

# THE FISHERIES OF ERITREA, PART I: SECTOR REVIEW



## PART II. PROPOSED NATIONAL FISHERIES STRATEGY AND DEVELOPMENT PROGRAMME

### TABLE OF CONTENTS

---

This report was prepared during the course of the project identified on the title page. The conclusions and recommendations given in the report are those considered appropriate at the time of its preparation. They may be modified in the light of further knowledge gained at subsequent stages of the project.

The designations employed and the presentation of the material in this document do not imply the expression of any opinion whatsoever on the part of the United Nations or the Food and Agriculture Organization of the United Nations concerning the legal or constitutional status of any country, territory or sea area, or concerning the delimitation of frontiers.

## FOREWORD

In December 1991 an FAO Investment Centre mission visited Eritrea at the request of the UNCDF to assist the Provisional Government of Eritrea (PGE) in formulating a fishery project for the Dahlak Islands and Massawa area (the "Semhar Project"). In the course of this mission it was recognised that

although the recently constituted Department of Marine Resources and Inland Fisheries (DMRIF) was staffed at senior level by committed professionals, there was a lack of expertise in key areas for addressing the critical tasks that lie ahead, including the establishment of national fishery management and development strategy and negotiation of access rights and agreements with other nations. It was clear that the strengthening of the DMRIF structure and the formulation of an overall development policy as well as short/medium term strategy for its implementation were essential for the rehabilitation of the Eritrea fishery sector. The initiation of a fishery data collection and monitoring system as a basis for sound management decision-making and monitoring processes was also seen as another important aspect of fishery development in the medium-term.

In view of these concerns the PGE requested urgent FAO/TCP assistance for strengthening national fisheries planning and management capabilities. Operations began at the end of July 1992 with the arrival of the Planning Economist/Team Leader, J.E.Reynolds. He was subsequently joined for varying periods of time by other members of the project team, including: T. Scovazzi, Legal/Institutional Advisor (3 weeks split between missions in August and November); M.S. Bellemans, Bio-Statistician Advisor (2 months split between missions in August-October and again in November-December); J. Appleton, Fishery Industry Officer (Nutrition), GCP/INT/467/NOR, FIIU/FAO (2 weeks in September); L.C. Christy, Development Law Service, LEG/FAO (2 weeks in November); M. Vandeputte, Aquaculture/Inland Fisheries Advisor, JEFAD (10 days in December); and A. Bonzon, Fisheries Planning Analyst, FIPP/FAO (2 weeks split between missions in December); and again in March-April 1993). The first phase of the project wound up in mid-December 1992. The second phase, made possible by a project revision requested and approved in November 1992, became operational in February 1993. This phase primarily involved organisation of the Eritrean National Conference on Fisheries Planning and Development which took place between 30<sup>th</sup> March and 2<sup>nd</sup> April 1993 at the Red Sea port of Massawa.

Major project objectives were to assist in devising a comprehensive sector review and related strategy, based on a preliminary frame survey, to serve as a guide for marine and inland fisheries development in the short/medium term. The Sector Review presented as Part I of this report represents a synthesis of the technical and economic assessments conducted by members of the project team, including the draft fisheries legislation also prepared in the course of the mission. Outputs of all component activities were reported in a series of "Sector Studies" as listed in the References Cited section of Part I.

The Review is largely based on information gathered up to mid-December 1992, when the first phase field activities were wound up. In a few instances new points or updates on recent developments were added as the result of information gained during March 1993, when the National Conference was being organised and convened. Since the Eritrean fisheries sector is undergoing rapid change, both in respect to production and post-harvest activities and to institutional adjustments, a totally current picture of circumstances is difficult to achieve. The Review nevertheless aims to present

as full and accurate account as possible, consistent with such information as was gathered through observations and survey work, or otherwise made officially available to the project team. Building on its foundation, a contribution to the formulation of an Eritrean National Fisheries Strategy and Development Programme was prepared and constitutes Part II of this report. Its basic elements have already been reviewed by DMRIF officials and were also presented to and approved in principle by participants in the National Conference.

The Strategy first takes stock of the sectoral development opportunities and constraints identified in the Review, and, within the broader context of PGE policy and specifically with regard to sectoral policy, proposes a National Fisheries Development Programme oriented towards the interrelated goals of: strengthening fisheries institutions in their capabilities for promoting expanded but carefully planned and managed sustained use development of the sector; developing fisherfolk communities through pronounced enhancement of the productivity and profitability of artisanal fisheries enterprises; encouraging domestic consumption of fish and fish products in order to create a sharply increased demand on local markets; and building up production and trade of fisheries products for export as a means of securing foreign exchange earnings for sectoral development and the country at large.

