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GROUP III:

"DEVELOPING THE REGION'S FISH AND LIVESTOCK INDUSTRY"

# PROSPECTS FOR INTRA-REGIONAL TRADE IN FISH AND FISH PRODUCTS

John C.E. McCalmon

(Senior Fisheries Officer, Ministry of Agriculture, Guyana)

## Introduction

Fish is a major component of the animal protein consumed by the Caribbean peoples. Production of fish lags behind demand with the result that most Caribbean countries import large quantities of fishery products in various forms.

The sources of supply of these commodities are outside the Caribbean Community. In this period of economic strain, importation of fishery products from outside the region contributes towards the drain of foreign currency reserves from the nations concerned, depriving it of the multiplying effect these reserves would have had on the regional economy had they been invested.

To alleviate the situation, it is felt that the fishery resources off Guyana and the Guianas should be exploited with the view of meeting the needs of the region. Intra-regional trade can develop around these substantial resources if the existing surmountable constraints are overcome.

## Population of Principal Caribbean Countries

In considering prospects for future trade the population trend of the region should be examined to indicate the extent of future demand. Table 1 summarises the population estimates compiled by the Secretariat of the Caribbean Common Market for the period 1969-72.

It is evident from the data that the population of the region seems to be expanding at an estimated annual average rate of 1.5 per cent. This means that by 1980 the region's population should be approximately 5.8 million.

## Regional Consumption of Fishery Products

Information on total regional consumption of fishery products is hard to obtain. However, this parameter was estimated using national production figures and import data. The data for the year 1972 were then used to forecast the needs of the region by 1980.

### Landings and Imports

Table 2 details the total landings by principal countries for the period 1970-72. It should be noted that Jamaica, Guyana and Trinidad and Tobago were the principal producers. In that order, they contributed over 75 per cent of the total landings.

Although 639.3 million pounds of fish were harvested by the region during the period 1970-72, it was necessary to import 153.5 million pounds of fish products (Tables 3 and 4). Jamaica has been the major importer over the period contributing 61.5 per cent and 83.3 per cent to the total imports in 1970 and 1972, respectively.<sup>1</sup>

Table 5 gives the breakdown of fishery imports by categories over the period 1970 to 1972. It should be noted that canned fish was the major item followed by dry salted fish and fresh, chilled or frozen products. Together these three categories accounted for 97.9 per cent of the total imports by weight or 95.2 per cent of the value of total fishery imports (Table 6).

### Consumption Pattern and Projections

The consumption pattern and per capita consumption of all dried fishery products for the region were estimated. These figures were then converted into their fresh weight equivalents. These are more meaningful in terms of how many additional pounds of fresh fish will be required if the current imports are to be met in future from regional resources.

The conversion factor used for dry salted fish was determined from Stansby and Olcott (1963) and Stansby (1963), that for dry salted shrimps was based on findings in Guyana for *Xiphopenaeus kroyeri* (the seabob) and *Palaeomon schmitti* (the white bellied shrimp); that for smoked fish was obtained from the Ministry of Agriculture, Food and Nutrition Division, Guyana; and that for pickled fish was calculated from Burgess et al (1967) and Stansby and Olcott (1963).

Table 7 gives the consumption pattern and per capita consumption of all fishery products by country for the year 1972. The data seem to indicate that the more developed countries as well as those with thriving tourist trade have the highest per capita consumption of fishery products.

Table 8 gives the projected consumption on a fresh weight basis for the year 1980. The estimated total demand for that year will exceed the 1972 level by approximately 30.4 million pounds. Assuming that landings by artisan fleets will not increase markedly by 1980 and that the total fish supply must be met from regional sources, a total of 169.5 million pounds of fresh fish will be required to meet the shortfall between production and demand.

### Available Fishery Resources

#### Potential Areas

The total landings listed in Table 2 are almost entirely provided by artisan fishermen who harvest mainly pelagic inshore resources.

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<sup>1</sup>This figure is probably higher. Apparently, import data were not obtained from Jamaica for 1971.

These resources are approaching their maximum levels of exploitation. Future fishery development must therefore be based on currently under-exploited resources which are mainly demersal in habits. In this connection, the species available to trawling offer the best possible for expansion.

