



Crown Agents

TECHNICAL CO-OPERATION ATN/SF - 2474 BA

**INSTITUTIONAL STRENGTHENING OF
FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES
BARBADOS**

VOLUME 5

**FINAL REPORT
VOLUME 5**

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TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES
BARBADOS

QUARTERLY REPORT
FOR PERIOD

JANUARY - MARCH 1989

WORK PROGRAMME

PROCESSING EXPERT

Task No. 1. To identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

Chill Storage Tests

A second series of chilled storage tests with flying fish were conducted to:

- a) train members of Fisheries Division staff in the taste panel technique for assessing fish quality.
- b) to collect more data on the use of Torry Fish Freshness Meter (T.F.M.) for measuring the quality of Flying Fish.

A total of six of the Fisheries Division staff, now have experience in taste panel techniques, having tasted and assessed the quality of 15 samples of Flying Fish, during a period of one month. In which time, the quality of the fish varied from excellent to inedible.

The data collected from the T.F.M. tests is being processed and the results will be reported at a later date.

Frozen Fish

One of the stated activities in the Expert's work programme is to do a series of controlled experiments to establish base-line data and demonstrate the correct practices for freezing and the cold storage of frozen fish and products.

No work has been done on this component of the programme to date, due to the lack of the proper facilities for the freezing and cold storage of fish.

Task No. 2. Advise Government as to what standards, codes of practices, etc. legislative or otherwise, are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

In the previous Quarterly Report, the Expert reported that he had submitted comments on the draft standard code of practice prepared by the Barbados National Standards Institution. As yet, there has been no response to these comments.

Task No. 3. Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

Training Course For Processors and Vendors.

In February, Fisheries Division was requested by one of the processing companies to provide an in-house training programme for their staff. The training to include, the basic principles of fish handling, plant cleaning and hygiene and personal hygiene. The Expert with the assistance of Ms. Bell, started the programme, but unfortunately due to the shortage of fish currently being experienced by the Barbados fishing industry, the company had to curtail their activities and lay off staff. It is planned to continue with the training as soon as the situation returns to normal and the company starts recruiting new staff.

Training of Markets Supervisory Staff

The Expert with the assistance of Ms. Bell, has been running training courses for supervisors and assistant supervisors of Markets Division during the months of February and March. To date, a total of 30 staff have attended the courses. The topics covered in the training programme are; the handling, storage and display of iced fish; plant cleaning and hygiene; and personal hygiene. Two major topics have still to be covered, however, viz. the methods of assessing fish quality and the correct practices and procedures for the operation of air blast freezers and cold stores. It is planned to provide on-the-job training in these areas once the freezing and refrigerated storage facilities become operational at the Complex.

Bridgetown Fisheries Harbour Complex

The Expert continues to assist Special Assignments, MAFF, with the technical problems affecting the operation of the air blast freezer, and recently attended a meeting at which the design consultants and contractors proposed certain modifications which they claimed would rectify some, if not all, of the faults in the plant. These proposals are being assessed by Special Assignments.

Task No. 4. Provide comprehensive training to local counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

Ms. Bell continues to be actively involved in all aspects of the Expert's programme and to receive on-the-job training.

FISHING EXPERT

Task No. 1 Design and implement a comprehensive experimental and development fishing programme, utilising a variety of fishing gear and operational techniques and at improving the efficiency of the fleet as a whole and to maximize the use of the available resources.

From discussions with the marine biologists of Bellairs Research Institute and Fisheries Division and local fishermen, and a literature review, it appears that squid are present in the waters around Barbados, during the months of March to August. In view of this information the expert decided it would be worthwhile to investigate if squid were present in sufficient quantities to support a local commercial fishery.

Using the technique successfully used by the Japanese for catching squid at night, the Expert fabricated two mechanized squid-jigging machines and installed them with attracting lights on the Fisheries Division's inshore boat m.v. Diadema.

The exploratory squid fishing programme started in early March and to date, only a few individual squid have been sighted but none attracted to the boat or caught. The work is on-going.

Drift Net Fishing for Dolphin Fish, etc.

In accordance with the Expert's work plan, work has started to investigate the use of large mesh drift nets (7" full mesh) for improving the catches of dolphin fish, king fish, tunas, etc.

The first few trips were made in March, using the Fisheries Division's in-shore boat, m.v. Diadema, during which no fish were sighted. The work is on-going and it is proposed to extend the fishing area by making trips aboard commercial off-shore boats.

Task No. 2. Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats and the Fisheries Division vessel.

The latter part of the charter of the fishing boat, m.v. Taygits, which finished in January 1989, was devoted to providing fishermen with "hands on" training in long-line fishing and related tasks. Details of which are given in the report "Exploratory Long-line Fishing and Training Programme", copies of which were sent to the Ministry and the Bank on 7th February 1989.

Task No. 3. Provide practical advice and assistance for the adaption of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The Expert has been actively involved in meetings with the Minister of Fisheries and senior Fisheries officers, convened to seek solutions to the current problems confronting the catching sector of the industry. In particular those of the off-shore sector of the fleet, who are unable to fish their traditional areas for Flying Fish.

Subjects discussed included new fishing methods and gear, and exploring new fishing areas both in and outside the Barbados E.E.Z.

Task No. 4 Provide comprehensive training to the local counterparts in a wide range of fishing techniques and operations.

Counterpart training during the quarter has covered a wide range of fishing gear technology. The counterparts are both trained to a high level of competency in long-line fishing and either counterpart is capable of pursuing this method of fishing unsupervised by the Expert. Training into "squid fishing gear" fabrication and "squid fishing vessel" outfitting and operations has successfully been accomplished. In addition, training has been undertaken in the construction of large mesh, surface drift nets, these nets are for exploratory/experimental fishing. This training in the latter two subjects is on-going.

Task No. 5. Assist in the acquisition or outfitting of a Fisheries Division experiments/demonstration fishing vessel.

The 26' Beach Worker "Diadema" of the Fisheries Division has been fitted out for exploratory squid fishing at night.



Crown Agents

TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES

QUARTERLY REPORT
FOR PERIOD
OCTOBER - DECEMBER 1987

TF P261

TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING OF THE FISHERIES DIVISION
OF THE
MINISTRY OF AGRICULTURE FOOD AND FISHERIES

VOLUME V

COMPLETE QUARTERLY REPORTS
JULY 1987 - DECEMBER 1989

This Volume contains the full and complete set of Quarterly Reports produced during the course of the Project.

FINAL REPORT

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**TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING OF
FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE, FOOD AND FISHERIES**

**QUARTERLY REPORT
FOR
PERIOD JULY - SEPTEMBER 1987**

Q.R. 1

TECHNICAL CO-OPERATION ATN/SF-2474-BA

INSTITUTIONAL STRENGTHENING OF FISHERIES DIVISION

OF MINISTRY OF AGRICULTURE, FOOD AND FISHERIES

QUARTERLY REPORT

FOR

PERIOD JULY - SEPTEMBER 1987

Prepared by: CROWN AGENTS FOR OVERSEA

GOVERNMENTS AND ADMINISTRATIONS

SUMMARY

The two full time members of the work team, the processing expert and the fishing gear technologist arrived in Barbados on the 1st July 1987. The marketing expert arrived on the 28th August for a stay of seven weeks, the first of his 8 month input.

A work programme, outlining the tasks and activities to be undertaken by the experts was prepared in accordance with the terms and conditions of the Agreement, and submitted to the M.A.F.F. and I.D.B. The programme also included details of equipment and marketing trials and their estimated costs, which are required by the experts to implement their various tasks. Also a request has been submitted for the provision of a multi-purpose fishing boat, which is required by the fishing gear technologist to execute the main part of his programme.

Three counterparts have been assigned to work with the experts. The fishing gear technologist has been assigned two fisheries assistants, both of whom are trained master fishermen. The processing expert has been assigned an administrative technical officer; a BSc in general science subjects .

As there was no person available or qualified to assign to the marketing expert on a permanent basis, it was decided that the counterpart assigned to the processing expert, should also assist the marketing expert.

A recommendation has been made to the MAFF that two more staff be recruited; one to have a background in food technology to act as a second counterpart to the processing expert and the other to have a background in marketing to be the counterpart to the marketing expert.

The work team has now completed their various surveys and gathered the necessary background information having met with representatives of all sectors of the fishing industry, Government and research institutions, the boat building industry, the catering industry and wholesale and retail outlets and are now ready and looking forward to implementing their programmes. Unfortunately the work team are faced with two major constraints, viz, the absence of operational funds and the shortage of counterpart staff.

As yet, there has been no response to their budget submission, consequently no equipment or fishing gear has been ordered or action taken regarding the acquisition or chartering of a multi-purpose fishing boat. It must be appreciated that some of the required items could take up to three months to be delivered. Thus if orders were placed in October, the items would not be delivered until January 1987; leaving roughly four months of the forthcoming "main" fishing season in which to do any worthwhile practical work. The work team is concerned that unless the matter is dealt with urgently, the whole of the "main" fishing season could be lost, which would delay the project by one year.

The shortage of counterpart staff is also a matter of some concern. The fact that the processing and marketing experts have had to share one counterpart has meant that both of their programmes have suffered. In the case of the processing expert, the controlled experiments to establish baseline data and to demonstrate the correct practices for handling and storing iced fish have had to be delayed.

In the case of the marketing expert, the scope of the work actually carried out on this, his first visit, was somewhat less than initially expected. The problem is now that the expert will not be present to help in the selection or direction of a counterpart, who hopefully will be recruited before the expert's next visit; planned for April 1988. Until a counterpart is recruited, little or no progress can be made in implementing the programme which the marketing expert planned to be done in his absence.

It is imperative that the problems of lack of funding and insufficient counterpart staff should be resolved quickly, before the project encounters serious delays. Consequently the work team would welcome the opportunity of meeting with the MAFF with a view to resolving the problems.

WORK TEAM

Two of the three man team, Mr James Templeton, fish processing expert, and Mr David Harrison, fishing gear technologist, arrived in Barbados on the 1st July 1987. Both are engaged full-time for thirty two months of the project.

The third member, Mr Ian Scott, marketing and distribution expert arrived in Barbados on the 28th August 1987, for a seven week stay. The first of his eight man month input, to be completed over the three year period of the project. Mr Scott's late arrival was due to his appointment having taken place after the sudden death of the original marketing expert Mr Gardiner.

The team have completed all administration formalities; obtained work permits etc, and the normal settleing-in process of finding houses, schools, etc.

COUNTERPARTS

Three counterparts have been assigned to work with the experts:

- The fishing gear technologist has been assigned two Fisheries Assistants, both of whom are trained master fishermen.
- The processing expert has been assigned an Administrative Technical Assistant; a BSc in general science subjects.
- The marketing expert does not have a counterpart as there is no one available to assign to him. The counterpart to the processing expert is therefore assisting him on a temporary basis.

A recommendation has been made to the MAFF that, given the counterparts have other duties and tasks to perform on behalf of Fisheries Division, the fish processing expert and fishing gear technologist should each be allocated two counterparts so that one is always available to work with the expert. Also, that the marketing expert who is engaged for eight months over the three years of the project, be allocated one counterpart. Such an arrangement would maximise the transfer of skill, knowledge and experience from the consultants.

THE FISHERIES DIVISION

The Fisheries Division, however, do not have sufficient numbers of suitably qualified staff to be counterparts to the fish processing and the marketing experts. Specifically there is a need to recruit a person with a background in food technology to be a second counterpart to the fish processing expert and a person with a background in marketing to be the counterpart to the marketing and distribution expert.

The Fisheries Officer submitted a request to the MAFF on the 11th September 1987, for two additional counterparts to be recruited. The Consultant is waiting for the decision of the MAFF.

WORK PROGRAMME

1 GENERAL

The Work Programme, outlining the nature and intended timing of each component of all the activities to be undertaken, by the experts was prepared by the Consultant in accordance with the terms and conditions of the Agreement. Attached to which were cost estimates covering the three components of the project; a sum of roughly US\$115,000. This figure excluded the cost of chartering or purchasing a boat which is essential if the fishing gear technologist is to implement his programme.

A total of ten copies of the Work Programme and attached cost estimates were submitted, five each, to the MAFF and IDB on the 19th and 20th August 1987, respectively.

Following the meeting with the Permanent Secretary, MAFF on the 17th August 1987, it was the understanding of the Consultant that the Work Programme had been agreed to in principle, but as yet this has not been confirmed in writing.

A letter was received from the IDB dated 24 September 1987, approving the work programme, but requesting a meeting to discuss the budget estimates. A date for this meeting has still to be set.

The report "Marketing Plan - Trials Spring 1988", was submitted to the MAFF and IDB on the 24th September 1987, as an appendix to the Work Programme. This report included an estimate of the costs involved in conducting the proposed trials; a sum of roughly US\$13,00.

2 PROCESSING EXPERT

Task No 1

Identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

Make recommendation as to how the problems and deficiencies can be corrected.

The expert is in the process of obtaining background information and baseline data relating to the existing practices of handling, processing, freezing and storage of fish in Barbados. Visits have been made to all of the fish loading sheds and markets, to some of the processing plants, and to the main commercial cold stores. Discussions have been held with:-

- Mr W Ince, Atlantic Fish Mongers Ltd
- Mr J Morgan, Fins and Fishbones, Seafood Distributors
- Mr A Miller, National Fisheries Ltd
- Mr L Wood, Belcar Ltd
- The management and staff of Markets Division, Oistins Fish Market.
- Representatives of the Barbados Fishing Co-op Society Ltd.
- The catering managements of the Hospitals and Schools meal services.
- Various fish vendors.

- The managements of various supermarkets.
- Dr Mahon, Bellairs Research Institute of McGill University.

From these visits and discussions the expert has been able to acquire considerable background knowledge and an idea of some of the problems and deficiencies in the present practices. Unfortunately, however, the period covered by this report coincided with the "slack" fishing season, when only small quantities of fish are ordered and sold direct to the consumers; more going to the processors for freezing and cold storage. Consequently, to date, only limited observations on present practices have been possible.

The detailed study of the existing practices which the expert proposes to undertake cannot start until the start of the "main" fishing season; November at the earliest.

The controlled experiments which the expert planned to do, the established baseline data and to demonstrate the correct practices for handling and storing iced fish, have been delayed. The problem being the lack of funds to purchase the necessary items of equipment and the lack of a counterpart. In the latter case, the counterpart assigned to work with the processing expert was temporarily assigned to the marketing expert. It being decided that as the marketing expert was here for a limited time (seven weeks), he should have priority of what limited resources were available. The matter of funding, or to be exact the lack of funds, is a matter of grave concern. It must be appreciated that some items of equipment could take up to 3 months to be delivered following the placement of a definite order. Thus if orders were placed this month (October) the earliest the equipment could be delivered would be January 1988; leaving roughly four months of the forth coming "main" fishing season to do any work in. It is imperative, therefore, that a decision regarding the funds available for purchasing equipment should be made this month, if the experts are to do any worthwhile work, with regards to developing new practices and techniques, and conducting demonstrations and training programmes, during the forth coming "main" fishing season which lasts from November through to June.

