

BENEFITS OF PAST EXPERIENCE

The Successes and Failures of the Fishing Cooperatives of Belize

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INTRODUCTION

Belize is well known for its Mayan ruins and archaeological sites. These include prehistoric fishing settlements along the coast and some of the cays. Judging from bone fragments found, Mayans appear as well to have hunted manatees (Craig, 1966), which are still found in Belize, but in much reduced numbers.

The cultural heritage of the Indians has been transmitted down through the years and until very recently the traditional methods of fishing have been maintained. The fishing practices of Belizeans were then at subsistence level and exports were low. The lucrative spiny lobster industry was controlled by a U.S. citizen and this comprised the main source of fishery exports.

From 1960, however, with the establishment of the first fishing cooperative, Northern Fishermen Cooperative Society Ltd., the fishing industry advanced rapidly. Five years later, this cooperative had total assets of approximately US\$37,600 and a membership of 120. By 1977, their assets had increased to US\$436,000 and the membership had grown to 176. During this period they were joined by four more fishing cooperatives, all of which deal with marine products (Table 1).

The major objective of the cooperative is stated as being "to promote the economic and cultural welfare of its members by providing procedures and means for the efficient production, distribution, processing, and sale of marine products through the united efforts and funds of its individual members" (Supplementary By-Laws, 1968).

Since their establishment these cooperatives have been for the most part very successful. They are efficiently run and have grown considerably and much of this must be due to the measure of organization within the groups. Each has an elected governing body drawn from the member fishermen, each of whom is required to subscribe to a minimum of 15 shares. An executive secretary is also employed. The activities of the individual cooperatives are supervised by the Belize Fishermen Cooperative Association, a nine-member body elected from the membership.

The cooperatives purchase and process the products from their members. At the end of the financial year, after operating expenses have been deducted, the members are given a second payment which is based on each fisherman's proportion of total catch.

Table 1. List of the fishing cooperatives giving their location and date founded

Co-operative	Date Founded	Location
Northern Fishermen Co-operative Society Ltd.	1960	Belize City
Caribena Producers Co-operative Society Ltd.	1963	San Pedro, Ambergris Cay
National Fishermen Producers Co-operative Society Ltd.	1966	Belize City
Placencia Producers Co-operative Society Ltd.	1967	Placencia, Stann Creek
Sarteneja Fishermen Co-operative Society Ltd.	1968	Sarteneja, Corozal

During their initial stages the cooperatives were granted loans from organizations such as the Development Finance Corporation. Within a set period these loans were paid off and most of the cooperatives now own their processing plants, freezers, and ice-making machines.

Each cooperative secures its own export markets and negotiates its own prices and hence has over the past years, established more or less stable relationships with companies in the U.S.A.

TRADITIONAL PRODUCTS

The backreef lagoon of Belize may be considered a single fishing bank having a length of 200 km and an average width of 30 km. The lagoons of the three outer atolls, separated from the barrier reef by depths approaching 3000 m in places, provide good fishing grounds. The margins of the mangrove cays, the patch reefs, and the outer margins of the barrier reef are additionally fished. Within the atoll lagoons and the barrier reef are very extensive and, fortunately, still intact mangrove formations, which are of vital importance as breeding grounds, particularly for scale fish.

The cooperatives deal mainly in spiny lobster, conch, scale fish, and more recently, in shrimp.

Spiny Lobster

This has been the chief money-earner for the cooperatives and is the most important fishery. In 1976, spiny lobster earned 65.6% of the total value of the fishery exports with total exports that year of US\$1.975 million. The U.S.A. is the sole export market.

The spiny lobster, *Panulirus argus*, makes up more than 99.9% of the catch and is taken in the shallow water between the mainland and the barrier reef as well as in the lagoons of the outer atolls of Glover's Reef, Lighthouse Reef, and Turneffe Island. Most are caught in the *Thalassia* grass beds north and east of Belize City by trapping and diving techniques. The practice of these techniques differs radically amongst the cooperatives. For example, the Northern Cooperative fishermen, operating chiefly in the region surrounding Cay Caulker, use traps to take 90% of their catch. On the other hand, the Caribbean Cooperative fishermen from nearby Ambergris Cay catch 77% of their spiny lobster by skin-diving.