The United Nations Development Programme and the Food and Agriculture Organisation (FAO) conducted exploratory studies in the Caribbean to ascertain resources with major potential. The studies were not definitive in terms of the maximum sustainable yield of the resources. However, the demersal resources off Jamaica (FAO, 1972), Guyana and the Guianas (Wolf and Rathjen, 1971) were identified as having the greatest potential. Intensive exploitation of the former would require the assent of the bordering nations of Central America thus limiting its overall role in future developments. Therefore efforts should be geared towards developing the resources off the Guiana shelf.

#### Type of Resource

The ground fish resources off the Guianas consist mainly of the following food fish: (i) *Macrodon ancyloden* (bangamary, whiting or small 'salmon'); (ii) *Cynoscion virescens* (seatrout or 'salmon'); (iii) *Micropogon furnieri* (croaker); and several species of catfish. In addition, there are small quantities of several other edible varieties and large amounts of trash fish. Data from the R/V Cape St. Mary fish survey (Br. Guiana Dept. of Agriculture Bulletin) show a catch composition of 43 per cent croakers, 19 per cent bangamary, and 11 per cent seatrout. The UNDP/FAO Survey (Wolf and Rathjen, 1971) found the following composition: 44 per cent seatrout, 15 per cent mixed fish, and 10 per cent croakers.

Current surveys by the Fisheries Division, Ministry of Agriculture, Guyana, indicate that large quantities of bangamary occur on the penaeid shrimp grounds. These surveys also point to a huge inshore resource of seabob which seems to rival the concentration of commercial penaeids.

All of the aforementioned species can be used for preparing high quality products for the regional market.

#### Products for Intra-Regional Trade

##### Types

Products for intra-regional trade should be such as to satisfy the needs of the various classes of society as well as tourists and agriculture. The following products will meet these needs:

1. fresh frozen fish in the round
2. dressed frozen fish
3. frozen fish steaks
4. canned fish
5. dry salted fish
6. fish meal
7. shrimp meal
8. smoked fish
9. dry salted shrimp

10. canned small shrimp
11. pickled fish
12. frozen fillets
13. frozen, pre-cooked small shrimp
14. shrimp cocktail
15. breaded fish products (fish sticks)
16. marinated fish products
17. comminuted fish products (fish sausage, fish paste, fish jerky).

The species mentioned previously can be used to prepare the above listed commodities. In the short-run emphasis should be placed on the production of the first fourteen commodities listed above with special attention to the first nine. It should be noted from Table 5 that the region consumes large quantities of fresh, chilled, frozen, dry salted and canned fish. Production of these items should therefore be given priority. The vast untapped resource of seabob can be the base for the development of trade around such products as dry salted shrimp, canned small shrimp, frozen pre-cooked small shrimp and shrimp meal.

There is a tendency towards the reduction of consumption of dry salted fish in countries with adequate marketing and home storage facilities for frozen fish. As can be seen from the conversion factor used earlier, approximately 3.7 pounds wet undressed fish are required to produce one pound of the dry salted product. The latter item is a major contributor to the projected fresh weight equivalent of fish which the region must produce in order to be self-sufficient. If this commodity were to be de-emphasised in the long-run as marketing facilities for frozen fish are improved, the quantity of wet fish which the region must provide will be reduced considerably. The curtailment of production of this item in the long-run is strongly advised.

### Major Constraints to Utilisation of Resources

Although it has been known for some time that substantial fishery resources exist off Guyana and the Guianas, these resources are still under-utilised owing to a number of constraints. Until these constraints are removed, they will remain a hindrance to intra-regional trade.

#### Vessels and Maintenance Facilities

Foremost among these constraints is the lack of vessels for harvesting the resources. In Guyana, only a few trawlers fish solely for fish on these productive fishery grounds. The majority of trawlers are employed in shrimping on the offshore grounds and the catching of fish is merely incidental to shrimping. There is a need for vessels designed to trawl solely for inshore resources such as fish and seabob. These vessels should be more economical on the consumption of fuel than the present shrimpers, so as to reduce the overall cost of production.

The existing berthing and maintenance facilities for vessels are grossly insufficient to accommodate expansion. Additional facilities will have to be provided concomitantly with the acquisition of vessels.

#### Processing and Storage Facilities

The present processing and storage facilities are unable to cope with the small, incidental fish catch from shrimpers and much more so to handle the anticipated landings by vessels fishing solely for fish. Besides, the facilities lack the equipment required for preparing the products identified for intra-regional trade. In addition, the storage facilities within the Caribbean islands are inadequate. Appropriate infra-structure will therefore be required for processing and storage.