Task No 2

Advise Government as to what standards, codes of practices, etc legislative or otherwise are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

A meeting was held with the Barbados National Standards Institution (BNSI) to obtain information on the existing national standards and codes of practice relating to food products and food processing premises in general and seafoods in particular. Also to discuss the work they are doing as the National Co-ordinating Committee on Codex Alimentarius Matters from which new standards and codes of practice for the fish industry might be introduced. The expert plans to liaise closely with the BNSI in the implementation of this particular Task.

Copies of the US and Canadian regulations relating to the quality of fish products, processing establishments and the holding and transportation of fish have been obtained. Also the standards and codes of practice for fresh and frozen fish recommended by the Codex Alimentarius Commission of the FAO. The expert is in the process of reviewing these documents.

Task No 3

Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

A start has been made to assessing the training needs of the staff of Fisheries and Markets Divisions who are engaged in the supervision and operation of fish handling; processing, freezing and storage operations of the Government controlled fish markets and loading places.

With regards to the existing premises, unfortunately as it is the "slack" season observations of existing working practices have been limited, but what little the expert has seen and been told indicates there is a need for training in the correct practices for handling and storage of chilled fish.

It is planned to conduct on the job training programmes during the forthcoming "main" fishing season.

With regards to the new Bridgetown Fishing Terminal, given that it is due to be completed in May 1987, there is an urgent need to identify the staff as soon as possible so that they can be fully trained prior to the opening of the Terminal. Discussions have been held with the management of Markets Division, on this matter, but its understood that staff have still to be identified/recruited.

A start has been made in assessing what advisory and training services the commercial sectors of the industry requires. Until the "main" fishing season, begins, however, it is impossible to identify the areas of specific needs. In the meantime, assistance is being given to the Fisheries Division to plan general fish handling courses for fishermen and vendors which they propose to hold in the next financial year.

As a member of the Fisheries Division team which forms part of the Bridgetown Fishing Terminal working group, the expert has been actively engaged in providing technical advice on matters relating to the handling; freezing and storage of fish at the terminal. The group which includes representatives from Special Projects Division, Markets Division and MAFF, meets once or twice a month to resolve matters relating to the construction and future operations of the Terminal.

The expert also provides on-going assistance to the Fisheries Division, in dealing with requests they receive for advice from members of the industry or other Government bodies.

Task No 4

Provide comprehensive training to local Counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

Ms J Bell (ATA), BSc general science subjects, has been assigned as counterpart to the expert. Ms Bell is an extremely capable person, displaying the desired attitude towards the reception of training, but unfortunately she has limited knowledge of food technology and no experience of working in a food processing environment. Also it must be kept in mind that she has other duties in the Fisheries Division and is not available to work full-time with the expert. Consequently it is unrealistic to expect Ms Bell to become fully proficient in all aspects of fish handling and processing within the period of the project.

If Fisheries Division are to develop the capability of providing the fishing industry with advice and assistance in the areas of fish handling, processing, freezing and storage, it is recommended they recruit a person to be second counterpart to the expert. This person to be a trained food technologist.

With regards to Ms Bell, a programme will be structured to meet her training needs, with the assistance of Crown Agents training department.

FISHING GEAR TECHNOLOGIST

Task No 1

Design and implement a comprehensive experimental and development fishing programme, utilizing a variety of fishing gear and operational techniques aimed at improving the efficiency of the fleet as a whole and to maximise the use of the available resource.

A comprehensive survey of fishing villages, markets, facilities, discussions with fishermen, boatbuilders, the Fisheries Division staff, processors and other interested persons was conducted during July and August 1987. This survey was expanded into a survey of all available literature on the commercial fish resources of the Barbados E.E.Z. Meetings were also held with the staff of the Bellairs Research Institute and a courtesy visit to the F.A.O. Representative, (who offered the facilities of the F.A.O. Library). Information who also transmitted to the Project from the Crown Agents London office. This information originated from such places as the Americas, Japan,

Spain, Canada, UK and the Caribbean. By September 1987, based on the information, an exploratory developmental fishing programme was designed which was to be completed by February 1990. This programme and its bar chart is attached to this report.

The expert has submitted details and costs of the fishing gear, equipment and the type of multi-purpose fishing boat which are required to execute the programme. To date, no gear or equipment has been ordered and no decision has been forthcoming on the acquisition by purchase or charter of a suitable and safe boat. The expert is gravely concerned about this lack of action, as at best, it will delay the start of his fishing programme by at least three months. If the lack of urgency on this matter continues, there is the risk that no work is possible during the forthcoming "main" fishing season.

Task No 2

Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats or the Fisheries Division vessel. This task will be implemented at a later date in accordance with the work plan.

Task No 3

Provide practical advice and assistance for the adaption of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert has held a number of meetings with fishermen and boat owners, at Fishery Division offices and on location, in the field. Advice has been given on such subjects as: hydraulics, mechanisation of boats, gill net usage and where to purchase longlines and other gear. Practical instruction, on board vessel, was given in the operation and use of a depth sounder. This was demonstrated to one vessel's skipper and crew at the request of the boatowner concerned.

Task No 4

Provide comprehensive training to the local Counterpart in a wide range of fishing techniques and operations.

Two counterparts are available to work with the consultant. The arrangement is that Mr Victor Skeete, who is the Senior Fisheries Officer of the two, be the main counterpart, with the second counterpart, Mr George Dowrich, being assigned as and when Mr Skeete is unavailable. The counterparts have both received overseas training. Mr Skeete has a background of teaching and comes from a family of fisherfolk. Mr Dowrich was the skipper of a fishing vessel, before joining the Fisheries division, he has recently returned from a training course in Korea.

A training programme is being structured to meet the training needs of the counterparts, but the expert needs to know what types of fishing gear and equipment and whether or not a multi-purpose fishing boat will be available to him, before the programme can be finalised.

Task No 5

Assist in the acquisition or outfitting of a Fisheries Division experimental / demonstration fishing vessel.

The expert has provided assistance in preparing the Fisheries Divisions BW26 glass fibre speed boat, which had been out of the water for a year, for sea. The boat is to be used for the "inshore" components of the expert's experimental programme.

During the boat's sea going trials a number of faults were experienced; mainly with the engines and their controls. The faults were such that the boat had to be brought out of the water and the engines stripped down for a major overhaul. The repairs are still in progress.

Although the above problems have caused delays in the expert's programme, they have provided useful training for the counterpart in the area of boat management. They have also highlighted internal management problems regarding the maintenance of the boat which are now being dealt with; specifically the need for training the mechanics in the maintenance of out-board engines.

With regards to the "off-shore" or "Iceboat" component of the expert's programme, a recommendation has been made that the "Fish Division" acquire by charter or purchase, a suitable and safe fishing boat to be used by the expert during the period of the project. A specification of the type of multi-purpose fishing vessel required has been submitted to the Fisheries Division. A letter was submitted to the MAFF on the 3rd September 1987 stating the need for a vessel and several options available for acquiring one, and asking for the Ministry's comments. To date, no comments have been received from the Ministry.

MARKETING EXPERT

1 INTRODUCTION

The Marketing Expert arrived in Barbados on August 28th and left on October 18th following a 7 week visit. While in the UK the Marketing Expert had advised on a possible work plan based on the Terms of Reference and his work plan has been drawn up by the Project Manager in conjunction with the Crown Agents support team. This brief quarterly report will cover activities to date in general terms, assess the progress achieved on each of the individual tasks, highlight work which needs to be undertaken before the Marketing Expert's next visit (scheduled for Spring 1988) and comment on the various possibilities and constraints as perceived at this time.

2 ACTIVITIES

Taking the main objective of his initial visit to confirm the current market situation in Barbados with respect to all links in the marketing chain, the Marketing Expert undertook a wide ranging series of meetings with individuals in the catching, processing, vending, institutional, catering, retailing, consuming and government sectors. This built up a picture of the situation as it now stands as perceived differently by the various sectors and when allied with information gained from previous reports and updated statistics allowed the Marketing Expert to understand the various problems and prospects and thus develop a strategy (or market development) over the forthcoming period. Narrative, observation and analysis are combined in the completed report "Marketing Problems and Prospects in Barbados".

In addition, during his stay in Barbados, the Marketing Expert sat as an observer on the working Group dealing with preparations for the Bridgetown Fisheries Terminal which is currently under construction.

In making arrangements for meetings and attending meetings the Marketing Expert has been helped greatly by the efforts of two "counterpart" officers - initially Ms Bell and latterly Mr Willoughby. The consultant would like to express his thanks for their efforts. He would also note his ongoing discussions with A Burtonboy, an FAO expert looking for Fishery Co-operative Development.

3 TERMS OF REFERENCE

Task No 1 Identify Problems and Deficiencies in Present Practices of Fish Marketing and Distribution in Barbados with Recommendations as to how these may be achieved.

A comprehensive survey of individuals and entities has been undertaken, looking at current patterns and examining problems. Examples of meetings which have taken place.

Processors: Atlantic Fishmongers Ltd
Fins and Fishbones
National Fisheries
Belcar

Vendors: A number have been met.

Fishermen: Skippers/owners ranging from moses to day boats to ice boats have given their opinions about the difficulties they encounter and also their plans for a co-operative.

Supermarkets: Managers of leading supermarkets have discussed the state of the retail market.

Hotels: Purchasing officers in several hotels have explained their buying policies, quantities, prices etc.

Institutions: Two hospitals and the schools Meal Service indicated their requirements.

Government: Talks were held with Barbados Export Promotion Council and the Government Information Service.

Statistics: Statistical data was recovered from trade print outs held at the Ministry of Agriculture and also the annual fishery statistical publication.

Consumers: In liaison with counterpart officers a consumer survey was devised and carried out.

Importers: Two leading importers were contacted.

The information gained from these meetings went to make up a detailed review of the local market situation, and to confirm or question previously held perceptions of the position with regard to marketing. In gathering together information a full review was made of previously conducted investigations such as:

Fisheries Development Plan Barbados August 1980.

The role of Fish In Food Consumption and Nutrition in the Caribbean
January 1984

Techno-Economic feasibility study of Fish Processing In Barbados.

Following the review the Marketing Expert detailed a possible marketing strategy for deliberation and comment by the Department of Fisheries and IDB. It is anticipated that this strategy's implementation will form the major part of the Marketing Expert's work input until the end of the Project.

Task No 2 Assist all sectors of the Fishery industry Government Institutions and departments to improve the marketing and distribution by advising, demonstrating and training personnel where necessary.

Now that preliminary detailed discussions have been held with the various entities within the fish marketing sector, the Marketing Expert has a clearer understanding of their strengths and weaknesses and will be able to add to his workplan accordingly. There are a number of principle difficulties.

- i) the usual divergence of interest between fishermen and the on-shore sector.
- ii) difficulties in conceiving fresh fish distribution other than by traditional methods eg vendors and hawkers.

- iii) processors lack of capital to build up high stock levels in anticipation of the off-season.
- iv) lack of cold storage capacity with which to maintain adequate stock levels when capital is available.

Work covering the various issues can commence in earnest on the consultants next visit.

Task No 3 Design and Execute an Export Market Study for Flying Fish.

For planning and costing purposes a basic brief has been worked out to highlight the basic methodology by which this study may be completed. In addition, discussions on export capability and interest have been held with the various processors, and also initial talks with the Barbados Export Promotion Council (BEPC) to ensure that there would be no duplication of effort. BEPC would welcome the study and would also consider that it may prove beneficial for their own desk officer covering the fish review to take part in any planned study. However, they did mention, and this was confirmed by some processors, that local catches did not adequately cover domestic demand. Despite this, the Marketing Expert is of the firm opinion that the prospects for export market development should be thoroughly examined, this being particularly pertinent given the scale of fish processors at the present time and increasing competition for their product (ie fillets) in the domestic market. The need to ensure processing standards to the level demanded by the International market may well prove to be a strong motivator and catalyst for speedy development of the domestic processing capability.

Prior to his departure from the UK, the Consultant contacted a leading UK importer/processor and ascertained their substantial interest in sourcing Flying Fish in Barbados.

Task No 4 Pay Special Attention to the design of schemes and mechanism that would collectively assist in increasing local fish consumption, decrease fish importation and develop export markets for local fish products.

Given that a major problem is the poor distribution of fresh fish throughout the island in the season, except in times of glut, a scheme has been devised (after the various alternatives were considered) to have marketing trials on one route for a period of 6 weeks using established retail outlets as a selling medium. Iced fish would be delivered directly to the retail outlet on a daily basis. To successfully undertake this programme will require significant commitment from the Department of Fisheries in terms of manpower and finance (working capital). It cannot be emphasised too strongly that unless such commitment is given, then such trials should not take place: half-hearted attempts could lead to a substantial negative impact on overall effort and reduce the opportunities for improving the fish distribution system in future.

An alternative to the Department carrying out the Marketing trials is to enlist the help of a third party - such as the Co-op, if this has reached such a level so that it can effectively contribute. Effectively, this would mean a large proportion of the Marketing Expert's time in his next tour of duty would be spent working with his counterpart with the Co-Operative.

On an Educational Programme there appears to be two areas for consideration immediately.

- i) consumer acceptance of iced fish.
- ii) consumer acceptance of different product forms.

For product development we need to look at

- i) potential for smoking flying fish.
- ii) potential for salt curing imports of frozen groundfish (rather than importing the finished product).

For export markets we can additionally look at the prospects for flying fish roe to Japan.

Task No 5 **Provide comprehensive Training to a local counterpart in all aspects of fish distribution relevant to the Barbados Fishing Industry.**

The initiation of this task has been postponed pending the employment of a specific counterpart to the Marketing Expert. Discussion has been held within the Department about the type of person required and it is believed appraisal has now been sought from the appropriate Government department for the filling of the post.

Initial discussion has taken place with Mr John Theaker, Training Director for the Crown Agents, on the various factors to be taken into consideration when looking at the counterparts training needs. The Marketing Expert has detailed the various duties of the counterpart in his role as Marketing Officer, together with the training aspects which may be covered by various individuals/bodies. Such plans cannot be firmed up until the individual has been appointed and the Marketing Expert has a better idea of his/her existing skills and competence. However, a major task in the first four months would be for the Counterpart to undertake a study, on his own account, of the prospects for development of a market for smoked flying fish.

On overseas courses, Humberside College of Higher Education, School of Fisheries Studies has been contacted, and in addition the UK Sea Fish Industry Authority has been approached to ascertain their receptiveness to on-the-job training in the UK within their marketing department.