Table 2 shows the exports of spiny lobster by each of the cooperatives for the past seven seasons. The season extends from July 15 to March 15, with a 4-month closed season between these dates.

Only the fishing cooperatives are legally permitted to export spiny lobster, each cooperative being given an export quota by the government (Table 3). This system seems to be an effective conservation measure by limiting the maximum catch. Over the past few years, it can be seen that exports, which are a good representation of total catch with approximately 95% of the product exported, have remained relatively stable.

Queen Conch

The conch industry, based on the large gastropod, *Strombus gigas*, is the second major fishery in Belize. One cooperative in particular, National Cooperative, has traditionally dealt in large volumes of this mollusc and in 1976 was responsible for more than half of the total conch exports. As the demand of the U.S. market has increased, coupled with price increases, more and more conch were exported. In 1977, approximately 90% of the conch production was exported. The U.S.A. received the major portion but a small quantity also went to Mexico. Figure 1 shows that exports rose to a peak in 1972. Subsequently, instead of leveling off to a plateau, the catches have steadily declined. Due to continually rising prices, it is highly probable that the species is being over exploited, although adequate catch-per-unit-effort data has only been collected for the past year and thus it cannot yet be shown definitively that a decrease in population is involved. If this is the case, recovery is likely to be slow since the conch may take 4-6 years to reach maturity in nature. As a conservation measure a closed season is being introduced in an effort to save the fishery.

Nevertheless, although the conch exports have been decreasing, steadily rising prices have ensured that it remains a profitable product.

Shrimp

Two of the fishing cooperatives, Caribbean and Placencia, deal with shrimp, each utilizing three trawlers. Both the cooperatives feel that there is great room for expansion in this fishery and are thus planning to invest in more trawlers.

Table 2. Exports of lobster by season in metric tons for each cooperative from 1970 to 1977

Co-operative	70/71	71/72	72/73	73/74	74/75	75/76	76/77
Caribena	50.6	62.5	58.7	56.6	62.0	54.4	51.7
National	32.5	39.7	33.3	36.2	44.5	38.7	58.7
Northern	110.2	90.4	80.7	62.7	80.9	99.7	88.9
Placencia	12.6	16.8	14.0	8.7	12.2	8.6	13.0
Sarteneja	-	9.8	12.3	6.6	7.1	9.0	11.6
TOTAL	205.9	219.2	199.0	170.8	206.7	210.4	223.9

Table 3. Export quotas assigned to each cooperative and their cold storage capacity

Co-operative	Export Quota (metric tons)	Cold Storage Capacity (metric tons)
Northern	79.4	58.1
National	54.4	68.0
Caribena	63.5	50.3
Placencia	20.4	29.5
Sarteneja	13.6	27.2
TOTAL	231.3	233.1

In 1967, a U.S. citizen held a 5-year shrimp concession. Since 1972, however, when the shrimp industry was taken over by the fishing cooperatives, exports have risen steeply (Fig. 1) and are continuing to increase with the addition of trawlers. In 1977, 72% of the shrimp catch was exported to the U.S.A.

Scale Fish

Spiny lobster catches have remained more or less stable over the past 10 years and conch catches are declining; thus, apart from the shrimp fishery, which can withstand a limited expansion, the future expansion of the fishing cooperatives lies in the further exploitation of the scale fish resources. All cooperatives are

beginning to become aware of the need for diversification within their industry and all showed a marked increase in their fish exports for the past year. Compared with fish exports for 1975, exports for 1976 have doubled (Fig. 1). Even so, 41% of the scale fish produced by the cooperatives was consumed locally in 1977. The remainder was exported to the U.S.A. and Jamaica and small quantities to Honduras and Guatemala.

Annual reports of the fishing cooperatives for 1976-1977 repeatedly state that growth in the fishing industry will depend on their ability to increase production of scale fish. The present levels of inshore fishing cannot be sustained and thus the cooperatives will have to turn to deep-sea fishing beyond the barrier reef. Large investments will have to be made to acquire deep-sea vessels and to provide the necessary training in deep-sea fishing techniques. Presently there are two vessels conducting scale fish operations beyond the reef but their fishing is still in the exploratory stage.