#### Regional Refrigerated Transport

The regular movement of chilled or frozen products between Guyana and the Caribbean islands poses a problem at this time owing to a lack of suitable vessels. The West Indies Shipping Corporation has a vessel with refrigerated hold which traffics between the Caribbean islands but does not call at Guyana. Adequate regional transport will therefore be required for effective trade.

#### Distribution Facilities

Even if adequate facilities were made available for harvesting, processing, storing and transporting the products, the in-country distribution facilities will prove to be the weak link in the chain. There is definitely a need for the improvement of distribution facilities.

#### Trained Personnel

Trained personnel are required for the successful implementation of each step in the sequence of operations from harvesting to marketing. Trained fishery personnel are a rarity in the Caribbean at this time. Training programmes will have to be expanded.

#### Consumer Resistance

Lastly though not least, consumer resistance to regional products will pose a major constraint on intra-regional trade. Consumers of the region are currently familiar with foreign products which differ in appearance, texture and taste from those that can be prepared from regional resources, although the latter are as tasty, as nutritious as the former, and are capable of being used in the same manner.

### Surmounting Constraints

#### Vessels and Shore Facilities

Prior to moves for the establishment of a regional food corporation, Guyana envisaged the need for acquiring fishing vessels

and for improving her shore facilities for processing, storage, berthing and maintenance of vessels. Accordingly, a fish processing plant with a capacity of 40 million pounds landed weight of fish together with berthing, maintenance and repair facilities were designed (Canadian Plant and Processing Engineering Limited, 1974). In addition, measures are being taken to acquire enough fish trawlers to supply the plant with raw material.

In view of efforts to establish a regional food corporation which is to be involved in fisheries among other areas, the number of vessels can be increased and the processing facilities expanded to accommodate the participation of this corporation. Other processing facilities can also be established elsewhere in Guyana to help meet regional needs.

#### Regional Refrigerated Transport

Fortunately, the West Indies Shipping Corporation has ordered four additional vessels each with 4,500 cubic feet of refrigerated hold. The first one is due for delivery by February 1976 and the remaining three by June 1977. One of these vessels will call at Georgetown, Guyana every nine days and will link Guyana directly with Barbados, Jamaica, and Trinidad and Tobago. Trans-shipment will be arranged from these countries to the smaller islands.

#### Distribution Facilities

Guyana has plans for establishing an in-country distribution system for fishery products. This system will involve the establishment of distribution centres with cold storage at specific locations and refrigerated vehicles to move fish to these centres. Other Caribbean countries should do likewise.

#### Trained Personnel

Guyana is involved, together with Barbados and Trinidad and Tobago, in the Caribbean Fishery Training and Development Institute. The Institute is capable of preparing 45 trained fishing captains annually together with a number of technician level personnel trained in fish handling, processing, marketing, plant operation and management. In addition, the Institute will sponsor three 3-month fellowships in the field of fish marketing, three 6-month fellowships in processing and three 9-month fellowships in plant management. In addition, Guyana is currently training 45 students a year in all aspects relating to the fishing industry. Both the training programme of the Institute and that in Cuba can be expanded.

#### Consumer Resistance

Consumer resistance can be overcome by aggressive marketing and positive action on the part of the governments of the countries concerned. Educational programmes should be launched to make the consumer aware that regional products are as good as foreign ones and new ways of utilising these products should be introduced. In addition, the benefits to be derived from intra-regional trade should be clearly pointed out to the consumer.



Apart from the foregoing, the governments should adopt protective measures to ensure that regional products gain a foothold in the Caribbean. Such measures can take the form of outright bans, import restrictions and tariffs.

### Conclusion

On the whole, the prospects seem favourable for the establishment of a viable intra-regional trade in fish and fish products if the major constraints are removed. The resources of the region might not be sufficient to meet total needs but could certainly go a far way towards satisfying these demands.

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Table 1. Population Estimates for Principal English-speaking Caribbean Countries.