Task No 6 Prepare and submit progress and final reports to the Ministry of Agriculture Food and Fisheries.

These would appear to be no problem in satisfactorily completing this task.

4 WORK TO BE UNDERTAKEN PRIOR TO MARKETING EXPERT'S NEXT VISIT.

- i) The counterpart has to be selected. As the Marketing Expert will not be present to advise on recruitment, it is important that all application forms and letters of application are sent to the Marketing Expert at his home base so he may draw up his preferred shortlist for interview.

- ii) Suitable funding for any marketing trials has to be approved, with a commitment that these will be available for the period commencing April 1988. The appropriate government department should advise on the accounting procedures required, while another should advise on the legal ramification of the Department engaging in commercial activities, no matter how short the time scale.
- iii) Given approval for the marketing trials the required equipment should be acquired - most notably insulated boxes and publicity material - prior to the Marketing Experts return.
- iv) The counterpart, and under the guidance of the Fisheries officer, the Project Manager and the Co-operative Expert, should seek to develop plans for the marketing trials.

- : publicity material
- : contact with retail outlets
- : contact with possible suppliers
- : contact with Buyers.

5 COMMENTS

Work within the initial visit has largely gone as planned, despite difficulties encountered due to the lack of a full time counterpart. One cannot blame the two officers allocated - each has his/her own duties to do and it is unfair that they should be asked to commit too great an amount of time to the specific needs of the Marketing Expert. However, it is imperative that a suitable officer is made available at the earliest opportunity now that the study/initial planning stage has been completed.

At the same time, it is extremely difficult to make plans for future inputs without any firm idea of the funding constraints. This is particularly severe as the Marketing Expert, who is essentially a short term consultant over a number of time periods and who is not continuously available to revise his plans, accomodate changes, argue his case etc. This makes it all the more important that a climate is provided whereby the consultant can work efficiently and effectively throughout his stays.

OVERSEAS TRAINING

The situation regarding Overseas Training for Fisheries Division staff, is somewhat ambiguous.

The Agreement between the MAFF, and the Consultant, Section 3.02 (iv), states that one of the specific objectives of the project shall be: To develop the capabilities of the Fisheries Division in the areas of, viz fishing gear technology, fish processing, and marketing and distribution by short term training abroad of part of the staff.

Whereas,

The Agreement between the MAFF and the IDB, Section 2.04 states;

The Beneficiary, through the Ministry, shall select three professional/technical staff members from the Fisheries Division for special overseas training in the areas of:

- i) fishing gear technology and fishing methods;
- ii) fishing research vessel operations and research methodology;
- iii) fish handling, processing, freezing and storage;
- iv) fisheries management including fisheries statistics and data processing, fishing cooperatives and fishing vessel design and outfitting.

In the former Agreement, the Consultant is asked to provide training in the area of marketing and distribution, whereas it is excluded in the latter Agreement. Also in the latter Agreement, two areas are included which do appear in the former Agreement, viz training in fishing research, vessel operation and fisheries management.

The Consultant has proposed that the Counterparts, who are to be assigned to the three specialists, should be given a structured training programme, which would include attendance at an institution, or job-placement overseas. The overseas component to take place at the beginning of 1989.

The Agreement between the MAFF and the IDB, Section 2.05 requires that the overseas training takes place twelve months from the date of the Agreement.

Given the differences stated above, there is a need for the MAFF to clarify who they want trained and in what specialised areas and when.



TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES
BARBADOS

QUARTERLY REPORT
FOR PERIOD

JULY - SEPTEMBER 1988

WORK TEAM

Mr. Ian Scott, Marketing Expert, left Barbados on the 11th July to do an export market survey for flying fish in North America and Europe. This completes the second phase of his work programme.

Mr. David Harrison was absent from Barbados from 17th June to 25th July on annual leave.

Mr. James Templeton was absent from Barbados from 12th July to 21 August on annual leave.

WORK PROGRAMME

1. GENERAL - PROJECT FUNDS

The Fisheries Officer has submitted a request to the Ministry that the balance of the funds allocated to the project; a sum of US\$40,000, be included in the Ministry's supplementary for this fiscal year. Also that a portion of these funds be made available for the proposed marketing trials of chilled and frozen fish.

2. PROCESSING EXPERT

Task No. 1. To identify problems and deficiencies in present practices of fish handling processing freezing and storage in Barbados.

Make recommendations as to how the problems and deficiencies can be corrected.

The work done on this task during this quarter has been limited. Since returning from leave, the expert has prepared material for a training course for fish vendors. The recent survey conducted by the expert, showed that the vendors had little or no knowledge of good fish handling practices, consequently the objectives of the proposed training course are: to instruct the vendors in the principles of good handling, storage and retailing of iced fish. It is planned to start the courses in October, 1988.

Task No. 2. Advise Government as to what standards, codes of practices, etc. legislative or otherwise are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

This task has been put in abeyance until Task No. 1 has been completed. By that time the present practices and problems which exist within the industry will be better understood by the expert, enabling him to recommend codes of practice, etc. that are appropriate to the needs of the Barbados fishing industry.

Task No. 3. Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

Much of the expert's time this quarter was spent in assisting the Special Assignment, MAFF, to monitor the commissioning trials of the refrigeration plant and equipment at the Bridgetown Fisheries Harbour Complex. To date a series of performance tests have been done on the air blast freezer and ice plant, which have brought to light certain deficiencies in their performance. These have been referred to the designer and equipment supplier.

Unfortunately, due to a major problem with the cooling water supply, the refrigeration plant has had to be shut down and the Commissioning trials put into abeyance until a solution is found to the problem.

The expert has prepared an outline of a training course for the supervisory staff of the Markets Division, MAFF, who are engaged in the operation and management of the division's fish markets.

The aims of the course are: to demonstrate and teach fish handling, processing, freezing and refrigerated storage, pertinent to the Barbados fishing industry.

The expert has discussed the course with the Senior Superintendent Marketing Division, who expressed much interest in this course. Unfortunately, however, owing to staff shortages, the Senior Superintendent is unable to release personnel to attend the course during normal working hours at this moment in time. This probably means that the start of the course will be delayed until sometime after November.

Task No. 4. Provide comprehensive training to local Counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

Mr. J. Bell returned to work after her overseas training course, in September 1988.

It is planned to continue with the on-the-job training programme and to involve Ms. Bell in the organisation and running of the proposed training courses for the vendors and the supervisory staff of Markets Division.

Task No. 5. Assist in the acquisition or outfitting of a Fisheries Division experimental demonstration fishing vessel.

The expert assisted the Fisheries Division with the final arrangements for the lease of a local commercial fishing boat. The agreement was signed on the 22nd September 1988 and the lease is for a period of four months to January 1989.

Some administrative details have still to be finalised such as the insurance cover for the Government owned equipment and gear which will be installed on the boat, but it is hoped the boat will start exploratory fishing in mid-October.

4. MARKETING EXPERT.

The expert left Barbados on the 11th July 1988, to undertake an export market study for flying fish and other seafood products, in the U.S.A., Canada, U.K., France and Germany.

The visits to France and Germany had to be postponed until after August, the main holiday period in these countries. This has caused the report of the "study" to be delayed until late October.

Given the considerable interest at present in possible investments in boats and equipment for catching swordfish for export to the USA, it was decided that the expert should make a brief investigation of the current status of the swordfish fishery in the Caribbean. The findings of this investigation are given in the report, "Advice on the Current Status of Swordfishing Activity" (attached).

5. OVERSEAS TRAINING

1. MS. J.J. BELL

The main objective of the programme, apart from the specific "learning" attachments, was to expose Ms. Bell to all the facets of a well-integrated, commercial fish industry in order that she may have a better understanding of the steps required to upgrade the Barbados fish industry.

From discussions with Ms. Bell, it appears that this objective has been met; she is now able to give a much better assessment of the problems of the local industry and on what are, or are not, practicable solutions.

3. FISHING GEAR TECHNOLOGIST.

Task No. 1. Design and implement a comprehensive experimental and development fishing programme, utilizing a variety of fishing gear and operational techniques aimed at improving the efficiency of the fleet as a whole and to maximise the use of the available resource.

The lease of a local commercial fishing boat was not signed until the 22nd September 1988. Consequently the expert was unable to do any work on this task in this quarter, apart from making ready some fishing gear.

The expert has now made a start to installing the fishing equipment and gear, and navigational and fish finding equipment. As soon as this is completed, he will commence the exploratory fishing programme.

Task No. 2. Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats or the Fisheries Division vessel.

This quarter coincides with the end of the main pelagic fishing season and the beginning of the "off" season. As a result, there was no opportunity to demonstrate new fishing equipment and techniques.

Task No. 3. Provide practical advice and assistance for the adaptation of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert has been active doing extension work, visiting the fishing centres and advising and assisting boat owners to equip their boats for long-line fishing. Also advising fishermen on new methods and techniques of catching demersal species such as snappers.

Assistance was also given with the repair of winches for hauling fish pots, and on possible ways of making the pots and their catches safe against interference by other persons.

Task No. 4. Provide comprehensive training to the local Counterpart in a wide range of fishing techniques and operations.

Little training took place in this quarter due to the expert being absent for annual leave and the counterpart's participation in a training course for local fishermen.

The expert also participated in this training course, demonstrating the use of satellite navigation equipment.

2. Mr. V. Skeete

Mr. Skeete left Barbados on the 14th September 1988, to commence his training programme, based at the School of Fisheries Studies, Humberside College of Higher Education, UK. Details of his programme were given in the quarterly report for January - March 1988.



Crown Agents

TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES
BARBADOS

QUARTERLY REPORT
FOR PERIOD

OCTOBER - DECEMBER 1988

WORK PROGRAMME

PROCESSING EXPERT

- Task No. 1. To identify problems and deficiencies in present practices of fish handling processing freezing and storage in Barbados.

A series of tests were conducted to establish the shelf life (keeping quality) of fresh, (iced) swordfish, as part of the programme to obtain base line data on the species of most commercial importance to the Barbados fish industry.

Recent export market surveys have shown that there is considerable potential for the export of swordfish to North America, but the demand is for good quality fresh fish. It is of considerable practical importance, therefore, to know the shelf life of fresh swordfish.

Swordfish, caught by the fishing gear technologist, were chilled and stored in ice at a temperature of 0 C to +1 C for 34 days. Samples were taken every 2 to 3 days and assessed for eating quality (odour, flavour and texture). The fish was judged to have reached its limit of high quality after 15 days, and its limit of acceptability after 30 days. These results correspond with information obtained from American trade journals which quote the shelf life of sword fish as being "two weeks or more".

Therefore to ensure a good quality product and to obtain the best price, fresh, (iced) swordfish should reach the buyer in North America within 15 days of it being caught.

- Task No. 2 Advise Government as to what standards, codes of practices, etc. legislative or otherwise, are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

The Barbados National Standards Institution (B.N.S.I.) prepared a draft standard code of practice for frozen fish, which was sent to the Fisheries Division and other interested parties for their comments. The expert, at the request of the Fisheries Officer, studied the draft and submitted a memorandum giving his comments and suggestions for some changes.

The draft code of practice in its present form tends to give general guidelines only, the expert has recommended that it give more specific guidelines which are appropriate to the needs of the local industry.

Task No 3 : Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

Training course for processors and vendors

A course has been designed and implemented to train processors and vendors in the handling of iced fish. The topics covered include:-

- * how to chill fish using ice
- * the correct use of chillrooms
- * how to display iced fish
- * the need to handle fish carefully and keep them clean
- * correct cleaning and hygiene practices for fish handling premises
- * personal hygiene

Four courses were run during October and November just before the start of the fishing season, at which, between 8 and 10 trainees attended. All of the trainees currently use the facilities at the Cheapside fish market.

It was decided to target this group initially, since it was anticipated they would be moving to the new Bridgetown Fisheries Harbour Complex sometime during the current fishing season, where they will be required to sell iced fish and follow good fish handling and working practices.

The training sessions consisted of lectures supported by the use of training films and practical demonstrations followed by discussions. Unfortunately, since these sessions took place during the off season, demonstrations involving the use of fish was not possible. This deficiency is being rectified by means of an extension programme of on-the-job instruction and demonstrations.

The introduction of the extension programme is an important development, since it has created a direct and on-going communication link between the vendors and processors at the Cheapside Fish Market and the staff of the Fisheries Division. It is proposed to extend this programme to the other fish markets and major fish processing companies.

An advisory note, "The Handling of Chilled Fish by Processors and Vendors", has been prepared to reinforce the training programme and will be issued shortly. A second advisory note, covering the topics of personal hygiene and cleaning and hygiene in fish handling premises is in the final stages of preparation by the counterpart Ms. J. Bell.

Also it is planned to use the project's video camera to make a training film showing the correct practices for handling chilled fish, for use during future training course for processors, vendors and fishermen.

Consumer Education

During the training courses for the processors and vendors, it was frequently stated that the main reason for not using ice to chill the fish during storage and when displayed for sale, was that consumers would not buy iced fish. It appears that in Barbados there is a general misconception and mistrust of the use of ice to chill fish. This is possibly due to various malpractices on the part of the processors and vendors in the past.

To overcome this consumer resistance, it is planned to try and educate the general public about the correct usage and benefits of using ice to prevent spoilage and to maintain a uniformly high standard of fish quality. It is proposed to give lectures and demonstrations to such bodies and organisations as schools, youth and health groups, training centres for the catering industry, etc. A start has been made within the National Nutrition Centre's community nutrition programme, the objectives of which are to create an awareness of the importance of good nutrition practices to the maintenance of good health. To date, three lectures have been given to groups of people suffering from diabetes, on such topics as, assessment of fish quality, the use of ice to chill fish, cooking methods and nutritional aspects of good quality fish.

It is planned to hold discussions in the near future with the Government Information Service, with a view to making a short film for television which would enable us to reach a wider audience.

Training of Public Health Officers

An invitation was received from the Division of Health Sciences, Barbados Community College, to present a lecture to their student public health officers, on the quality assessment and handling of fresh (iced) fish. The lecture was well received and has led to discussions between the College and Fisheries Division, with a view to the latter preparing a training module on fish quality inspection to be included in the College's course for Public Health officers. The discussions are on-going.

Training of Markets Supervisory Staff

In the last quarterly report, it was reported that discussions had been held with the Senior Superintendent Markets Division, MAFF, with

regards to running training courses for the supervisory staff at the fish markets.

The courses have still to get underway but the expert is pursuing the matter and hopes to start in the near future.

Initially, the training will have to be limited to the handling of chilled (iced) fish only, since the facilities for the freezing and cold storage of fish to Internationally acceptable standards do not exist in Barbados at present. It is proposed, therefore, to conduct part of the training at the Oistins market, which has the facilities for handling and storing chilled (iced) fish.