At present only a proportion of the available species of scale fish are being exploited but public education will be necessary to inform the people that many species other than those presently eaten are also edible and should be utilized.

PROBLEMS AND FAILURES

Despite the overall successes of the fishing cooperatives, there have been several instances in which the organizations have experienced serious problems. Mostly these stem from financial or mechanical problems but social and cultural factors have also contributed.

Mechanical problems have included a lack of adequate cold storage facilities, processing equipment, and ice-making machines, although in general the present situation is much improved.

There have been occasions when the cooperatives have experienced difficulties in preserving their produce due to poor refrigeration and shipping arrangements. For example, during the 1964-1965 spiny lobster season, difficulties arose at Northern Cooperative when the weekly shipping space proved inadequate to cope with incoming catch and the freezer plant was too small to accommodate the surplus. The Society, as a result, had to dump 5066 kg of spoiled spiny lobster tails.

Since Belize City is the port of export and the site at which most of the product is sold locally, those cooperatives based on the outlying islands or districts have the additional problem of transporting their produce without suitable refrigeration.

Due to a shortage of ice-making facilities, production has often been held up by lack of ice. Cooperatives are remedying this by investing in new plants. When shortages of ice occur, it is encouraging to note that there is a fair amount of cooperation between the cooperatives in helping each other with supplies.

The processing plants of the cooperatives have had to be refitted gradually to conform with the requirements of the U.S. Food and Drug Administration and this usually means a considerable additional expense. Several of the societies have, for example, replaced their processing tables with stainless steel ones.

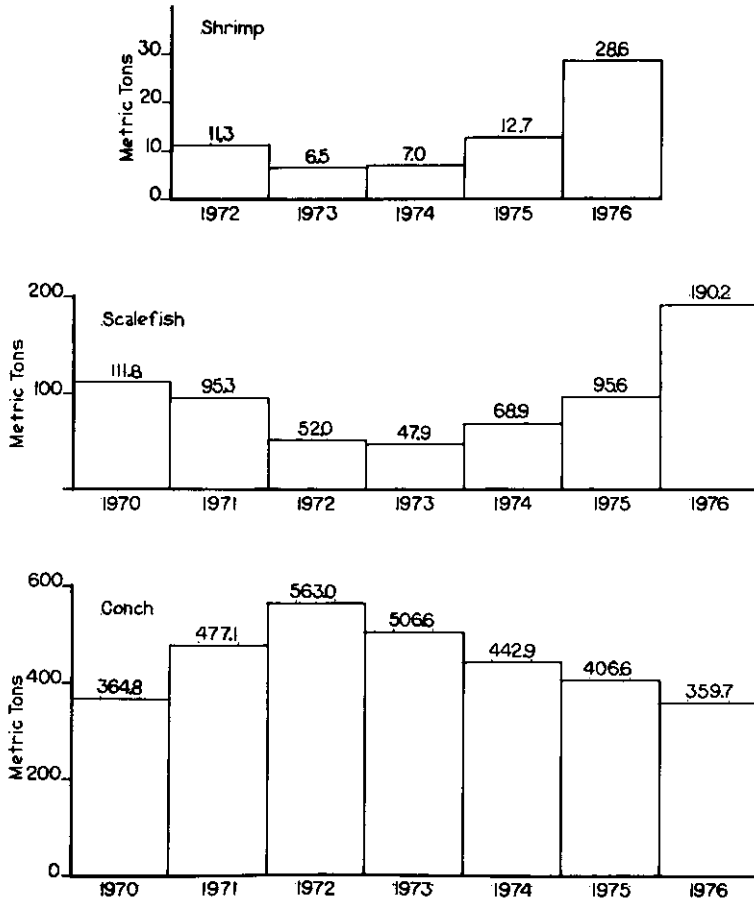


Figure 1. Conch, shrimp and scale-fish exports for years designated.

