Recent Developments in the Jamaica Conch Fishery (1992-1995)

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ABSTRACT

The Jamaican conch fishery currently produces the greatest quantity of queen conch *Strombus gigas* for export in the Caribbean with approximately 2,000t exported by the end of the 1993/94 season. Since 1994 there have been changes in the management of the fishery which were aimed at ensuring sustainability. These changes were produced largely by the urging of the industry itself as well as the Fisheries Division. The management changes include: a) five year variable national quota, b) an increase of the close season to four months, c) restriction of new fishery entrants, d) restriction of new processors.

The impact of CITES on the conch fishery was assessed and was thought to be a major factor which assists in compliance with management plans. The linkages with other relevant government agencies such as the Natural Resources Conservation Authority were also assessed and found to be in need of clarification and strengthening. Results of a joint survey of the Pedro Bank conch stock by the Fisheries Division and the University of Puerto Rico suggested that conch stocks were greater than previously estimated and importantly provided a first estimate of maximum sustainable yield. Recent management challenges have been related to implementation of regulations. The acquisition of the first dedicated enforcement vessel in mid-1995 was considered a major positive development.

INTRODUCTION

Jamaica has become the largest exporter of conch in the Caribbean in the period 1991 to 1995 by the continued development of the industrial conch fishery, using larger (>23m LOA) vessels. Meanwhile, the artisanal fishery for conch which is much more diffuse and uses canoes as the major vessel, has remained more or less unchanged. The details of the operational characteristics of the conch fishery itself were described by Mahon, Kong and Aiken (1992).

But, to summarise, the majority of the conch harvested from Jamaican waters is taken from Pedro Bank (see Figure 1). Much smaller quantities from other areas such as the south shelf, Morant Bank, and Formigas Bank (the latter being two small oceanic banks near the island, Fig. 1). Much of the artisanal fishery operates on the south shelf. The principal gears in the industrial fishery are SCUBA and hookah.

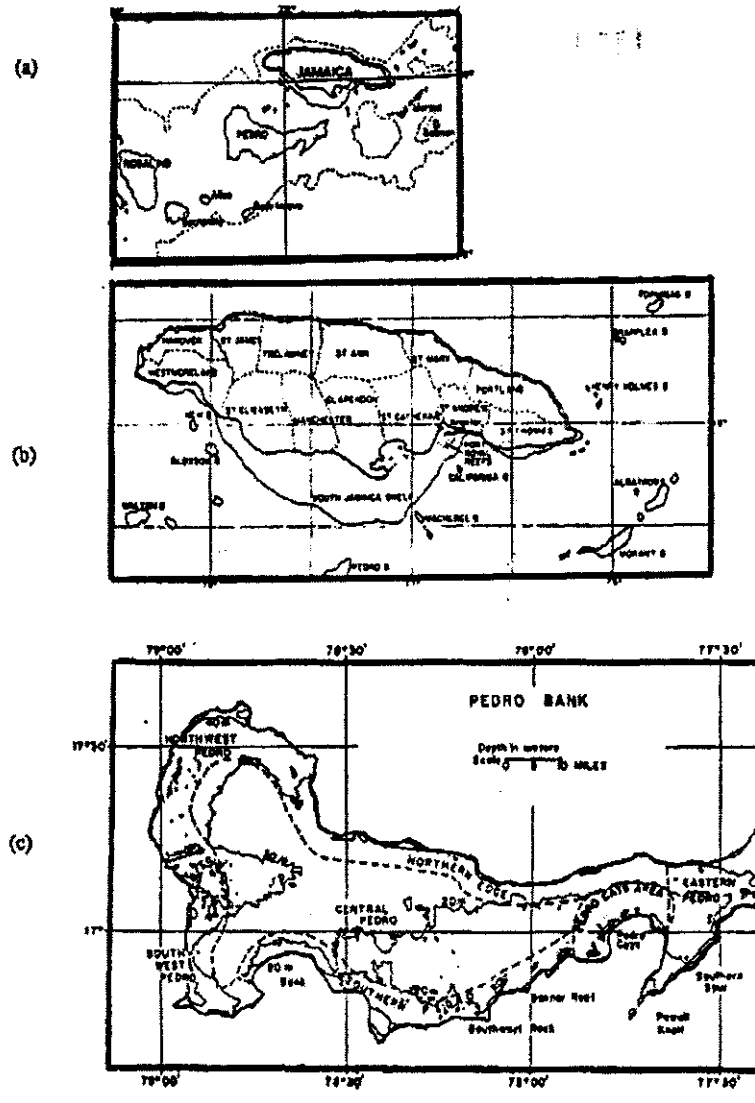

Figure 1. (a) Offshore banks in the area of Jamaica; (b) The south shelf; (c) Pedro Bank (Munro, 1983).