Bridgetown Fisheries Harbour Complex

The expert attended meetings with representatives of Special Assignments, MAFF, and Stevenson Hluchan Associates Ltd., (SHAL) and Kopernaes Engineering Ltd (KEL), to discuss the technical problems affecting the operations of the air blast freezer. The results of which, was that KEL agreed with the findings stated in the expert's report FPE/R6 - AIR BLAST FREEZER TESTS, that the blast freezer air temperature should be on average of -25 F throughout the freeze and that there is a problem due to the low compressor suction temperatures. KEL also stated they would review the design and discuss possible modifications with their Contractor (minutes of client meetings on 21, 22 and 23 November 1988, from SHAL).

Task No. 4 : Provide comprehensive training to local Counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

Ms. Bell was actively involved in all aspects of the expert's programme during this period, putting into practice some of the skills and knowledge acquired during her overseas training programme. In particular she was responsible for liaising with the committee of the National Nutrition Centre's community nutrition programme and for preparing and giving the lectures at the meetings which they organised, and for running part of the training courses and extension programme for the processors and vendors.

Ms. Bell's on-the-job programme is continuing and she is presently receiving training in the theory and operation of ice plants, freezers and refrigerated stores.

FISHING GEAR TECHNOLOGIST

Task No. 1 Design and implement a comprehensive experimental
& No. 2 and development fishing programme, utilizing a
variety of fishing gear and operational techniques
aimed at improving the efficiency of the fleet as
a whole and to maximise the use of the available
resource.

Demonstrate the improved fishing techniques
to commercial fishermen primarily aboard
privately owned boats or the Fisheries Divisions
vessel.

As part of the exploratory fishing and training programme, the MV "TAYGITS", a forty foot fibre glass fishing boat constructed in the USA, was chartered from the 20th September 1988. Since that time there have been 12 cruises, totalling 26 days at sea. The majority of effort was concentrated on long lining for Swordfish with approximately 6 miles of line set on each occasion with an average of 91 hooks per set. A total of 29 Swordfish were caught, 4 Tuna, 11 Sharks and one Sail Fish.

Initial analysis of the results show that catches increase with a full moon and also with fishing depth. The general trend during the course of the trials was for an increase in catches the further operations progressed into the main fishing season. One general concern was the notably small size of the Swordfish, an average weight of 52.2 lbs, which tends to support concerns expressed elsewhere about the long term viability of the Swordfish fishery.

Apart from trial fishing, one cruise was dedicated to the preparation of a video film of the long line operation for use as a training aid and another was used to prepare a video of flying fish operations for the purposes of demonstrating fish handling at sea. On each cruise, the counterpart master fishermen selected two trainee fishermen for 'hands on' training of long line fishing and related tasks.

Task No. 3 Provide practical advice and assistance for the
adaption of improved fishing gear to local
commercial fishing vessels including minor boat
design changes necessary to optimise the use of
the improved gear.

The Expert continued to provide advice and assistance on ways to improve existing fishing methods by introducing the use of lightsticks into the handline fishery for demersal fishes.

The lightstick is attached to the line close to the baited hook and when lit attracts the fish to the hook.

One fisherman who has tried this method has reported improved catches of Snappers.

Task No. 4 Provide comprehensive training to the local counterparts in a wide range of fishing techniques and operations.

During the charter period of M.F.V. "TAYGITS" both counterparts were fully trained in all aspects and techniques of longline fishing for swordfish, tuna, and other large pelagic fishes.

Fisheries Officer, Mr. Victor Skeete, successfully completed the overseas training component of his training. He returned to his duties by mid December 1988. Mr. Skeete, who had participated in an earlier artisanal longline fishing programme, received additional training aboard "TAYGITS" upgrading his skills to include "offshore" longline fishing.

Task No. 5 Assist in the acquisition or outfitting of a Fisheries Division experimental demonstration fishing vessel.

The expert had earlier identified the M.F.V. "TAYGITS" as a suitable working platform for the offshore fishing component of the working programme. This vessel was leased by the Fisheries Division for a period of four months, from September 20 1988 to January 20 1989.

The expert supervised and participated in the fitting out of the vessel with the additional equipment for the longline fishing programme. In addition, a number of boat owners and fishermen interested in longline fishing were invited to view the equipment and given demonstrations of the use of the satellite navigator and echo sounder.

MARKETING EXPERT

The findings of the export market study which the expert, Mr. I. Scott, conducted in the U.S.A., Canada, U.K., France and Germany, during the period July to September 1988, are given in the report "Market Opportunities for Barbadian Exports of Fresh and Frozen Fish to North America and Western Europe". Copies of the report were sent to the Ministry and to the Bank on 23 November 1989.

The expert's counterpart, Ms. C. Jones, has been engaged in implementing some of the tasks set by the expert.

Poster Competition: It was proposed to promote interest in good quality iced fish amongst school children, by holding a poster painting competition, the winners of which were to be displayed at the opening of the Bridgetown Fisheries Harbour Complex. Unfortunately the idea had to be abandoned after encountering problems with the Ministry of Education in the organisation of the competition.

Weekly Price Survey: Fish prices are being monitored at Oistins market each week and forwarded to B.M.C. for inclusion in BASIS, the weekly marketing report published in the Sunday Sun newspaper.

Fishing Industry News: The Counterpart is now responsible to the Fisheries Officer for the production of the Division's newsletter which is distributed to the industry each month.

Institutions: The Counterpart is now a member of the committee of the National Nutrition Centre's community nutrition programme, with the objective of creating public awareness to the benefits of good quality fish and thereby promoting increased sales.

New Investment: The Counterpart has provided marketing information to financial institutions and individuals who are contemplating investing in the fishing industry.

OVERSEAS TRAINING

Mr. V. Skeete, Counterpart to the Fishing Gear Technologist, returned to Barbados in the middle of December on completion of his training programme in the U.K. Mr Skeete will be issuing a report on the programme shortly.

The Consultant is assisting the Fisheries Division to find a suitable training course for the Marketing Expert's Counterpart, Ms. C. Jones. A number of training organisations have been contacted in the U.K. and the Consultant should be able to advise on a suitable course in the near future.

**TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
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BARBADOS**

**QUARTERLY REPORT
FOR PERIOD**

APRIL - JULY 1988

WORK TEAM

Mr. Ian Scott, Marketing Expert, arrived in Barbados on the 1st April, for the second phase of his work programme. He will leave on the 11th July, to do an export market survey for flying fish in North America and Europe, which will last for roughly 25 days.

Mr. David Harrison left Barbados on 17th June for annual leave and is due to return on the 25th July.

Mr. James Templeton will be taking annual leave from the 14th July until mid-August.

COUNTERPARTS

Miss Cheryl Jones joined the staff of Fisheries Division at the beginning of April and was assigned to act as counterpart to the marketing expert. The three experts now have one counterpart each assigned to work with them.

WORK PROGRAMME

1. GENERAL - PROJECT FUNDS

The items of equipment ordered in February were all delivered in early April. A total of roughly US\$50,000 was spent out of the allocated sum of US\$88,000. It is understood that the balance of this sum will be made available later this year or at the beginning of the next financial year.

Unfortunately, the Barbados Marketing Corporation were unable to provide the funds for the proposed marketing trials of chilled fish and consequently the trials had to be cancelled. It is hoped that funds will be made available when the marketing expert returns next year for the final phase of his work programme.

We are pleased to report that the MAFF have arranged to fund the Export Market study for flying fish. The marketing expert will leave Barbados on the 11th July and plans to visit North America and Europe.

2. PROCESSING EXPERT

Task No 1. : To identify problems and deficiencies in present practices of fish handling processing freezing and storage in Barbados.

Make recommendations as to how the problems and deficiencies can be corrected.

The expert has finished the series of controlled experiments which were designed to establish base-line data and demonstrate the keeping quality of chilled fish. The final tests, just completed, investigated the use of the Torry Fish Freshness Meter (T.F.M.) as a reliable instrument for assessing the quality of flying fish.

The results obtained with the T.F.M. are very encouraging and showed a good correlation with the sensory method of assessing quality, i.e. touch, smell and taste. At this stage, the expert is of the opinion that the instrument could be used by Inspectors as an aid to the sensory method for assessing fish quality. More work is needed, however, before deciding whether or not it could be used as the sole means of measuring and regulating quality standards.

The results of the TFM tests and the previous chill storage tests will be reported in detail as soon as all the data is processed.

The expert has just completed his study of the existing practices of handling "wet" (iced and un-iced) fish. In addition to general observations, two surveys were made of the handling and icing practices on board ice boats, and by the vendors who are to be relocated in the new Bridgetown Fishing Complex.

The findings of these surveys will be reported as soon as all of the data has been examined. The preliminary data from these surveys suggests that:-a) most of the fish landed by the ice boats is of good quality but that certain practices could be improved and b) there is a need to educate both vendors and consumers about fish quality and the use of ice for preserving quality.

The expert proposes to issue advisory notes to the owners and skippers of ice boats on the correct practices of handling and icing fish at sea and on the design of fish rooms on boats. Also to run training workshops for vendors and to prepare educational material, video films, etc. for the general consumer.

The expert had planned to do a series of experiments to establish base-line data and demonstrate the correct practices for the freezing and cold storage of the local fishes. Unfortunately, due to the lack of the proper freezing facilities, these experiments had to be postponed.

Given the problems which arise when there are "glut" landings of fish, it is imperative that the local market be expanded and the new markets be found, therefore every effort should be made to ensure that the proposed marketing trials and export study do take place during Mr Scott's next visit.

Task No 5 - Assist in the requisition or outfitting of a Fisheries Division experimental/demonstration fishing vessel.

The Fisheries Division is considering the possibility of chartering a commercial fishing boat, to be used by the expert for executing his experimental and developmental fishing programme and for demonstrating the new gear and techniques and training fishermen in their use. The expert has assisted the Division by identifying a suitable boat and conducting sea trials, and by taking part in the negotiations with the owners of the boat. A draft lease agreement has been agreed with the owners which has been submitted to the Permanent Secretary for his appraisal and possible approval.

4 MARKETING EXPERT

The expert, Mr Ian Scott, completed the first phase of his work programme during his visit from 28th August to 18th October 1987, which was largely devoted to confirming the status of the current marketing situation, identifying problems and developing ideas on what may be workable courses of action. The work done by Mr Scott is comprehensively reported in his progress report, "Barbados - A Review of Fish Marketing and a Programme for Future Development", which has been submitted to the MAFF and IDB.

Mr Scott, proposes returning to Barbados in April 1988 to implement the second phase of his work programme, which includes proposed marketing trials of chilled fish and an export marketing study. As both of these exercises will be required to be funded; the budget for the former is Bds\$30,750 and the latter is Bds\$24,850, there is a need to decide whether or not the funds can be made available for them to take place during Mr Scott's next visit.

The Barbados Marketing Corporation was approached to see if they would finance and conduct the chilled fish marketing trials, and it is understood they have agreed in principle but that no definite arrangements can be made until a new general manager has been appointed.

The task will be implemented at a later date in accordance with the work plan.

Task No 3 - Provide practical advice and assistance for the adaptation of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert has completed a seven day trip aboard an ice-boat to observe at first-hand the existing methods and techniques of fishing and of handling and storing the fish, and to advise the crew on how they might improve their existing practices. The expert has also been asked for his assistance in fitting out a boat for longline fishing for swordfish and tuna, and as soon as the boat is fitted out will make several trips on the boat to train the crew in the correct use of the gear and fishing methods for this type of fishing which is new to Barbados.

In addition the expert has advised a number of fishermen on such matters as suppliers of radio equipment and hydraulic deck machinery, and boat design.

Task No 4 - Provide comprehensive training to the local counterpart in a wide range of fishing techniques and operations.

The expert has assessed the training needs of his counterpart and structured an appropriate on-the-job training programme. The programme started with the counterpart receiving training in the correct handling and stowage of fish on board, when he participated in the chilled fish storage experiments carried out in conjunction with the fish processing expert. The work involved catching the required amount for flying fish, using the Fisheries Division's "BW 26" boat, and boxing and icing the fish at sea.

The Division's marine biologist was also closely involved with the experiments, fish and data from the fishing trips were supplied to him for analysis and records.

- d) a short training course of two weeks duration on the methodology of training and the planning and organisation of training courses and workshops. The consultant has made preliminary arrangements with Torry Research Station, a fish processing company and a skills training centre, and would be pleased to assist Fisheries Division in making the detailed arrangements for the study tour.

Ms Bell's on-the-job training is continuing.

3 FISHING GEAR TECHNOLOGIST

Task No 1 - Design and implement a comprehensive experimental and developmental fishing programme utilizing a variety of fishing gear and operational techniques aimed at improving the efficiency of the fleet as a whole and to maximise the use of the available resources.

Following the meeting with Mr C Maynard, Permanent Secretary, MAFF and Mr A Onnis IDB, the expert revised his experimental fishing programme and fishing gear requirements in order to keep within the budget figure of US\$88,000. The revised programme (FGT 26) omitted several fishing activities that had previously been included, viz trap fishing, and the use of bottom set gill nets and FADS (fish aggregating devices).

To date, the expert has been unable to do any experimental fishing, due to the lack of funds to purchase the required gear and equipment. This is a matter of great concern, given that the "main" fishing season has now started and the time it takes to obtain delivery of gear (at least two months). It should be noted that a sum of US\$18,000 would be sufficient for the expert to make a start on the programme and ensure that some work is done during the present season.

Task No 2 - Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats or on a Fisheries Divisions vessel.

The expert was also actively involved in the design and construction of a "chilled fish display" for the recent National Agricultural Exhibition. The "display" is such that it can be used as a teaching aid in the planned training programmes for vendors and staff of other fish retail sales outlets.

The expert continues to be actively involved with the Bridgetown Fishing Harbour working group and was recently co-opted onto the sub-committee which has been established to develop a set of regulations and management guidelines for the operation of the harbour.

Task No 4 - Provide comprehensive training to local Counterpart(s) in all aspects of fish handling processing, freezing and storage relevant to the Barbados Fishing Industry.

The expert has assessed the training needs of his counterpart, Ms J Bell, and structured an appropriate on-the-job training programme (FPE 1). The programme started with Ms Bell assisting in the recent chilled fish storage trials during which she gained knowledge and practical experience of using sensory methods of quality assessment and measurement of fish spoilage.

The expert has also recommended that the overseas training programme for Ms Bell comprise the following:-

- a) working for four weeks at Torry research Station, Aberdeen, UK to be trained in chemical, physical, microbiological and sensory methods of measuring fish spoilage and quality assessment;
- b) working for three weeks in the quality control department of a modern fish processing factory; preferably one producing chilled, frozen and smoked products;
- c) a study tour of two weeks duration visiting fishing ports, modern wholesale fish markets and modern fresh fish retail outlets in the United Kingdom; and

The expert also plans to observe the existing freezing and cold storage practices, but unfortunately until the new facilities at the Bridgetown Fishing Terminal become available next June, he will be unable to demonstrate the correct practices and methods.