Conservation is another major problem which faces the cooperatives. As previously mentioned, the conch fishery appears to have been depleted rapidly. For the fisheries to be sustained, the cooperative members must be prepared to accept conservation measures such as closed seasons or closed areas. At present there is a spiny lobster closed season but many of the cooperative members do

not adhere to this law and enforcement is difficult. Although the cooperatives themselves cooperate by not buying spiny lobster from their members during the closed season, it is known that some fishermen start their catch during the latter part of the closed season and keep the lobsters in closed pens until the season opens. Needless to say, it is extremely difficult for the cooperative management committees to persuade their fishermen of the value of conservation measures when poachers are breaking the law, but again the problem is obviously one of inadequate enforcement.

Such a system would doubtlessly be very costly, especially when one considers the large extent of the territorial waters that need to be patrolled.

The map shows (Fig. 2) that all the cooperatives are in the northern half of the country, with the exception of the Placencia Cooperative. The reason for this unequal distribution is no doubt based on a sociological problem. A fishing cooperative was established in the southern town of Punta Gorda in 1971 but this organization is now defunct. Its failure may be traced to the tendency for most of the fishermen in this region to be part-time farmers as well. Many of the people in the area are Black Caribs who settled in small coastal villages where they became subsistence farmer-fishermen. These people are self-sufficient and contribute little to the general economy (Craig, 1966). Because of this division in the activities of the members involved, the operations of the cooperative could not be sustained. It may be of interest to note that the same problem appears to apply to the small scale agriculture of the region as well. For example, the traditional milpa farming, which incidently, was once adequate to support the Mayan Civilization, appears no longer sufficient in itself and has to be augmented by other activities such as fishing and hunting (M. Kellman, personal communication). The failure may also be linked to the cultural fishing practices of the people of that region. The fishermen in the south consistently use less effective handlining methods rather than trapping, netting, or skin-diving. It may be significant that skin-diving is popular among the fishermen of Placencia (Craig, 1966).

Some of the cooperatives have also had to deal with problems of loyalty. For the cooperative to be successful and prosperous, it is essential that its members are loyal and sell their catch to their cooperative. At times, it has been suspected that members have sold their catch elsewhere, usually illegally over the border, either in Mexico or Honduras, where they receive a marginally higher price. In such cases, the fishermen disregard the fact that although their cooperative may be buying initially at a slightly lower price, this is later supplemented by second payments. It is ironic that this nearsightedness of attitude reduces their income in the long run. The cooperatives may also suffer from a lack of production incentive amongst their members. This is especially acute after the second payments have been made at the end of the financial year. At this time the fishermen are reasonably well-off and some apparently then lose the motivation to work and produce. It has been stated before that the cooperative is responsible for the economic as well as the cultural welfare of its members. A conflict may arise between the social and economic well-being of the members which must be closely studied by the management of the cooperatives. If the desire to gain