REVIEW OF CONCH FISHERY 1991/92 TO 1995/96.

Initial management of the conch fishery

Several management measures were suggested by series of industry meetings to discuss the fishery organised by the Fisheries Division and the CARICOM Fisheries Resource Assessment and Management Programme (CFRAMP) and the University of the West Indies (UWI) in 1992 and 1993. The conch fishery in summary, has been managed since the 1994/95 season by a number of measures set out in a management plan (see Table 1) which includes a) A National Total Allowable Catch (NTAC) which set out quotas, b) the licensing of conch fishermen, c) licensing of conch vessels, d) closure of the fishery during the peak spawning season, e) limitation of new entrants, and f) a minimum meat size of 84g (based on the Belize conch fishery).

Changes in number of commercial conch operations

Significant changes have taken place in the offshore fishery on Pedro Bank, especially since 1991. If the number of commercial conch operations in the period 1991-1995 is examined (Table 2) we note the following: Table 2 shows the number of licences issued to operators in the seasons from 1991/92-1995/96. In summary, it indicates that there has been an increase in the number of licenses issued to operators of larger commercial vessels from a low of 6 in 1991/92 to 12 in the 1995/96 season which opened on 1st November, 1995. No further increases in numbers of licenses are to be made in the current or future seasons until further reviews of the fishery.

Table 1. Initial Management Measures

1. A National Total Allowable Catch (NTAC) - A Quota System
2. Licensing of Conch Fishermen
3. Licensing of Conch Vessels
4. Close Season During Peak Spawning
5. Limitation of New Entrants to the Fishery
6. Regulation of the Minimum Meat Size (84g)
7. Presence of Flared Lip Rule in Effect

Table 2. Numbers of Licneses Issued to Fish for Conch in Jamaican Waters 1991-1995.

Season	Licenses
1991-92	6
1992-93	6
1993-94	12
1994-95	13
1995-96	12 (projected)

Changes in vessel numbers

There have also been increases in the numbers of the larger commercial vessels in the fishery as shown in Table 3. The number of vessels fell from 9 in 1991/92 to 7 the next season, then increased from 13 to 16 in the next year. The number of vessels in operation for the 1994/95 and projected number for the 1995/96 season is 16. Table 4 shows the licensed conch producers and the number of vessels they operate, suggesting that for the 1995/96 season there will be 16 larger vessels participating as in the previous season.

One interesting observation the 1995/96 season is that some vessel owners have been approached by licensees with smaller quotas, to have these vessels harvest their quota for them and further, to process those catches for them for an agreed fee. This observation has implications for the estimation of fishing effort and catch per unit effort for the conch fishery.

Table 3. Changes in Numbers of Larger Conch Vessels, 1991-1995.

Season	Vessel Numbers
1991/92	9
1992/93	7
1993/94	13
1994/95	16
1995/96	16 (projected)

Table 4. Conch Producers 1994/5 & 1995/96.

WISYNCO Ltd., Kingston fisheries port
(94/95 = 2 x vessels; 95/96 = 1 x vessel)
B&D Trawling, Old Railway Pier, Kingston
(94/95 = 2 x vessels; 95/96 = 3 vessels)
Grace Kennedy Co. Ltd., Wherry Wharf, Kingston
(1 x vessel, both seasons)
Miles Franklin Ltd., Whitehouse, Westmoreland (1 x vessel)
Sidney Francis Ltd., Kingston (2 x vessels)
Percy Lambert, Rocky Point, Clarendon (1 x vessel)
Frank Cox, Portmore, St. Catherine (1 x vessel)
Mr. Roper, Portmore, St. Catherine (1 x vessel)
Hubert Wright, Whitehouse, Westmoreland (1 x vessel)
Egbert Letts, Kingston (1 x vessel)
Hensley Williams, Kingston (1 x vessel)
Stafford Earle, Savannah-la-mar, Westmoreland (1 x vessel)
Howard Heron, Mandeville, Manchester (1 x vessel)

Changes in numbers of producers

Table 4 lists the industrial producers known to be operating in the 1995/96 season. The number of persons and companies harvesting conch for export have increased from 6 in 1991/92 (Mahon *et al*, 1992), to the 1995/96 season total of 13.

