	2	ø	459	582	1 243	3 795	5
Singapore	Q	10.5	11.2	13.6	14.5	31	3.1	3.0	2.9	3.6	5
	V	3 264	3 674	4 481	5 789	18	2 211	2 337	3 061	4 203	5
Thailand	Q	1.5	1.0	4.3	7.4	16	7.5	9.1	10.3	12.2	18
	V	340	450	413	503	2	13 520	13 771	13 137	17 105	21
Vietnam (Rep. of)	Q	0.0	0.0	...	...	...	0.1	0.1	0.0	...	...
	V	2	9	...	...	...	96	148	32	...	...
Total	Q	30.0	27.9	36.9	47.3	100	30.6	38.2	48.3	67.4	100
	V	19 032	19 104	25 856	31 487	100	34 857	43 773	50 094	82 505	100

Table 6
(Continued)

(ii) Preparations

Countries		Imports 1968	Imports 1969	Imports 1970	Imports 1971	Imports 1971 % of Total	Exports 1968	Exports 1969	Exports 1970	Exports 1971	Exports 1971 % of Total
Hong Kong	Q	2.4	2.1	2.6	2.8	20	0.3	0.3	0.1	0.1	1
	V	3 385	3 393	4 685	8 218	55	293	319	228	332	9
Indonesia	Q	0.0	0.0	0.0	...	–	0.3	0.8	0.7	(0.7)	7
	V	9	13	5	...	–	85	80	269	(269)	7
Malaysia (West)	Q	5.4	3.9	3.1	0.6	4	5.5	4.6	6.1	(6.1)	64
	V	1 190	1 296	1 107	722	5	632	692	1 023	(1 023)	27
Malaysia (Sabah)	Q	0.8	0.5	1.3	0.6	4	0.0	0.0	0.0	0.0	ø
	V	317	308	402	348	2	4	1	1	3	ø
Malaysia (Sarawak)	Q	0.8	0.6	0.8	0.5	4	0.0	0.0	0.0	0.0	ø
	V	363	319	452	292	2	1	ø	ø	ø	ø
Philippines	Q	...	6.0	...	2.1	15	...	0.2	...	0.0	ø
	V	...	2 559	...	648	4	...	101	...	32	1
Singapore	Q	3.8	3.5	4.1	3.3	24	2.8	2.4	2.5	2.5	26
	V	2 461	2 515	3 278	3 399	23	1 365	1 237	1 696	2 025	52
Thailand	Q	5.4	3.7	4.9	4.1	29	0.0	0.0	0.0	0.1	1
	V	1 201	1 027	1 381	1 261	8	1	1	ø	175	5
Total	Q	18.6	20.8	16.8	14.0	100	8.9	8.3	9.4	(9.5)	100
	V	8 926	11 430	11 310	14 888	100	2 381	2 431	3 217	(3 859)	100

% Totals may not add because of rounding off figures

Source: FAO Yearbook of Fishery Statistics, Vol. 33 (1971)

Table 7

Imports and Exports of Canned Fish, SCS Countries
(Q = 1 000 t; V = U.S.$ 1 000)

Countries		Imports					Exports				
		1968	1969	1970	1971	1971 % of Total	1968	1969	1970	1971	1971 % of Total a/
Hong Kong	Q	1.5	2.2	2.0	1.9	2	0.4	0.3	0.4	0.4	6
	V	985	1 359	1 348	1 457	5	377	295	316	352	12
Indonesia	Q	0.0	0.7	0.6	...	...	2.1	2.6	1.9	...	28
	V	ø	192	173	...	...	74	77	349	...	12
Malaysia (West)	Q	4.0	6.4	6.2	0.3	ø	0.9	3.6	2.3	1.6	24
	V	1 602	2 457	1 873	103	ø	487	877	1 100	1 032	35
Malaysia (Sabah)	Q	1.1	1.2	1.2	1.7	2	0.0	0.0	0.0	0.0	ø
	V	446	550	544	743	3	4	5	3	5	ø
Malaysia (Sarawak)	Q	0.9	1.1	1.2	1.2	2	0.0	0.0	0.0	0.0	ø
	V	411	474	503	523	2	ø	ø	ø	ø	ø
Philippines	Q	66.6	52.3	...	56.7	73	0.1	0.0	0.2	0.4	6
	V	...	15 679	...	19 971	68	...	5	...	180	6
Singapore	Q	5.6	8.9	7.5	13.7	18	1.7	2.0	2.0	2.5	37
	V	2 418	3 456	2 897	5 581	19	707	835	815	1 067	36
Thailand	Q	1.4	3.0	2.4	2.1	3	0.0	0.0	0.0	0.0	ø
	V	663	1 350	1 003	1 038	4	5	1	4	2	ø
Vietnam (Rep. of)	Q	16.4	15.0	...	...	-	-	-	-	-	ø
	V	5 032	6 179	...	...	-	-	-	-	-	ø
Total	Q	97.5	90.8	[21.1]	77.6	100	5.2	8.5	6.8	4.9	100
	V	11 557	31 696	[8 341]	29 416	100	1 654	2 095	2 587	2 636	100

a/ Includes the 1970 figures for Indonesia, thus based on a total of 6 800 t and U.S.$3 million

Source: FAO Yearbook of Fishery Statistics, Vol. 33 (1971)

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