('000)

Country	1969	1970	1971	1972
Antigua	73.4	75.4	77.6	79.7
Barbados	253.6	225.9	258.2	260.5
Belize	122.8	126.4	130.8	134.9
Dominica	73.8	75.6	77.4	79.3
Grenada	106.0	108.0	109.9	111.8
Guyana	687.2	699.2	716.6	734.8
Jamaica	1,863.7	1,890.7	1,911.4	1,953.5
Montserrat	14.5	14.6	14.8	14.9
St. Kitts/Nevis/ Anguilla	50.6	50.3	50.3	50.3
St. Lucia	118.6	121.6	124.6	127.8
St. Vincent	94.4	96.0	97.7	99.5
Trinidad & Tobago	1,027.8	1,026.8	1,032.5	1,037.7
Windward & Leeward Is.	531.3	541.5	552.2	563.3
<b>Total</b>	<b>5,017.7</b>	<b>5,052.0</b>	<b>5,154.0</b>	<b>5,248.0</b>

Source: Secretariat of Caribbean Common Market.

Table 2. Total Fish Landings by Principal English-speaking Caribbean Countries.

('000 lb.)

Country	1970	1971	1972	Total
Antigua	1,600	1,600	1,600	
Barbados	8,000	8,000	8,000	
Belize	3,000	3,600	4,000	
Dominica	1,000	1,000	1,000	
Grenada	3,000	3,400	3,600	
Guyana*	26,758	26,900	27,200	
Jamaica	36,000	36,000	36,000	
Montserrat**	-	-	200	
St. Kitts/Nevis/ Anguilla	2,000	2,000	2,000	
St. Lucia	3,400	3,400	3,400	
St. Vincent	1,200	1,200	1,200	
Trinidad & Tobago	26,000	26,000	26,000	
<b>Total</b>	<b>111,958</b>	<b>113,100</b>	<b>114,200</b>	<b>639,258</b>

Sources: FAO, *Yearbook of Fishery Statistics*, Vol. 36, 1973.

\* Ministry of Agriculture, Fisheries Division, Guyana.

Note: \*\* Less than 200,000 pounds.

Table 3. Fish Products Imports by Principal English-speaking Caribbean Countries.

Country	('000 lb.)			
	1970	1971	1972	Total
Antigua	1,235.7	-	-	
Barbados	3,623.7	3,005.3	2,914.7	
Belize	144.2	-	-	
Dominica*	400.0	400.0	600.0	
Guyana	8,023.5	5,334.2	428.2	
Jamaica	38,219.2	-	60,624.6	
Montserrat	203.3	200.3	215.3	
St. Kitts/Nevis/ Anguilla	815.5	716.2	770.3	
St. Lucia	1,227.1	1,553.2	-	
St. Vincent	973.6	-	-	
Trinidad & Tobago	7,283.0	6,422.6	7,065.9	
<b>Total</b>	<b>62,148.8</b>	<b>17,631.8</b>	<b>72,619.0</b>	<b>152,399.6</b>

Sources: Secretariat of Caribbean Common Market.

\* FAO, *Yearbook of Fishery Statistics*, Vol. 37, 1973.

Table 4. Shrimp Products Imports by Principal English-speaking Caribbean Countries.

Country	('000 lb.)			
	1970	1971	1972	Total
Antigua	8.9	-	-	
Barbados	95.8	104.2	89.8	
Belize*	-	-	-	
Guyana	0.4	-	-	
Jamaica	308.8	-	347.1	
Montserrat	1.0	1.3	1.2	
St. Kitts/Nevis/ Anguilla	0.2	0.1	0.7	
St. Lucia	1.6	1.9	-	
St. Vincent	0.3	-	-	
Trinidad & Tobago	11.5	51.7	97.2	
<b>Total</b>	<b>428.5</b>	<b>159.2</b>	<b>536.0</b>	<b>1,123.7</b>

Source: Secretariat of Caribbean Common Market.

Note: \* Products imported in 1972 but weight unavailable.

Table 5. Breakdown of Fishery Imports for the Period 1970-72.

Commodity	('000 lbs)				
	1970	1971	1972	Total	Per Cent
<u>Fish:</u>					
- fresh, chilled or frozen	15,134.4	1,540.9	17,726.1	34,401.4	22.4
- dry salted	18,073.4	9,131.8	15,513.8	42,719.0	27.8
- smoked	757.0	741.3	710.2	2,208.5	1.4
- pickled	13.8	6.6	11.3	31.7	0.02
- canned	28,286.8	6,211.1	38,857.5	73,355.4	47.7
<u>Shrimp:</u>					
- fresh, chilled or frozen	391.0	134.7	493.3	1,019.0	0.7
- dry salted	12.9	5.8	9.8	28.5	0.02
- canned	24.5	18.8	33.0	76.3	0.05
<b>Total</b>	<b>62,693.8</b>	<b>17,791.0</b>	<b>73,355.0</b>	<b>153,839.8</b>	

Sources: Secretariat of Caribbean Common Market.  
FAO, *Yearbook of Fishery Statistics*, Vol. 37, 1973.