Production estimates

Since 1991/92 there has been a significant increase in the quantity of conch harvested from all areas. Table 5 lists the estimated production for 1991/92 and makes a projection for the 1995/96 season. These figures were obtained from export sources and the Fisheries Division. Production of conch was projected at approximately 2,000t the 1995/96 season. Tewfiq (1995) records that Jamaica "harvested a total of 2,300t in the 1993/94 season", but the current paper suggests slightly more than Tewfiq's estimate with some 2,600t for that season. This difference is based on records of exports and the ratio of 70% of landings being exported according to Mahon *et al* (1992).

The production of conch for the 1992/93 season was a high of approximately 3,000t. That production is equal to the estimated total weight of 3,000t of conch meats on Pedro Bank, this quantity being that present prior to the startup of commercial harvesting in 1990 (Mahon *et al*, 1992). The 1992/93 harvest was 1.6 times the potential yield of 1,818t/yr. for the conch stock on Pedro Bank estimated by Apeldoorn (1995). The only other conch producer in the region with level of catches compatible with Jamaica, is Mexico with a total of 1,478t of conch in 1991, down from 3,182t in 1990 (FAO, 1991).

Table 5. Estimated Jamaican Conch Landings, 1991-1995.

Year	Estimated Total Production (t)
1991/92	2,850
1992/93	3,000
1993/94	2,600
1994/95	2,600
1995/96	2,000 (projected)

Exports

The value of the product for the 1994/95 season export level of 2,000t was at least US$20 million. Since 1993 the main export market for Jamaican conch has shifted from the US to France, through the French overseas territories of Martinique and Guadeloupe and through them, to continental France. Table 6 shows Jamaican conch exports 1991 through 1995. Assuming the 2,000t national quota will be met and that 70% of landings will be exported, projected exports for the 1995/96 season should be approximately 1,400t. This will still be a high level of export compared to other regional countries.

An observation was that the value of conch on the international market was actually depressed by the flooding of the market by the Jamaican product in 1993. In fact, the conch fishery in the US Virgin Islands was forced to close by this flood of cheaper Jamaican conch (Appeldoorn, 1994). US imports of conch meat from Jamaica remained small in 1989 and 1990 with totals of 49t and 204t respectively. Worthy of note is that in 1994, Martinique submitted 35 requests for CITES permits to import 800t of conch (*S. gigas*) from Jamaica (Appeldoorn, pers. comm.).

Table 6. Exports of Conch from Jamaica 1991-1995.

Year	Quantity (tonnes)
1991/92	1,200
1992/93	1,500
1993/94	2,000
1994/95	2,000
1995/96	1,400 (projected)

Assessment studies

A formal scientific assessment of the conch fishery had never been carried out prior to the start of the industrial fishery, but plans for an assessment began in 1992 when the first discussions took place between the University of Puerto Rico and the Fisheries Division through CFRAMP. The study was carried out in November 1994, when a diver census was made of the Pedro Bank, the major fishing ground by a joint team from both organizations, mostly funded by the Jamaican conch industry. The results of this assessment are to be found in Appeldoorn (1995).

Generally, the study showed that density of conch on Pedro Bank was a stunning 10 to 100 times the densities reported from other areas (Appeldoorn, 1995). For details of that study the reader is referred to Appeldoorn (1995). He estimated the potential yield at 1,818t per annum. Most of the stock was reported as comprised of "stoned" conch *i.e.* conch more than 10 years of age. The Appeldoorn assessment report (1995) was the basis of Jamaican conch management recommendations for the next few seasons.

CITES and its effects

One factor which has helped, and will probably continue to help in the management of the fishery, was the placing in 1992 of the queen conch in Appendix 2 of CITES. What was noteworthy was that under these CITES regulations (which now required a CITES certificate for exit), during the 1993/94 season, the export of Jamaican conch came to a halt. A modest amount of conch in transit at the time was also lost from spoilage while papers were sorted out. Exports resumed when the Fisheries Division and importantly, conch industry representatives agreed to the implementation of a revised draft conch fishery management plan, which had been in abeyance up to that time. Thus, although, technically, Jamaica is not a signatory to CITES, these international regulations forced the conch industry to agree to management measures which had been drafted at joint meetings with technical advisors (CFRAMP, the University of the West Indies, Mona and others) and the industry.

Now, the contact agency for CITES is the Natural Resources Conservation Authority (NRCA), while the implementing agency is the Fisheries Division. One problem area identified by the present paper is that the areas of responsibility, as they relate to the enforcement of CITES regulations on conch, overlap at the present time between these two agencies named above, causing some confusion. We suggest that the role of the NRCA in this matter needs to be further clarified and that the Fisheries Division must play the lead role.