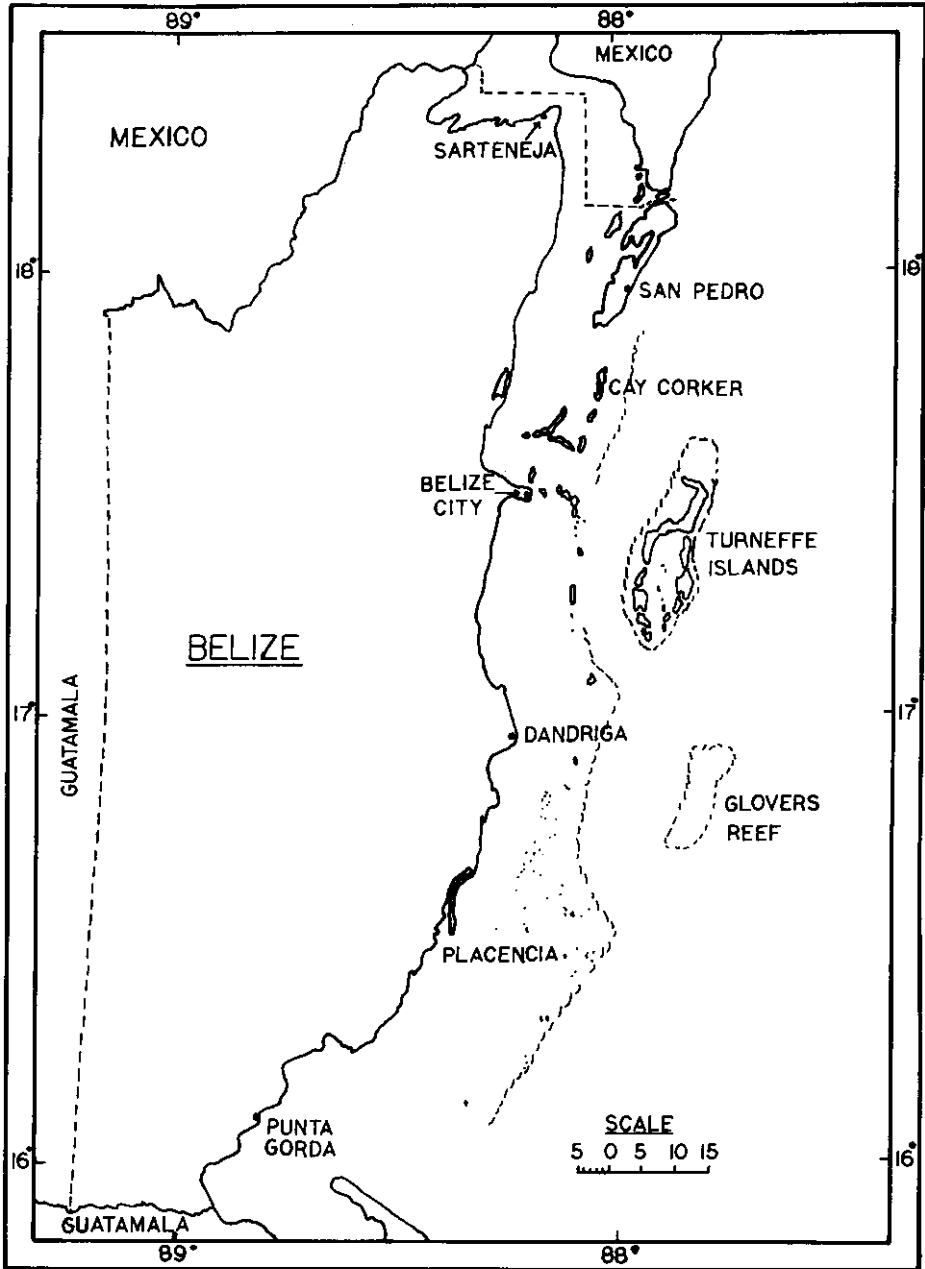


Figure 2. Map of Belize showing the sites of the five fishing cooperatives.

material possessions is willfully nurtured among the members, this will inevitably result in an increase in production, and consequently an increase in the economic well-being of its members. But one can never be certain that such an increase in economic status will be tied to a social well-being. In fact, the opposite may often be true and the continuous desire for more possessions and the competition between the members may well destroy rather than enhance the well-being of the fishermen.

ADVANTAGES

Membership of the fishing cooperatives offers definite advantages to the fishermen. As mentioned before, the cooperative provides valuable processing and exporting facilities. It also carries out the large-scale marketing of the produce and is hence in a better position to place sales and negotiate prices than the individual fisherman. Very few, if any, of the fishermen catch in large enough quantities to warrant self-controlled storage, processing facilities and, marketing and export services, even assuming that they could do so with the same degree of economy. There are a few individual fishermen who export corned fish but this is very seasonal and in small quantities).

Apart from the benefit of having a secure market for their products, membership of the cooperatives also carries other advantages. These include loan facilities for the purchase of periodic and moderately high capital expenditure items such as outboard engines. According to the by-laws of the fishing cooperatives their business should include "lending money to aid its members." The funds of the Society itself should include "loans from financing institutions and other sources." These loans use the shareholding of the members as collateral. By this means, for example, the two cooperatives which deal in shrimp are able to provide a loan system by which the individual fishermen eventually own the trawlers. The cooperatives themselves first buy the trawlers and each trawler is then assigned a captain. A portion of each shrimp catch is subsequently taken over by the cooperative and in this manner, the captain gradually pays off the price of the trawler until he becomes the full owner. Usually this occurs within 5 years.