Task No 2 - Advise Government as to what standard, codes of practice etc, legislative or otherwise are needed to improve present practices to an internationally accepted standard in all aspects of handling, processing, freezing and storage.

The expert continued to review the international standards and codes of practice and to obtain information on the existing national legislation.

A meeting was held with representatives of the Public Health Inspection during which the implementation of the existing Health Services (Food Hygiene) Regulations and the training of public health inspectors were discussed. From these discussions the expert sees the need for Fisheries Division to become actively involved in training the Public Health Inspectors in the methods and techniques of fish quality assessment and control.

Task No 3 - Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

The expert has been actively engaged in assisting the Fisheries Division to answer queries from members of the fishing industry. Advice was given to a fish processor on the correct design and operation of an air blast freezer for flying fish, and to an ice-boat owner on the correct stowage of fish to prevent damage by crushing. Also assistance was given to an entrepreneur interested in establishing a fish processing company by providing him with the technical data necessary for the preparation of a feasibility study.

Work on assessing the training needs of the Fisheries and Markets Divisions and that of the various sectors of the industry is in progress.

An essential prerequisite for the implementation of this task is to know how long each particular species in the catch will keep. Such information is well known for the species from the colder waters of the northern hemisphere. In the case of species from tropical or sub tropical areas information is limited and not directly applicable to the species landed in Barbados.

To rectify this situation the expert has started a series of chilled (iced) fish storage experiments to determine the shelf life ~~ie~~, how long fish, when correctly handled and chilled in ice, will keep (remain edible).

To date preliminary tests have been done with chilled demersal (pot) fish and chilled flying fish. In the case of the pot fish the tests indicated a probable shelf life of twenty days and in the case of the flying fish the tests were terminated prematurely after sixteen days, at which time the fish were still perfectly edible. It is proposed to repeat the tests and extend them to include other species as soon as the equipment for preparing cooked samples for taste panel assessment and for doing physical methods of quality assessment are available.

The tests were done at the Oistins market and attracted the attention of fishermen, vendors and market staff.

The main fishing season started in the third week of November, when the expert was able to begin observing the present methods and practices of fish handling and chill storage in Barbados. To date, the observations have concentrated on the handling and storage of fish on board ice-boats, in the fish markets and the vendors' stalls, where a number of problems and deficiencies have been noted.

In order to improve the handling and storage of chilled fish the expert proposes to issue guidelines to the industry and to seek their collaboration in trying and testing the proposed new methods and practices.

WORK TEAM

Mr Ian Scott marketing and distribution expert, left Barbados on the 18th October 1987, at the end of a seven week stay; which leaves twenty five weeks of his eight month input still to be executed. He proposes to return in March/April 1988 to implement the next phase of his work programme.

COUNTERPARTS

The Fisheries Division has submitted a request to the MAFF for two additional staff, one to act as the counterpart to the marketing expert and the other to act as a second counterpart to the processing expert. The matter is now with the Establishments Division for their discussion on whether or not the posts will be created.

It is the Consultant's opinion that these appointments are essential to the successful implementation of the project and would appreciate it if the matter could be expedited.

WORK PROGRAMME

1 General

Following the meeting with Mr C Maynard, Permanent Secretary MAFF and Mr A Onnis, IDB on the 26th October 1987, the consultant modified the work programme and equipment requirements to accommodate the necessity of keeping within the original figure of US\$88,000.

Copies of the modified work programme were sent to the MAFF and IDB.

2 Processing Expert

Task No 1 - To identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

- To make recommendations as to how the problems and deficiencies can be corrected.

Q.R. 2

TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING OF FISHERIES DIVISION
OF MINISTRY OF AGRICULTURE, FOOD AND FISHERIES

QUARTERLY REPORT

FOR

PERIOD OCTOBER - DECEMBER 1987

Prepared by: CROWN AGENTS FOR OVERSEA
GOVERNMENTS AND ADMINISTRATIONS

At the same time, some progress has been made specifically in looking to inform on export market opportunities and in assessing the viability of a small scale added value processing unit. Even if the latter is not successful in gaining the required finance, for reasons other than the basic soundness of the project concept, then the project document can be released to other interests in order to assess their receptiveness to the required investment.

In the light of BFT and recommendations of the FAO project on co-operative development, it is recommended that the final tour takes place in May - July 1989, when adequate funding would be made available for frozen fish marketing trials. If this recommendation is accepted thought should be given to the sale of insulated boxes currently held by the Fisheries Division. This could release as much as BD\$4,500 for these marketing trials.

5. OVERSEAS TRAINING

1. Ms. J. J. Bell

The Consultant, on behalf of Fisheries Division, made the arrangements for Ms. Bell's training programme in the U.K. Details of the programme were given in the last quarterly report.

Ms. Bell arrived in the UK on the 27th May 1988 and, to date, has completed her training at Torry Research Station, Aberdeen, and is now with Ross Young Ltd. Grimsby. Preliminary reports from Ms. Bell and her supervisors, indicate that the objectives of the programme are being achieved and she is enjoying the experience and proving to be a good pupil.

2. Mr. V. Skeete

The Consultant on behalf of Fisheries Division, is in the process of finalising the details of Mr. Skeete's course at the Humberside College of Higher Education, UK. Mr. Skeete is due to travel to England at the beginning of September 1988.

forthcoming from the US organisation HIAMP.

Mahi Mahi

- In order to improve tourist acceptability of locally available dolphinfish, the division has recommended to hotels and restaurants that they use the terms "mahi mahi" either directly or to qualify the name "dolphin".

Hawkers

- The counterpart officer is currently undertaking a project to identify itinerant Fish Hawkets, the quantities sold and routes followed.

Basis

- Arrangements have been made with BMC to incorporate fish in their weekly wholesale price survey "BASIS". At the same time the Division is carrying out a weekly retail price survey to cover changes in fish prices compared with substitute foodstuffs.

Swordfish Catching

- In order to advise BMC and BDB on the current status of the Swordfish catching sector, in the USA, so they can assess their own plans for investment, ME will undertake brief research in Puerto Rico and Miami while conducting the export market survey.

CONCLUSIONS

This period April - July has been frustrating due to the lack of finance to carry out the work programme put forward and the lack of progress in developing the counterpart's ability. This frustration is extended by the recognition that a substantial amount of work could usefully be done in market development - most notably in extending distribution of fresh fish and demarshalling the potential for marketing whole frozen fish, and to promote the use of iced fish - and any work programme would require the input of an able marketing officer.

be made to include a piece on dolphinfish in the "tourist" press.

Utilisation of Shark Fins

- No progress has been made, although some basic detail can be contained in the export market study.

Counterpart Overseas Training

- Notwithstanding the comments above, a number of avenues have been tested to identify a suitable overseas course. Little progress has been made, with the one definite programme identified judged to be unsuitable.

Iced Fish Promotion

- No progress. Processing expert is currently working with this.

Promote Under-utilised Fish

- No progress, although it is reported that a properly smoked billfish is somewhat similar in appearance and taste to smoked salmon. This option may be investigated within any programme to develop Flying Fish smoking capacity.

In addition to the above, some other inputs have been completed or planned.

Butler Bell Fish Products.

- A feasibility study was completed for a private individual looking to produce value added fish products (fish burgers and fish goujons). Although only small scale. (Up to 40 tonnes-landed weight - of fish per year). there does seem a strong likelihood that, if properly managed, the project will succeed. Demand for convenience fish product is increasing, but with lack of local development. Supplies are gained mainly from Trinidad, US and UK. The report will be presented to BDB for consideration, and it seems likely that some funding will be

Market News

- Following discussion with the Fishery Officer it was decided to incorporate this with the existing Fishing Industry News. However, FIN was to become the responsibility of the marketing counterpart, with its monthly presentation on a more formal basis. ME prepared the May FIN and co-produced, with the counterpart, June's issue. Such involvement by ME reflects his strong feeling that not only should marketing involve the promotion of fish, but also the work of the Fisheries Division so that the local fishing industry better understands the role of the Division, more fully appreciates its in-house expertise and is more ready to ask for and accept the Division's advice. At the same time ME has recommended greater fishery division "visibility" with more regular press releases etc.

News Gathering

- To maintain current market information, it is advisable for various bulletins to be received on a regular basis. For example, the NMFS New York "Green Sheet" is the only regular market bulletin providing swordfish and dolphin fish prices. Various INFOFISH bulletins provide regular data on the tuna market. If the Fisheries Division is to advise local industry of export market conditions and keep abreast of developments which may influence the domestic scene, it is important for appropriate publications to be received on a timely basis.

Smoked Flying Fish

- This task is being completed by the counterpart officer.

Assessment of Public Sector Marketing Activities in Neighbouring Islands

- Letters were sent out in mid-May to marketing officers in various neighbouring islands. To date, no replies have been received.

Assessment of Media Coverage of the Fishing Industry

- M.E. has identified better dissemination of available information as part of the programme to improve the Fishery Division's reputation. Media can be used for press releases of a topical nature. Efforts will

prove feasible. Reluctantly, the poster competition was postponed until September. Lack of finance again means a fairly low key approach, however prize sponsorship has been gained from Atlantis Submarine Ltd., Grand Barbados Hotel and Crown Agents.

Consumer education should focus on the acceptability of iced fish, and the processing expert is currently working with G.I.S. to produce a video covering the topic.

Task No 5. : Provide comprehensive training to a local counterpart in all aspects of fish distribution relevant to the Barbados Fishing Industry.

The work programme calls for "assess the training needs of the counterpart", and "design on-the-job training" by "involving the counterpart in the implementation of Tasks 1,2,3 and 4". Given the difficulty of training bearing in mind the short term nature of M.E.'s stay, he decided to concentrate a specific project activity, with the following duties allocated and for which performance could be monitored.

- i) Undertake a study to assess marked potential for smoked flying fish products.
- ii) Initiate a system for weekly wholesale and retail market survey.
- iii) Develop the poster campaign

These three seemed to fairly represent the expected output of any marketing fisheries assistant. The projects are currently being completed. However it seems clear that the counterpart's abilities are not well developed, and in turn this brings difficulty in identifying a suitable overseas training course from which the Division and the candidate can benefit.

Accordingly, the ME has recommended to the fisheries officer that his counterpart's training be postponed for at least a year, and that another staff member could more usefully benefit from the training course currently available.

As noted previously a number of alternatives were developed into a work programme for completion during ME's second tour. Following is the progress in each:-

Poster Competition - see above

Market Analysis - Report completed and disseminated to Industry (see above)

To date the "training" activities have consisted of advisory discussions with B.M.C. and the dissemination of grading/quality information for swordfish to processors. It is hoped that in the final tour workshops can be held with the various bodies and consumers, advising them of different marketing methods and, above all, the need to ice fish immediately on capture and maintain fresh fish on ice throughout its distribution. Once BFT is working this task will be made easier, with it being more easy to display the benefits of iced fish without having a negative impact on the sales of vendors operating from the traditional outlets.

Task No 3. : Design and Execute an Export Market
Study for Flying Fish.

In Spring 1988, it was reported that the export study was to be deleted from the M.E.'s terms of reference. However, no response was received to a request for a written instruction to this effect. Subsequently, Crown Agents approached the CDB to investigate whether funding could be made available, and was advised that the Ministry should approach the bank directly. However, the Ministry has now requested the study be undertaken and M.E. commences investigation on July 11th. (see Annex for Terms of Reference). Due to lack of funding, it was decided that ME should conduct the study alone without an input by the counterpart.

After the first indication that the export study was to be deleted from M.E.'s TOR, Crown Agents decided to instigate a brief review of the potential export market for swordfish and dolphinfish in the East Coast, U.S.A. with M.E. spending two days in both New York and Miami en route to Barbados. Subsequently a report was prepared and disseminated, and this mostly received favourable comment from industry. In turn, it was demonstrated that local processors do not have good knowledge of export market potential, although it must be said that the main innovators in swordfish longlining have conducted their own research in the U.S A.

Task No 4. : Pay special attention to the design
of schemes and mechanisms that would
collectively assist in increasing
local fish consumption, decrease fish
importation and develop export markets
for local fish products.

Note has already been made of plans for marketing trials and an export study. It was planned to promote the use of iced fish in schools through a poster competition to be run between May and July. However given the difficulty of time availability, school exams, and liaising with the Ministry of Education, this did not

With the lack of finance it became necessary to consider other work options which required little finance, and a number of possibilities were put forward. At the same time it was decided to maintain some pragmatism to accommodate ad hoc work, and this allowed completion of a feasibility study to assess the viability of a value added fish processing unit.

4. The following is the progress according to the work programme as defined at the beginning of the project.

Task No 1. : Identify problems and deficiencies in present practices of fish marketing and distribution in Barbados with recommendations as to how these can be corrected.

As noted previously, it was intended to conduct marketing trials designed to test the practicability of widening the distribution network by i) putting fresh flying fish into mini markets and ii) preparing frozen flying fish for marketing during the off season. For fresh fish, the M.E. did not have a budget to finance the various expenditures, while the previously proposed "joint venture" with B.M.C. did not come to fruition due to a change in policy on B.M.C.'s part with the decision to concentrate on export marketing of flying fish. For frozen fish again there was no budget, but Crown Agents agreed with the FAO to jointly finance limited trials, as this would serve the purposes of both programmes. (FAO recommend the systematic withdrawal of flying fish in order to maintain price levels in time of over supply). However, to conduct the trials the new facilities at BFT were required in order to prepare, blast freeze and store the fish. As yet facilities at BFT are not available. A small quantity of flying fish was frozen at BMC to evaluate this as an alternative, however it was decided that the freezing and storage temperatures attained were not low enough to guarantee the quality critical in the planned trials. (Introduction of a new product into the market) and regrettably the proposed programme had to be cancelled.

From discussion with various individuals on the island, most usually associated with the catering trade, it seemed clear that some opportunity lay in developing a capacity for smoked flying fish. Accordingly, this was included in the counterpart's work programme (see below).

Task No 2. : Assist all sectors of the Fishing Industry, Government institutions and departments to improve marketing and distribution by advising, demonstrating and training personnel where necessary.

re-engine their existing in-shore boat "Diodema". A new 85 hp Yamaha outboard engine was installed in the second week of June replacing two, old and unreliable engines. The new engine has an electric starter, which facilitated the installation of electronic fishing and navigational aids, and a radio. Much of the installation work was done by the expert personally.

It is hoped that "Diodema" will now be a safe and reliable work platform which the expert will be able to use for the in-shore component of his programme.