Management Policy Changes

Based largely on the results of the assessment study done at the end of 1994, (Appeldoorn, 1995) there have been a number changes in the management of conch resources. These are set out in summary form in Table 7. These are as follows;

1. No new licenses for industrial scale conch fishermen until further review
2. The annual quota for 1994/95 season was 2,000t and thereafter this will be reduced by 100t per year for the next five seasons to the year 2000 A.D.
3. No new large-scale conch fishing vessels will be allowed into the fishery
4. A second assessment of Pedro Bank conch stock will be done in year 2000 A.D. and will be again sponsored by the conch industry.
5. CITES will still monitor and issue certificates for the exit of conch product from Jamaica through their agents, the Natural Resources Conservation Authority (NRCA) in conjunction with the Fisheries Division.

Management meeting in June, 1995 with conch industry

An important consultation with the conch industry was held in June, 1995. The meeting was held in order to present to the industry operators the findings of the conch assessment study done the previous November. In summary, the changes to the plans for the operation of the industry were presented and

discussed and most of these were mentioned in the previous section.

In general, these were well received by those present and the gradual scaling down of the national quotas were the subject of particular debate. Most persons present desired a more gradual scaling down while others voiced a preference for an increase in the quota given the findings of the study.

Table 7. Management Measures (1995/96)

1. No new licenses for industrial conch fishing.
2. Annual quota for 1995/96 season is 2,000t and thereafter reduction by 100t per year for the next 5 years.
3. No new large-scale conch fishing vessels will be allowed into the fishery.
4. A second assessment of Pedro Bank conch will be done in 2000 AD, paid for by the conch fishery.
5. CITES conventions will be signed by Jamaica and CITES will issue certificates for the exit of conch from Jamaica.

Enforcement Vessel Acquisition

One of the most desired and encouraging developments for the enforcement of fisheries regulations, including those related that the conch industry, was the acquisition of a 15m (fast pursuit) enforcement vessel. This vessel was provided in conjunction with the USAID and was a former drug enforcement seizure. This vessel would be jointly crewed by the JDF Coast Guard and personnel from the Fisheries Division. The vessel is capable of high-speed oceanic travel, though in suitable seas.

CFRAMP Conch and Lobster Assessment Programme

In early October, 1995 the CARICOM Fisheries Resources Assessment and Management Programme (CFRAMP), held a conch and lobster sub-project specification and training workshop in Kingston, Jamaica.

In summary, the workshop related to the conch industry in that the current state of conch fisheries, as well a number of new documents on the biology, fisheries and management were reviewed. Also a series of new data sheets to be used for the entry of data on conch (and lobster) by data collectors were presented and discussed and are now to be modified.

A regional strategy for the assessment of conch (and lobster) stocks was presented and each of the 12 CARICOM countries attending presented information on the state of their national conch fisheries. These presentations in summary suggested that apart from Jamaica, the conch fisheries had all remained essentially unchanged in character and production with the most recent years.

New suggestions for long-term management

A number of suggestions are made by us to manage the fishery for the long-term. These are as follows (see Table 8);

a. a ban on the use of SCUBA as a fishing gear is vital. Note that this would not include hookah gear which would limit divers to about 15m due to the fact that the air is not compressed.

b. the total harvest must be reduced to 2/3 MSY (potential yield) or approx. 1,350t/yr. by approximately 5 years after 2000 AD at the very latest.

c. There is need to conserve the conch stock of Pedro Bank from foreign fishing and this needs the contribution of the Jamaica Defence Force Coast Guard. The suggestion is an offshore base on the Pedro Cays of Pedro Bank.

d. the operation of CITES vis-a-vis the Fisheries Division needs to be clarified.

e. the relationship between the NRCA as it applies to CITES and the Fisheries Division is in need of clarification.

Table 8. Long-term management suggestions for conch fishery.

1. A ban on the use of SCUBA as a fishing gear is vital. (Note that this would not include hookah gear which would limit divers to approx. 15m)
2. The total harvest must be reduced to 2/3 MSY (potential yield) or approx. 1,350t/yr. by approximately 5 years after 2000 AD at the very latest.
3. There is need to protect the conch stock of Pedro Bank from foreign fishing and this needs the contribution of the Jamaica Defence Force Coast Guard. Our suggestion is for a base on one of the offshore cays on Pedro Bank.
4. The operation of CITES vis-a-vis the Fisheries Division needs to be clarified.
5. The relationship between the NRCA as it applies to CITES is in need of clarification.

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