In addition to loans to members, the cooperatives contribute to reserve and educational funds for members' use. At present, one fourth of the net surplus accruing from any one year's operations is transferred to reserve fund. The remainder of the net surplus may be used in contributions to an educational fund. Some of the cooperatives are also beginning to organize both pension and sickness funds. A similar scheme run by the cooperatives provides a saving system for its members in which a set amount is put aside in a savings account for each pound of product sold. This seems to be working well.

The rapid growth of the cooperatives is indicative of an increase in prosperity amongst their members. Over the past years, during which the fishing

cooperatives have been operating, there has been a remarkable increase in the standard of living of the fishermen. Most of the fishing villages, such as San Pedro and Cay Caulker, have grown considerably and the housing and facilities have noticeably increased in quality. This, no doubt, reflects also an increase in quality of boats and fishing equipment leading in turn to a higher technical sophistication and potential increase in catch.

CONCLUSIONS

It has been suggested that the fishing cooperatives would be even more successful if they were to amalgamate and form one central cooperative. By pooling resources it would be easier for the members to overcome problems such as shipping, adequate refrigeration, and marketing as well as obviating the need for duplication of processing and refrigeration equipment that exists at present. Most of the existing cooperatives are aware of the need to diversify their production and the field of diversification and expansion lies mainly in that of deep sea fishing, with the emphasis on scale fish. Such a venture will require a large capital investment in boats and equipment and in training in deep-sea fishing techniques. Whilst the cooperative effort is partitioned, however, such investment will be slow to materialize. As a united group, the venture would probably be much more feasible.

Apart from diversification in actual production, the cooperatives also need to diversify in their product development. The products are exported after the minimum of processing; that is, they are generally exported as fresh-frozen produce. It would be more profitable if the product were processed somewhat further, for example, to produce "breaded" products. But again, such a venture would tend to require a single, larger corporate body. An additional advantage of such a venture is that it would probably decrease the present level of wastage in the cooperative processing plants. The wastes, which would still occur, if pooled in this way, would probably be high enough and sufficiently localized to support the development of an animal food or fertilizer processing industry.

In connection with this Snyder (1976) has also pointed out the need for a Belizean cooperative marketing association; such a cooperative could function as a marketing distribution group in the U.S.A. directly representing the Belizean fishing industry. Thus the existing broker-distribution intermediaries would be eliminated and result in an increase in revenue for products. The cooperative could also provide marketing efforts related to new products.

At present, however, the cooperatives are individualistic in concept and the idea of uniting to form one large cooperative does not appeal to them.

The fundamental conservatism of the fishermen and the cultural factors involved have contributed to the limited exploitation of the resources. At the same time, however, the fishing co-operatives have been sufficiently successful for the United Nations F.A.O. to chose Belize as a suitable site to train others in the organization of their own cooperatives.

We must recognize, however, one major controlling factor basic to this success; that is, the high demand for fishery products on the international export market.

Exitos y Fracasos de las Cooperativas Pesqueras de Belice

RESUMEN

Las cooperativas de pesca que fueron iniciadas en Belice en 1960, han contribuido en gran parte al alto nivel de vida y educación del pescador, suministrando un mercado de exportación para los productos principales: langosta, caracol, pescado y camarón. Constantemente se le pasa revista detallada a la contribución de estas cooperativas pesqueras lo cual ayuda a mantener las medidas de conservación donde sea necesario. Aunque la perspectiva generalmente es de gran éxito animador, ha habido fracasos y dificultades, como en el caso de fallos en las plantas procesadoras, surgiendo así el concepto de individualismo al tener cooperativas separadas. La expansión futura de la industria pesquera pudiera verse perjudicada por esto, especialmente en áreas donde se requiere grandes cantidades de fondos, como en la pesca en mares profundos. Los aspectos culturales y sociales han contribuido a una producción por debajo del máximo, lo cual puede ser contrabalanceado por las implicaciones sociales de un cambio muy drástico en la forma de vida tradicional del pescador.

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