4. MARKETING EXPERT

INTRODUCTION

1. The Marketing Expert arrived in Barbados to commence his second period of input on 14th April, having travelled from home base via New York and Miami in order to complete a brief market survey for swordfish and dolphinfish (see below). He will depart Barbados on July 11th, returning to the UK, via San Juan, Miami, New York and Toronto in order to undertake further investigative work. (see below). During his second input the consultant returned to the UK for a short period May 14th - 19th.
2. In the period between M.E.'s first two tours, three developments took place.
 - i) The completed report "A Review of Fish Marketing and A Programme for Future Development" was distributed to the Fisheries Division, the Government of Barbados and IDB. To date, no comments have been received on the report or the acceptability of its contents
 - ii) A counterpart to M.E. had been selected and commenced work in the division.
 - iii) Insulated boxes recommended as being required for the fresh fish marketing trials had been delivered from Miami.

WORK PROGRAMME

3. On M.E.'s arrival it was immediately clear that the biggest constraint to mounting an effective work programme was lack of finance, with no budget allocation for his input during the second tour. As noted in "Marketing Expert Work Programme April/July 1988" prepared in late April, the original intention had been to look at widening distribution by conducting marketing trials for fresh and frozen flying fish and to assess the prospects for smoked flying fish.

The skipper/owner has used the pot hauler for just over a month and is extremely pleased with the results. The pot hauler has made it possible for him to fish in deeper waters, where fish are more abundant and also, since there is less physical effort required, to fish with a bigger number of pots. This has resulted in increased catches and earnings, and the skipper/owner estimates he has already recovered the cost of the equipment.

These results have generated considerable interest amongst other "pot" fishermen, who have approached the expert for information and advice on pot haulers. To answer their queries the expert has prepared an advisory note, "Mechanized pot hauler for small fishing boats", report number F.G.T.6, which was distributed by the Fisheries Division.

Task No 4. : Provide comprehensive training to the local Counterpart in a wide range of fishing techniques and operations.

The training programme for the Counterpart continues to make good progress.

To date, the emphasis has been on longline fishing equipment and techniques, and he is now sufficiently skilled to assist the expert to demonstrate this fishing method to the local industry. Training in other fishing methods will begin when the expert returns from leave at the end of July.

The expert, at the request of the Fisheries Division, assisted in a training course which had been organized for two fishermen from Anguilla. The training provided by the expert, involved the basic principals of net design, types of materials to use and net making. During the period of the course, the fishermen, working under his supervision, made a gill net for catching flying fish which they took home with them.

Task No 5. : Assist in the acquisition or outfitting of a Fisheries Division experimental demonstration fishing vessel.

The expert continued to assist the Fisheries Division in the drafting of an agreement for the lease of a commercial fishing boat, which will provide him with a suitable work platform for off-shore fishing activities. The agreement is now in an advanced state of preparation and it is expected that it will be signed on the expert's return from leave at the end of July. The lease will be for a period of five to six months, enabling the expert to do exploratory fishing during the months of August to November, when traditionally, there is little or no fishing activities.

In addition the expert has assisted the Division to repair and

Also, it is planned to search for new fishing banks for demersal fishes and to try new fishing gear.

Task No 2. : Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats or the Fisheries Division vessel.

Following the development of the artisinal long line fishing system for use on ice boats, the expert has been active in demonstrating the equipment and using it as a training tool.

The equipment was displayed at this year's Oistin Fish Festival and roughly one hundred copies of the advisory note, "Artisinal Long Line Fishing, Targetting Large Ocean Pelagic Fishes", (circulated with the last quarterly report) were distributed.

These activities generated a considerable interest and a number of boat owners and skippers approached the expert for more information and for a demonstration of the equipment.

The demonstrations were done aboard several of the ice boats and comprised fishing trips of 2 - 3 days duration, during which the skippers and crews were trained in the use of the equipment and in the techniques of long line fishing. These demonstration trips proved successful, with a few swordfish or large tunas being caught on each occasion.

A number of these boat owners have expressed a serious intent to install long line equipment.

Task No 3. : Provide practical advice and assistance for the adaptation of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert has successfully introduced the use of mechanical pot haulers to the local small-boat demersal fishery.

After discussions with the expert, the skipper/owner of a 14 foot moses, decided to fit out his boat with a mechanical pot hauler. The expert specified the type of pot hauler required and subsequently assisted with its installation. The latter included the design and fabrication of a purpose built rope roller to fit on the boat's gunwhale.

After the pot hauler was installed, the expert went to sea with the skipper/owner and trained him in the correct use of the pot hauler.

It was planned to do a series of performance tests on the various items of plant, starting on the 13th June, but to date only two tests have been done. On the 23rd June a test was done on the blast freezer which showed it was operating at less than 50 per cent of its specified freezing capacity. The problem is thought to be due to the pipes to the evaporator inlet being too small and restricting the flow of refrigerant. This fault is now being rectified. A test was also done on the ice plant which showed that the ice was not being completely frozen and it had roughly only 70 percent of the cooling capacity of sub-cooled ice. The ice making machine is to be adjusted to correct this fault.

The expert plans to repeat these tests during the week of 11th July.

Task No 4. : Provide comprehensive training to local Counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

The on-the-job training programme of the counterpart, Ms. J. Bell is in abeyance, until her return from overseas training, in September 1988.

3. FISHING GEAR TECHNOLOGIST

Task No 1. : Design and implement a comprehensive experimental and development fishing programme, utilizing a variety of fishing gear and operational techniques aimed at improving the efficiency of the fleet as a whole and to maximise the use of the available resource.

The expert received the fishing gear and equipment required for this task at the beginning of April, and has since made up the lines and nets, ready for use, as soon as he has access to a suitable work platform.

The arrangements for the lease of a local ice boat are now well advanced and it is planned that the agreement be signed at the beginning of August, following the expert's return from leave.

Initially, it is planned to do some exploratory fishing for sword fish and other large pelagic fishes during August to November, in an attempt to establish if there is a viable fishery during this period, when traditionally, there is little fishing activity.

The expert had thought it possible to do some preliminary experiments at one of the commercial cold storage companies, but the operating temperatures in their stores were too high and unsuitable for quick freezing fish. Also, it was planned to do the main experiments at the new Bridgetown fishing complex, but up to the time of writing this report the freezer and cold storage plant was not fully operational.

The expert is waiting to see when the plant will be working correctly and reliably, but given the fishing season is due to end in mid-July, it is likely that the freezing experiments will have to be postponed until the start of the next season.

Task No 2. : Advise Government as to what standards, codes of practices, etc, legislative or otherwise are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

This task has been put in abeyance until Task No. 1 has been completed. By that time the present practices and problems which exist within the industry will be better understood by the expert, enabling him to recommend codes of practice, etc, that are appropriate to the needs of the Barbados fishing industry.

Task No 3. : Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

The expert continues to assist the Bridgetown Fishing Complex working group on matters relating to fish handling and processing.

The expert prepared two working papers for discussion by the working group. The first, FP/R3, dealt with the type of operating procedures and documentation systems that will be required for the smooth running of the processing hall, blast freezer and cold stores. The second, FP/R4, dealt with the need to train the management and staff in the basic principles of fish plant hygiene and sanitation prior to the opening of the Complex and also for the need for specialised cleaning equipment and materials.

The expert was requested by the Special Assignments, MAFF, to monitor the commissioning trials of the refrigeration plant and equipment at the Complex, to make himself familiar with its operation, and to report on any problems likely to be experienced in the operation of management of the Complex.

MARKETING EXPERT

The Consultant has informed the Ministry that Mr. Ian Scott who has completed the first two of the inputs for this component of the project is unavailable for the third and final input which is due to start in May 1989. The Consultant has offered a suitable replacement: a Mr. D. Chatterton who has considerable fish marketing experience. The Ministry has accepted Mr. Chatterton.

It was planned that during this final input, the marketing expert would concentrate his efforts in conducting the proposed iced fish and frozen fish marketing trials. Given the present level of fish landings in Barbados, however, which are considerably down in comparison with previous years, it may be prudent to delay this input until the early part of next season, in November/December 1989.

The situation is being carefully monitored and the Expert is available at short notice to start in May or June if required.

The Expert's counterpart continues to be responsible for conducting the weekly price survey and for publishing the Fisheries Division's newsletter, and to be active on the committee of the National Nutrition Centre's community nutrition programme.

The counterpart has also conducted a survey of Mini - marts to find out if they would be willing to participate in the proposed iced fish and frozen fish marketing trials. The results are very encouraging, 13 out of the 16 interviewed expressed interest in participating in the trials. The counterpart is continuing with this and other ground work related to the proposed trials.

OVERSEAS TRAINING

The Consultant is progressing the matter of a suitable training course for Ms. C. Jones, the counterpart to the marketing expert.

c) Preston District Training Centre, U.K.

Two weeks course on the methodology, planning and organisation of training courses.

d) Study Tour

One week, accompanied by a marketing expert, touring modern wholesale fish markets and fresh fish retail outlets in the U.K.

2. Mr. V. Skeete

Humberside College of Higher Education, U.K. Three month "tailor-made" course built around their Diploma in Fishing Gear Technology course. The subject matter to be covered to include: - modern electronic navigation and fish finding equipment; fishing vessel stability; deck machinery gill net technology.

In addition to structuring the courses, the Consultant will make all accommodation and travel arrangements and meet and escort the counterparts as they travel within the U.K. The Consultant will also monitor the training to ensure it is in line with the stated requirements.

4. MARKETING EXPERT

The Expert, Mr. Ian Scott, will be arriving in Barbados, on or about the 9th April 1988, to implement the second phase of his work programme. Mr. Scott had proposed to do a marketing trial on the distribution of chilled fish throughout Barbados, but as yet, no funds have been made available for the trials. A sum of Bds \$30,750. is required of which Bds\$18,208 is working capital for the purchase of fish and ice, and labour costs.

It was proposed that the Barbados Marketing Corporation finance and conduct the trials, but they have failed to respond. The Consultant has been told informally that the MAFF does not want the Expert to proceed with the task of "designing and executing an export study for "flying fish". A request has been made by the Consultant that they be given written instructions to delete the "task" from the Expert's work programme.

It is the expert's plan however, to fly to Barbados via New York and Miami spending one or two days at each, to collect information on the possible markets for flying fish, dolphin and swordfish.

The expert has assisted in locating a suitable institute for the counterpart to attend for his overseas training programme. It is planned he attend the Humberside College of Higher Education, U.K. starting in September 1988.

Task No. 5 : Assist in the acquisition or outfitting of a Fisheries Division experimental/ demonstration fishing vessel.

Following the recent decision by the MAFF to review the matter of whether or not the Fisheries Division should have its own vessel, the expert assisted the Fisheries Division in specifying the type of vessel most suitable for their needs.

The trials, as well as proving the gear provided training for the expert's counterpart in longline fishing techniques, also generated considerable interest amongst the owners and skippers of ice-boats and day-boats and a number of them have offered their co-operation in developing the gear and more trials and demonstrations will be done on their boats.

Details and cost of the gear and methods of operation are given in the report FGT5, "Proposed Advisory Note on Artisanal Longline Fishing Targeting Large Ocean Pelagic Fishes".

When the project funds became available in mid-February, the expert assisted Fisheries Division to place orders for some of the fishing gear, navigation equipment etc. required for the "off-shore" component of his programme.

It is planned to lease a suitable boat in May - June 1988 for exploratory fishing and demonstrating commercial-scale longline fishing techniques to the local boat owners and skippers.

The training of Markets Division personnel is in abeyance until the manager and staff of the Bridgetown Fishing Complex have been appointed.

Task No 4 : Provide comprehensive training to local Counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

The on-the-job training programme of the counterpart, Ms. J. Bell is on-going. She has been actively involved in the chilled fish storage trials and in the survey of the present fish handling practices aboard the ice-boats, where she continues to gain experience in the sensory method of fish quality assessment and knowledge of the existing problems and deficiencies that exist within the industry.

The Expert has also started to teach Ms. Bell the basics of the design and operation of freezing and refrigerated storage plants and of the manufacture and use of ice for chilling fish.

the fish for damage from bad handling or storage and sampling the fish for appearance and taste. The results obtained so far indicate that insufficient ice is being used by the boats.

The Expert plans to do a series of controlled freezing and cold storage tests with flying fish and dolphin fish, as soon as the facilities at the Bridgetown Fishing Complex become operational in May 1988. Also it is planned to do some preliminary tests before May, with the co-operation of a commercial cold storage company.

Task No 2 : Advise Government as to what standards, codes of practices, etc legislative or otherwise are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

This task has been put in abeyance until Task No. 1 has been completed. By that time the present practices and problems which exist within the industry will be better understood by the expert, enabling him to recommend codes of practice, etc, that are appropriate to the needs of the Barbados fishing industry.

2. PROCESSING EXPERT

Task No 1 : To identify problems and deficiencies in present practices of fish handling processing freezing and storage in Barbados.

Make recommendations as to how the problems and deficiencies can be corrected.

A series of tests have been conducted to establish the chilled storage life of flying fish and dolphin fish; the two most commercially important fish in Barbados. The flying fish experiments were designed to establish the storage life of the fish when stored at a temperature of 0 °C, 10 °C and at 30 °C for 10 hours before storage at 0 °C thus simulating ideal chilled storage conditions and the existing conditions aboard ice boats and day boats respectively.

The tests showed that fish stored at 0 °C were acceptable for up to 20 days but at 10 °C its storage life was only 5 days. Fish held at 30 °C for 10 hours before chill storage were acceptable for up to 9-15 days.

WORK TEAM

Mr. Ian Scott, marketing expert, returns to Barbados, on or about the 9th April 1988, for a stay of about 3 months, to implement the second phase of his work programme.

COUNTERPARTS

The Ministry of Agriculture, Food and Fisheries have approved the recruitment of one additional staff member for Fisheries Division, to act as the counterpart to the Marketing Expert. Fisheries Division have interviewed candidates for the post and informed the Establishments Division of their selection. It is expected that a person will be appointed in April 1988.

WORK PROGRAMME

1. General - Project Funds

In mid-February 1988, the Consultant was informed that the sum of US\$88,000 had been approved for the costs of the equipment, facilities and marketing studies required by the experts, but that it had been approved for the present fiscal year 1987/88 only. This gave the MAFF less than two months to place orders and take delivery of the goods.



TECHNICAL CO-OPERATION
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JANUARY - MARCH 1988

**TECHNICAL CO-OPERATION ATN/SF-2474-BA
INSTITUTIONAL STRENGTHENING
OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE,
FOOD AND FISHERIES
BARBADOS**

**QUARTERLY REPORT
FOR PERIOD**

APRIL - JUNE 1989

WORK PROGRAMME

PROCESSING EXPERT

Task No. 1 To identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

Work on this task is on-going.