Table 6. Value of Fishery Imports for the Period 1970-72.

Commodity	(EC\$)				
	1970	1971	1972	Total	Per Cent
<u>Fish:</u>					
- fresh, chilled or frozen	8,545.2	953.7	13,296.2	22,795.1	27.1
- dry salted	8,967.5	6,302.0	8,652.9	23,922.4	28.4
- smoked	368.6	458.0	462.2	1,288.8	1.5
- pickled	4.9	3.5	5.0	13.4	0.02
- canned	14,794.8	4,557.3	14,133.3	33,485.4	39.7
<u>Shrimp:</u>					
- fresh, chilled or frozen	806.3	282.4	1,489.5	2,578.2	3.1
- dry salted	13.4	16.5	24.9	54.8	0.07
- canned	23.5	39.1	72.0	134.6	0.2
<b>Total</b>	<b>33,524.2</b>	<b>12,612.5</b>	<b>38,136.0</b>	<b>84,272.7</b>	

Sources: Secretariat of Caribbean Common Market.  
FAO, *Yearbook of Fishery Statistics*, Vol. 37, 1973.

Table 7. Per Capita Consumption of Fishery Products by Country; 1972.

Country	Population 1972	Total Products Consumed <sup>1</sup>	Fresh Weight Equivalent <sup>2</sup>	Per Capita Consumption	
				Total Products	Fresh Weight Equivalent
	('000)	('000)	('000)	(lb.)	(lb.)
Antigua	79.7	1,600.0	1,600.0	20.1	20.1
Barbados	260.5	11,004.5	14,940.0	42.2	57.4
Belize	134.9	4,000.0	4,000.0	29.7	29.7
Dominica	79.3	1,600.0	1,600.0	20.2	20.2
Grenada	111.8	3,600.0	3,600.0	32.2	32.2
Guyana	734.8	27,628.2	27,998.6	37.6	38.1
Jamaica	1,953.5	96,971.7	122,337.2	49.6	62.6
Montserrat	14.9	416.5	777.2	28.0	52.2
St. Kitts/Nevis/Anguilla	50.3	2,771.0	4,280.6	55.1	85.1
St. Lucia	127.8	3,400.0	3,400.0	26.6	26.6
St. Vincent	99.5	1,200.0	1,200.0	12.1	12.1
Trinidad & Tobago	1,037.7	33,163.1	45,009.1	32.0	43.4
Windward & Leeward Is. <sup>3</sup>	563.3	18,081.9	22,532.0	32.1 <sup>4</sup>	40.0 <sup>4</sup>
<b>Total</b>	<b>5,248.0</b>	<b>205,436.9</b>	<b>253,275.1</b>		

<sup>1</sup> Fresh frozen and cured combined.

<sup>2</sup> Conversion factor for dry salted fish 3.7; dry salted shrimp 8.3; smoked fish 3 and pickled fish 1.5.

<sup>3</sup> Total products consumed was estimated; fresh weight equivalent calculated using regional average per capita consumption.

<sup>4</sup> Regional average.

Table 8. Projected Consumption of Fishery Products by Country; 1980.

Country	Population 1980	Per Capita Consumption - 1972		Projected Consumption
		Fresh Weight Equivalent		Fresh Weight Equivalent
	('000)	(lb.)		('000 lb.)
Antigua	89.3	20.1		1,794.9
Barbados	291.8	57.4		16,749.3
Belize	151.1	29.7		4,487.7
Dominica	88.8	20.2		1,793.8
Grenada	125.2	32.2		4,031.4
Guyana	823.0	38.1		31,356.3
Jamaica	2,188.0	62.6		136,968.8
Montserrat	16.7	52.2		871.7
St. Kitts/Nevis/Anguilla	56.3	85.1		4,791.1
St. Lucia	143.1	26.6		3,806.5
St. Vincent	111.4	12.1		1,347.9
Trinidad & Tobago	1,162.2	43.4		50,439.5
Windward & Leeward Is. <sup>1</sup>	630.9	40.0		25,236.0
<b>Total</b>	<b>5,877.8</b>			<b>283,674.9</b>

<sup>1</sup> Figure quoted as per capita consumption, fresh weight equivalent is the average for the Region.