Task No. 2 Advise Government as to what standards, codes of practices, etc. legislative or otherwise, are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

Work on this task is on-going.

Task No. 3 Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary.

TRAINING

The expert, with the assistance of his counterpart, is providing on the job training for the members of staff and processors and vendors operating at the Bridgetown Fisheries Harbour Complex.

Also it is proposed to run a series of training courses during the "off" season, for any vendors and processors who may wish to attend.

Bridgetown Fisheries Harbour Complex

The expert continued to assist Special Assignments, MAFF, with the technical problems affecting the operation of the air blast freezer. In April 1989, the expert and Mr. Hughes conducted a test on the freezer to monitor its performance under "normal and safe" operating conditions. In the previous tests the design consultant and

contractor had disconnected an important safety switch in an attempt to enhance the performance of the freezer. The results of this latest test are given in the attached report, FPE/R10.

Also following discussions with the management of the Complex, the expert submitted proposals for :

- i) the layout of the processing hall to ensure efficient operation of this facility (report FPE/R8 attached), and
- ii) the use of insulated containers fitted with lids for the handling and storage of iced fish; the use of such containers would ensure the quality of the fish and hold the fish secure against theft (report FPE/R9 attached).

Task No. 4. Provide comprehensive training to local counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

Ms. Bell's on-the-job training programme is on-going.

The expert is pleased to report that Ms. Bell was invited to speak at the recent National Food Protection and Strategy Workshop sponsored by the Ministry of Health. Ms. Bell presented a short paper on fish handling and processing (attached) which was well received and stimulated a good deal of discussion.

FISHING EXPERT

Task No. 1 Design and implement a comprehensive experimental and development fishing programme, utilising a variety of fishing gear and operational techniques and at improving the efficiency of the fleet as a whole and to maximise the use of the available resources.

SQUID FISHING

Fishing trials took place during the months of April and May, only. There were no trials during June, due to the Fisheries Division's boat "Diadema" being out of operation, following an accident while berthed at the Bridgetown Fisheries Complex. An ice boat lost

control and collided with the "Diadema", causing major damages to the out-board engine. A new engine was fitted at the end of June.

Up until the time of the accident there was no sign of any squid in the areas where they were reportedly found in previous years.

However it should be noted that all fish stocks have been late in arriving in the Region this season. It is thought that this may be due to the sea water temperatures being lower than normal. The expert is of the opinion that the squid are following the same pattern as the other species and will probably arrive in the area around July/August.

The expert will be absent from Barbados during the month of July on annual leave, but has requested that his counterparts continue with the programme in his absence.

Despite the poor results and setbacks to date, the expert is still optimistic that the exploratory programme will reveal a worthwhile fishery which the day boats can engage in during the "off season" period.

Drift Net Fishing for Dolphin Fish, etc.

A number of fishing trials were carried out in which drift nets were deployed to catch dolphin fish. Two types of net rigging were used, viz. nylon trammel nets, and large mesh, monofilament, gill nets.

On several occasions dolphin fish were observed around the boat but none were caught by the nets. Various ideas were tried to attract the fish to the nets, such as using 'flying fish' as bait, but without success.

It is possible that given a normal fishing season, when dolphin fish, kingfish, etc. are in greater abundance, the use of drift nets may result in increased catches of these species.

The expert has concluded the trials for this season but will probably do some more, next season.

Exploratory Fishing Programme for Demersal Species

An exploratory programme for demersal species was planned for the "off season" period of July to November 1989. However, it now appears unlikely that the programme will take place due to the lack of the required fishing gear and equipment.

The gear and equipment were identified and budgeted for last year but, as yet, no funds have been released for its purchase.

It should be noted that this is the last opportunity for the expert to do this programme, since he is due to leave the project at the end of February 1990. Given this situation, it is hoped that funds will be made available before the end of July and that the Consultant will be given permission to order the gear and equipment direct, so that some work could still be done in October and November 1989.

In the event of this not happening, the expert would recommend that Fisheries Division still procure the gear and equipment and that his counterparts do the programme in July to November 1990.

Task No. 2. Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats and the Fisheries Division vessel.

The expert is waiting on the successful outcome of the squid fishery trials before demonstrating the technique to the commercial fishermen.

Task No. 3. Provide practical advice and assistance for the adaption of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert has actively engaged himself with the industry, by providing "hands on" training to a number of crews in the areas of improved navigational skills. For example, advising on the installation of satellite navigators and instructing and training in their use and operations. Boat owners have also been given advice on longline fishing equipment etc.

Task No. 4. Provide comprehensive training to the local counterparts in a wide range of fishing techniques and operations.

Counterpart training has continued and has alternated weekly for each counterpart. The subjects covered have been:- drift net fishing, squid fishing and extension work with field visits to fishing villages.

Task No. 5. Assist in the acquisition or outfitting of a Fisheries Division experiments/demonstration fishing vessel.

The outfitting of "Diadema" with squid fishing equipment was accomplished at the B.F.C. harbour and at Fisheries Division Yard. During this period of outfitting, fishermen showed a great deal of interest and asked many questions on the equipment and on the techniques of squid fishing.

MARKETING EXPERT

The Consultant was requested by the Ministry to postpone the final input of the marketing expert's component, because it was felt that the proposed marketing trials would have been adversely affected by the low fish landings and high prices. It is proposed the expert start the final input in March 1990, following the return of his counterpart from her training in the UK (see below).

The marketing counterpart continues to be responsible for publishing the Fisheries Division's news letter, conducting the weekly price survey and to be engaged in other marketing related activities.

OVERSEAS TRAINING

The Consultant has recommended that Ms. C. Jones, the marketing counterpart, should attend a Fish Marketing Course to be run by the Humberside International Fisheries Institute, England. The course will run from 8 January to March 1990.

The Consultant has presented Fisheries Division with cost estimates and is prepared to make all necessary arrangements if requested to do so.

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QUARTERLY REPORT
FOR PERIOD

JULY - SEPTEMBER 1989

WORK TEAM

Mr Harrison, gear technologist, and Mr Templeton, processing expert, were absent from Barbados on annual leave, from the 26th June to 31st July and the 17th July to the 21st August respectively

WORK PROGRAMME

PROCESSING EXPERT

Task No 1 To identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

Work on this task is on-going

Task No. 2 Advise Government as to what standards, codes of practices, etc. legislative or otherwise, are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

A meeting was held with Mr N. Rawlins, B.N.S.I. (Barbados National Standards Institute), to discuss the progress of a draft Standard Code of Practice for Frozen Fish

The expert reviewed the draft and submitted his comments in December 1988, but since then had heard nothing from the B.N.S.I. The draft has now been circulated to all interested parties in the fishing industry and the relevant Government organizations, and the next step will be to form a Technical committee to prepare the final code of practice. It is proposed that this committee have their first meeting in January 1990.

The expert suggested that his counterpart Ms Bell, be a member of the Technical Committee.

Task No. 3 Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary

Training

The expert, with the assistant of Ms Bell held a training course for several new members of staff at the Bridgetown Fisheries Harbour Complex, covering aspects of fish handling and quality assessment, and plant cleaning and hygiene.

Bridgetown Fisheries Harbour Complex

The expert, at the request of the management of the Complex, devised a new procedure for speeding up the weighing and icing of the fish immediately they are unloaded from the boats. The supervisory staff at the Complex have been trained to operate the new procedure.

Advisory Notes

The expert has prepared two advisory notes entitled "Quick Freezing of Fish" and "Cold Storage of Frozen Fish".

The notes are intended for all persons engaged in the freezing and cold storage of frozen fish and fish products, and for those who have the responsibility for the correct selection and operation of freezing equipment and cold storage facilities.

Task NO. 4 Provide comprehensive training to local counterpart(s) in all aspects of fish handling, processing, freezing and storage relevant to the Bridgetown Fishing Industry.

Most of the topics on Ms Bell's training programme have now been covered, and she has the knowledge and experience to provide advice and training to the fishing industry on the correct practices for the handling, processing and storage of chilled fish.

The topics which have not been covered are concerned with the freezing and cold storage of fish. Ms Bell has covered the theory of those topics, but unfortunately no practical training has been possible due to the lack of suitable freezing facilities.

FISHING EXPERT

Task NO. 1 Design and implement a comprehensive experimental and development fishing programme, utilizing a variety of fishing gear and operational techniques and at improving the efficiency of the fleet as a whole and to maximise the use of the available resource.

It was reported in the previous quarterly report that the expert was waiting on a decision regarding the provision of funds to purchase the fishing gear and equipment required for the exploratory programme for demersal species. The funds were not approved.

Given this situation the expert had to revise his work programme within the constraints of what limited funds are available.

The revised programme has been submitted and accepted by the Fisheries Officer, and is now being implemented. The programme covers the period from August 1989 to February 1990, and includes:

1. Complete squid fishing trials.
2. Conduct trials to determine the performance and suitability of different types of FADS (Fish Aggregating Devices), positioned in strategic in-shore locations.
3. Conduct trials to establish the viability of using fish-pots in depths of water 50 to 200 fathoms which cannot be easily fished without the use of mechanized pot-haulers.
4. Conduct a series of trials to establish if extended (overnight) trips by the day boats would result in a significant increase in catch.

Squid Fishing Trials

During the period August to October there have been frequent sighting of schools of squid and reports of boats catching squid.

The squid observed to date, however have been too small (5" to 6" long) to be captured by the "Squid Jigging" equipment used by the expert; this being the equipment normally used for catching commercial quantities of squid by small inshore vessels.

Despite their small size these squid are much sought after as bait

for catching snappers and groupers. To supply this demand a few "day boat" fishermen are presently engaged in this fishery, using traditional dip-nets and cast nets.

The expert will continue with the trials to establish if and when the squid will be large enough to be caught by the "jigging" method and to do experiments with improved designs of dip-nets. Also to establish at what time of the year the squid move away from this area.

FAD's

The materials have been purchased and work has begun on the construction of two prototype FADS. On completion the FADS will be deployed in in-shore locations and their performance monitored. The Diadema will be fitted out with trolling booms for these trials.

Pots-Fishing Trials

It is proposed to deploy 10 pots in depths of 50 to 200 fathoms. At present 4 pots are being fished; being raised at 2 to 3 day intervals and their catches recovered. The remainder of the pots will be deployed as soon as they are constructed.

The details of the fish; species, weight, length, etc., are being recorded by the Division's marine biologist. To date, the catch rates have been quite encouraging and the pot-hauler, which was fabricated by the expert, is working well.

The expert is also experimenting with various methods for "marking" the pots underwater to protect them from "human predators". Theft from fish-pots is a serious problem for fishermen engaged in this fishery, thus there is a need for a "marking device" that can only be detected by the owner of the pot.

Overnight day boat fishing

The expert will do a controlled programme of "overnight" fishing trips using the Diadema to simulate a similar operation by a day boat. The catches from day boats fishing in the same area will be monitored to provide baseline catch data.

The programme will start sometime in November, as soon as the fish appear on the grounds.

Task NO 2 Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats and the Fisheries Division vessel.

Following the request of a number of boat owners, the expert and counterparts provided training for a group of fishing skippers in the operational use of satellite navigators, radar and echo sounders.

Task NO. 3 Provide practical advice and assistance for the adaption of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The expert continued to give fishermen and boat owners advice and information on the purchase of fishing gear and vessels.

Task NO 4 Provide comprehensive training to the local counterparts in a wide range of fishing techniques operations.

Counterpart training has continued with close cooperation and participation in all aspects of the experts activities. Areas and subjects covered included the following :

- fabricating a fish-pot hauler utilizing scrap car parts
- making radar reflectors from sheet aluminum
- making a fish pot davit
- fitting the fish-pot winch on board the Diadema and gaining practice in its use.

Task No. 5 Assist in the acquisition or outfitting of a Fisheries Division experimental/demonstration fishing vessel.

The "Diadema" was fitted with a fish-pot winch and hauling device for the pot-fishing trials.

MARKETING EXPERT

The situation is the same as reported in the previous quarterly report. It is still proposed that the expert start the final phase of the programme at the end of March, 1990.

The counterpart continues to be engaged in the various marketing related activities which have been reported previously.

OVERSEAS TRAINING

The Consultant has made provisional arrangements for Ms Jones, counterpart to the marketing expert, to attend a fish marketing course at the University of Hull, England, starting in January 1990.

The arrangements can not be finalized, however, until the the Ministry provides the Consultant with written instructions to proceed. It is understood that the Ministry can not issue such instructions until the Training Division, Ministry of the Civil Service, approves the application for Ms Jones to attend the proposed training course.

CONSULTANTS REPORTS

Proposed Developments for the Day Boat Fishery

The report, sent to the Ministry and to the Bank in August, 1989, examines possible avenues for development which could improve the situation with the day boat fleet.

The report gives recommendations for a development programme to be undertaken by the Fisheries Division, part of which has now been incorporated into the fishing gear technologist's work programme, viz :

1. Conduct a series of trials to establish if extended (overnight) trips result in increased catches.
2. Conduct a series of trials to determine the suitability of different types of FADS (Fish Aggregating Devices).

The Barbadian Ice Boat Fleet, A Review of Possible Alternative Fishing Activities

The report (enclosed), reviews the problems currently being faced by the ice boat fleet and examines possible alternative near shore and off-shore fishing activities.



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BARBADOS**

**QUARTERLY REPORT
FOR PERIOD**

OCTOBER - DECEMBER 1989

WORK PROGRAMME

PROCESSING EXPERT

Task No 1 To identify problems and deficiencies in present practices of fish handling, processing, freezing and storage in Barbados.

Make recommendations as to how the problems and deficiencies can be corrected.

The expert has completed this task and is in the process of preparing a report of his findings and recommendations.

Task No. 2 Advise Government as to what standards, codes of practices, etc. legislative or otherwise, are needed to improve present practices to an internationally acceptable standard in all aspects of handling, processing, freezing and storage.

The expert has prepared three advisory notes which he recommends should form the basis for codes of practice for the handling, processing, freezing and storage of fish in Barbados. The advisory notes are: No. 1 - Handling, Storage and Display of Chilled Fresh Fish; No. 2 - Quick Freezing of Fish and No. 3 - Cold Storage of Frozen Fish.

Task No. 3 Assist all sectors of the fishing industry, Government institutions and departments to improve practices by advising, demonstrating and training personnel both on shore and at sea where necessary

Technical Assistance

The expert has assisted a fish processing company with the design of a new factory building, by providing advice on the types of internal finishes and designs details that are required to facilitate good standards of plant cleaning and hygiene.

Bridgetown Fisheries Harbour Complex - Air Blast Freezer

The expert assisted the management of the Complex, by monitoring the the tests which were made after the freezer was modified at the end of December. The results of the tests are still being studied.

Training

A letter was sent to all of the processing companies informing them that Fisheries Division was prepared to run on-the-job training courses to suit the needs of the personnel of the individual companies. It is planned to run courses during the next few months.

Task No. 4 Provide comprehensive training to local counterpart in all aspects of fish handling, processing, freezing and storage relevant to the Barbados Fishing Industry.

This task is on-going.

FISHING EXPERT

- Task No. 1 Design and implement a comprehensive experimental and development fishing programme, utilizing a variety of fishing gear and operational techniques and at improving the efficiency of the fleet as a whole and to maximise the use of the available resource.

The alternative workplan outlined in the quarterly report, July to October 1989, is now being implemented.

Squid fishing trials

A number of trips were made during the period, and although squid were sighted in large numbers and attracted to the boat, none were captured. As reported in the previous quarterly report, the problem is that the squid are too small to be caught by the "Jigging" method.

Larger squid may be present in the deeper waters, offshore, but the expert was unable to investigate this possibility, due to the limited range and size of the Division's boat, "Diadema".

FAD's

Two FAD's have been constructed and one was deployed on the 28 November 1989. Fish have started to congregate around the FAD and a number of boats have been observed fishing in its vicinity. Two boats have reported catching dolphin fish and king fish. The second FAD will be deployed in January 1990.

Pot - fishing trials

Fishing trials were conducted with different designs of fish pots, which were deployed at depths of 20 to 320 metre using a pot hauler. The trials were conducted in collaboration with the Division's fisheries biologist and assistants, who are investigating the efficiency of the pots in harvesting the snapper/grouper resource of the offshore banks on the west coast of Barbados, and the viability of the pot fishery.

Encouraging results have been obtained from pots set in depths of 60 to 80 metres. The catches comprising snappers and other demersal species, and lobsters. The catches from pots set in depths greater than 80 metres have been very poor in comparison.

Overnight day boat fishing

The start of the trials has been delayed by the scarcity of flying fish. The fish, however, are appearing in greater numbers now, and it is planned to make the first overnight trip during at the beginning of January, 1990.

Task No. 2 Demonstrate the improved fishing techniques to commercial fishermen primarily aboard privately owned boats and the Fisheries Division vessel.

A major component of the pot-fishing trials reported above, was to demonstrate the use of the hauler and fishing techniques to fishermen. A number of "day boat" fishermen have done trips on the "Diadema" during which they received on-the-job training.

In addition, ice boat fishermen who observed the catches of fish and lobster from the "Diadema", showed a lot of interest and asked numerous questions about the hauler and fishing techniques. Several expressed a desire to engage in the fishery in the future.

Task No. 3 Provide practical advice and assistance for the adaptation of improved fishing gear to local commercial fishing vessels including minor boat design changes necessary to optimise use of the improved gear.

The hauler used in the pot-fishing trials was fabricated by the expert, using the rear axle of a scrapped car and a 5 horsepower petrol engine. The method and details of the construction of the hauler has been explained to fishermen at every opportunity; it being emphasised that the hauler is something they can make, or have made, at very low cost.

Roughly six pot-fishermen have fitted, or are in the process of fitting, their boats with haulers.

Task No. 4 Provide comprehensive training to the local counterparts in a wide range of fishing techniques operations.

The training programme is on-going. Both counterparts participated in the pot-fishing trials, and assisted with the fabrication of the hauler and the installation of the equipment on board the "Diadema". The counterparts are now fully trained in the techniques of pot-fishing and the operation of the hauler.

Task No. 5 Assist in the acquisition or outfitting of a Fisheries Division experimental/demonstration fishing vessel.

The "Diadema" has been fitted with trolling booms as part of the FAD fishing trials.

MARKETING EXPERT

A recommendation has been made that the expert's programme be changed. Instead of doing the marketing trials of chilled and frozen fish as planned, it has been proposed that he should undertake an investigation of the implications of the local landings falling to such a level, where it may be necessary to import large quantities of fish. The investigation to include identifying possible sources of low cost supplies.

Ideally the expert should be in post during January and February 1990, before the other experts complete their programmes.

OVERSEAS TRAINING

The Consultants has now finalized the arrangements for Ms Jones to attend the fish marketing course at the University of Hull. Ms Jones departs for England on the 3rd January 1990.

Page No. 1
The following information was obtained from the records of the
Department of the Interior, Bureau of Land Management, dated 1/15/50.

The Bureau of Land Management, U.S. Department of the Interior, has been advised that the following information was obtained from the records of the Department of the Interior, Bureau of Land Management, dated 1/15/50.

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OVERSEAS TRAVEL

The Department of the Interior, Bureau of Land Management, has been advised that the following information was obtained from the records of the Department of the Interior, Bureau of Land Management, dated 1/15/50.

APPENDIX 1

Background information pertaining to The
Fish Resources & Fishing Activities in
Barbados' E.E.Z and the Eastern
Caribbean.

REPORT NO. F G T -1

TECHNICAL CO-OPERATION ATN/SF- 2474 -BA
INSTITUTIONAL STRENGTHENING OF FISHERIES DIVISION OF
MINISTRY OF AGRICULTURE, FOOD AND FISHERIES

Background Information Pertaining to
The Fish Resources and Fishing Activities In
Barbados's E.E.Z And The Eastern Caribbean

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AUGUST 1987

INTRODUCTION

The following information was obtained from fishermen, fisheries personnel, and from a literature review.

PELAGIC FISHES

1.1 Foreign Fishery Activities

In the eastern Caribbean there are significant stocks of migratory pelagics that have historically been harvested by distant water fishery nations. During the late 1950's and throughout the 1960's the distant water fleets were primarily from Japan. The Japanese fleets were gradually reduced in the 1970's and were largely replaced by those from Taiwan, South Korea, Venezuela and Cuba (Table 1). Presently the major foreign fishing activities in the eastern Caribbean are conducted by the United States of America, Venezuela and France (Joseph). While the United States mainly targets swordfish, Venezuela and France appear to be targeting a variety of pelagic and demersal species.

Foreign vessels are known to be fishing within the EEZ's of the eastern Caribbean countries, but apart from the British Virgin Islands and Dominica little has been done to regulate their fishing activities. The British Virgin Islands has permitted thirteen (13) US based fishing vessels to fish swordfish in its EEZ and Dominica has an agreement with France which will allow 230 vessels from Martinique and Guadeloupe to fish in its EEZ.

1.1.1 Tunas and Billfishes

The foreign distant water fleets are targeting the commercially important species; the yellowfin, bluefin, bigeye, albacore, and skipjack tunas, and billfishes.

The fishing gear used to catch these species are surface gear (purse seine and baitboats) and longlines.

1.1.2 Swordfish

US swordfishing boats began fishing in the eastern Caribbean in the winter of 1983, primarily around the Virgin Islands. The number of boats engaged in the fishery have increased from 20 in 1984 to 43 in the 1985-86 season. In the same period fish landings increased from 42,000lb to roughly 2,000,000lb.

The swordfish fishery in the Caribbean is still developing, and it is difficult to know what the areas potential will be (Berkeley).

Presently the fishery is pursued from November through April to May. However that may not reflect the actual seasonality of the fish in the area as much as it reflects the availability of swordfish elsewhere in summer and early fall (Berkeley).

It is anticipated that the number of US vessels fishing in the Caribbean will continue to increase for at least another year or two. However, if these fish are part of a single western North Atlantic stock that has already been heavily exploited, we would not expect high catches to continue for very long (Berkeley).

US swordfishing boats have been sited east of Barbados. These boats have sophisticated navigational and fish finding equipment and use the "Florida" style of longlining gear with lines of up to 20-40 miles long.

1.2 Fishing Activities by Eastern Caribbean Countries

A variety of pelagic fishes are harvested by the Eastern Caribbean countries, but accurate information on the amount and composition of the catch is scarce (Mahon). A list of commonly caught species which gives some indication of their relative importance is given in Table 2.

1.2.1 Seasonality

The available data from the Eastern Caribbean show seasonality for many species, but we are unable to clearly distinguish between directional migration and on-shore off-shore movements. One feature is notable, most species are absent from the eastern caribbean from July to September. This coincides with the trade wind relaxation and decreased salinity in the region due to the influence of the major South American rivers (Mahon, 1986)

1.2.2 Fishing gears

The gears used by the Barbados fishermen to catch:-

- a. flying fish - are primarily gill nets; also scoop nets and hook and line.
- b. tunas, mackerels and dolphins - are trolling and hand lining in conjunction with screeblers or other floating objects which act as fish aggregating devices (F.A.D.S)

2. DEMERSAL FISHES

Demersal fishes account for roughly 10 per cent of the landed catch in Barbados.

The fish are caught by traps and handlines, the former are usually limited to shallower water (depths of 20 fathoms). The catch includes miscellaneous reef fish (more commonly taken in shallow areas), and snappers and groupers (more commonly taken in deep areas).

The fish are present all the year around, but the main fishing effort occurs during the months of July to October (the 'off season' for flying fish). At present, during the flying fish season, the demersal fishery is more or less limited to trap fishing.

Barbados is an island that rises steeply from the sea bed with very deep water almost offshore, therefore offering very limited and un-productive fishing grounds for demersal fishes. Indications from fishermen and biologist are that the demersal stocks around Barbados are easily over exploited.

At present the boats engaged in the fishery, work along the narrow continental shelf or on the banks that exist about 6 miles from the coast. These banks are located by use of landmarks that have been passed down from father to son.

Large banks are known to exist about 20-30 miles off shore which might yield good catches, but because of their lack of navigating equipment and skills, and depth sounders, the fishermen have been reluctant to explore them.

3. FISH LANDINGS IN BARBADOS

The estimate fish landings by month and by species are given in tables 3.1 and 3.2 respectively.

It must be noted, however, that as these figures do not include the landings from the 'ice boats' they are of little practical value other than to highlight how 'seasonal' the fishery is and its dependence on two or three species.

The lack of accurate fish landing data makes it impossible to monitor the true state of the industry; whether catches are increasing, stagnating or declining, and consequently the impact of new type of fishing gear and techniques.

TABLE 1

Estimated longline fishing effort (000 hooks) in the eastern Caribbean (10-20°N, 55-65°W)

Year	Korea	Japan	China (Taiwan)	Cuba	Venezuela	Total
1981	1.500	0.003	0.720	-	0.226	2.449
1982	0.530	0.219	1.206	0.158	0.261	2.374

from Marcille (1985) FAO Fish. Circ. No. 787

Table 2. Composition of the catch contributed by pelagic fishes in the eastern Caribbean (percent of total catch).

Common Names	Scientific Name	PR	USVI	BVI	Mart	Domin	St.L.	Barb	St.V.	Gren	T&T
TUNAS + mackerels	Family: SCOMBRIDAE		9								
TUNAS		3	x	x	17	x	20	2		17	
Yellowfin tuna	<u>Thunnus albacares</u>	x	x		x	x	x	x		16	x
Bluefin tuna	<u>Thynnus thynnus</u>	x			x	x	x			1	
Bigeye tuna	<u>Thunnus obesus</u>			x	x						
Blackfin tuna	<u>Thunnus atlanticus</u>	x	x			x			x	x	
Albacore	<u>Thunnus alalunga</u>	x									
Skipjack tuna	<u>Katsuwonus pelamis</u>	x	x	x	x	x	x	x	x	x	
Little tuna	<u>Euthynnus alletteratus</u>	x	x	x	x	x	x			x	x
Bonito	<u>Sarda sarda</u>		x							3	
MACKERELS (Kingfish)		5			13	x	10	3		3	x
King mackerel	<u>Scomberomorus cavalla</u>		x	x	x		x			3	
Cero Mackerel	<u>Scomberomorus regalis</u>				x		x				
Spanish mackerel	<u>Scomberomorus maculatus</u>										x
Wahoo	<u>Acanthocybium solander 1</u>	x	x	x	x		x	x	x		
BILLFISHES	Family ISTIOPHORIDAE		x				x	x		4	
Blue marlin	<u>Makaira nigricans</u>	x	x	x							
White marlin	<u>Tetrapturus albidus</u>	x	x	x							
Longbill spearfish	<u>Tetrapturus pfluegeri</u>										
Sailfish	<u>Istiophorus platypterus</u>	x	x	x						x	

Table 2. cont...

Common Names	Scientific Name	PR	USVI	BVI	Mart	Domin. St.L	Barb	St. V	Gren	T&T
OTHER SPECIES										
Swordfish	<u>Xiphias gladius</u>				x					
Dolphin or Dorado	<u>Coryphaena hippurus</u>	1	x	x	3	x	20	21	x	4 x
Jacks	Family: CARANGIDAE	2	10					2		17
Barracudas	Family SPHYRAENIDAE	1	x		1					3
Cobia	<u>Rachycentron canadum</u>									
Flyingfish	Family: EXOCOETIDAE				10		18	63		
Halfbeaks	Family: HEMIRAMPHIDAE				4					
Sharks	Order: SQUALIFORMES	x					x	1		3
Total Pelagics			20		60		68	92		

Sources: Puerto Rico (PR) - Jones (1983); Erdman(1956)
 US Virgin Islands (USVI) - Olsen and Wood (1983)
 British Virgin Islands (BVI) - Walter (1983)
 Martinique (Mart.) - Sacchi et al. (1981); Morice and Cadenat (1952)
 Dominica (Domin.) - Lintern (1978)
 St. Lucia (St. L.)-Carleton and Wirth (1980); Mathews (1983)
 St. Vincent (St.V.) - Hunte 1985)
 Barbados (Barb.) St. Hill (1984)
 Grenada (Gren.) - Finlay (1983)
 Trinidad and Tobago (T&T)- Flyingfish, Mahon et al. (1986)

Table 3.1

Estimated Fish Landings By Month

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>Tonnes</u> <u>1986</u>
January	362	314	664	435
February	464	555	352	469
March	1009	508	594	349
April	1051	448	617	403
May	1462	382	398	577
June	863	379	220	248
July	206	108	112	71
August	217	59	52	44
September	115	51	38	38
October	125	48	37	37
November	235	94	52	1 22
December	479	248	390	163
TOTAL	6588	3194	3526	2956

Source : Agricultural Planning Unit

The above estimates do not include catches landed by
'ice' boats.

Table 3.2

Estimated Landings by Species

	Tonnes			
	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>
Flying Fish	4158	2373	1916	1970
Dolphin	1354	310	1084	572
King Fish	223	105	138	74
Shark	62	19	30	39
Tuna	-	34	30	17
Bill Fish	128	55	70	81
Brim	-	22	31	22
Snapper	137	36	20	15
Jacks	115	30	42	24
Cavally	16	-	4	2
Bonito	40	22	18	13
Albacore	53	-	1	-
Turpits	-	-	-	1
Other	302	188	142	126
Total	6588	3194	3526	2956

Source: Agricultural Planning Unit

- = No landing recorded or landings less than one tonne.

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