Members of the project team enjoyed the assistance and support of numerous DMRIF officers and staff under the supervision of Saleh Meky, the Secretary of the Department. Many other individuals within PGE departments, NGO and international donor agencies, and the private sector also provided helpful advice, assistance, and information. The mission would like to express its deep appreciation for such support, which made the achievement of project objectives possible. In particular the mission would like to acknowledge the help of all of those who participated in field and market survey work. For the 1992 Frame Survey, the Massawa-Tiyo team included Saba Wolday (Leader), Berhe Tesfazghi (Guide), Mehari Gilagabre, Sammy Mahmud Omar, Yohannes Haile (Driver), and Angehsum Bisrat (Driver); the Assab-Tiyo team included Zein Bourg (Leader), Marco Pedulli, Binyam Asfaha, and Semere Birhan (Driver). For the 1992 Asmara Fish Markets Survey, team members included: Fatma Yusuf, Ibrahim Ali, Zerai Seyoum, and Zakarias Yohannes. For the field visits to inland reservoirs, Selam Seyoum and G. Gebramlak provided valuable help. Alem Sellasse Zerom, Legal Advisor to the Department of Ports and Maritime Transport, contributed materially to all phases of the legal/institutional component work. In the DMRIF administration, Tekie Tewolde (Deputy Secretary), Kifle Woldeselassie (Administrator), and Fatma Saadedin (Financial Officer) all helped to deal with various project operational tasks. The operational backstopping support of M. Askwith (UNDP Liaison Officer, Eritrea), J.L. Bailey (WFP Transport Operation, Eritrea), D. Broderick (WFP Project Officer, Eritrea), P.R. Cook (UNHCR, Eritrea), and J.-M. Goudstikker (Senior Programme Officer, UNHCR, Eritrea) is also gratefully acknowledged. Finally, a general word of thanks is due to all the DMRIF staff who devoted so much time and effort to organising Eritrea's first national fisheries conference.

# SUMMARY AND RECOMMENDATIONS

## SECTOR REVIEW:

1. A comprehensive review of the Eritrean fisheries sector was drafted on the basis of the TCP team's investigations and observations carried out during mission work between late July and mid-December, 1992, and constitutes Part I of this report.
2. The Review essays a broad examination of the marine capture fisheries with regard to known resources by major groupings, the evolution of artisanal and industrial exploitation activities, current production and capabilities, and socio-economic characteristics (occupational patterns, settlements and services, seasonality and migration, patterns of trade, and effort and financial performance of fishing units).
3. The situation of aquaculture and inland fisheries is also reviewed in terms of the production base, current and planned fishing/fish farming activities, and potential for development.
4. Domestic and export marketing are discussed according to the topics of domestic distribution, supplies, marketing, and consumption, and of import and export products and markets.
5. Consideration is given to fisheries institutions and services with respect to: the context of Government policy; DMRIF organisation and functions; planning and management concerns including sectoral development (on-going and anticipated/possible projects), fisheries legislation, enforcement, and statistics; applied research; training; other institutions with direct fisheries competencies (Fishery Advisory Council, fisher associations and co-operatives); and additional institutions with fisheries-related functions (University of Asmara, other Government departments, and other agencies).
6. Finally, issues of fiscality, investment, and credit of relevance to the fisheries sector and its development are noted (monetary and exchange rate policies, budgetary practices, the Investment Proclamation and the Investment Centre, and credit institutions and services).

## NATIONAL FISHERIES STRATEGY AND DEVELOPMENT PROGRAMME

7. Using the Sector Review as a foundation, a contribution to the formulation of an Eritrean National Fisheries Strategy and Development Programme was prepared as Part II of this report. Its basic elements were presented to and approved in principle by participants in the National Conference on Fisheries Planning and Development convened in Massawa, Eritrea, between 30<sup>th</sup> March and 2<sup>nd</sup> April, 1993.
8. The Strategy first takes stock of the sectoral development opportunities and constraints identified in the Review.
9. On the opportunity side there is clear potential for restoration or even expansion of Red Sea fisheries production, significant proven as well as latent demand for various Eritrean fisheries products in regional and

- overseas export markets, the existence of a core of dedicated fish consumers on the domestic scene, and the favourable investment and business climate being promoted by the PGE.
10. On the constraint side, it is recognised that multiple problems exist that bear on critical areas of: institutional planning and management capabilities (some aspects of DMRIF organisation and functions, and inadequate knowledge of the resource base); productive capabilities (weak capitalisation and inventories of equipment and gear, depressed production and producer prices, limited potential for aquaculture and inland fisheries, and inadequate fishing community services and amenities); and, in the post-harvest dimension, on distribution (inadequate transport and holding facilities and retail outlets), marketing (lack of pricing flexibility and strong trader incentives), and consumer habits (narrow base of domestic buyers).
  11. Within the broader context of PGE policy and specifically with regard to sectoral policy, the proposed National Fisheries Strategy and Development Programme is elaborated along the following main orientations:
    - Strengthening of fisheries institutions in their capabilities for promoting expanded but carefully planned and managed sustained use development of the sector.
    - Developing fisherfolk communities through pronounced enhancement of the productivity and profitability of artisanal fisheries enterprises.
    - Encouraging domestic consumption of fish and fish products in order to create a sharply increased demand on local markets.
    - Building up production and trade of fisheries products for export as a means of securing foreign exchange earnings for sectoral development and the country at large.
  12. The recommended action programme is set out according to short-term (ST) measures, or those that deserve attention immediately and over the next one to two years, and medium-term (MT) measures, or those that apply to the three to five year planning horizon.

## **STRENGTHENING FISHERIES INSTITUTIONS AND SERVICES**

### **13. DMRIF Organisation and Functions**

#### **13.1 Developing core capabilities and collaborative linkages**

- |           |  |
|-----------|--|
| <u>ST</u> | (a) Move to adjust departmental organisation generally by matching staff educational and experiential credentials with post responsibilities, and where relevant creating new units and posts and ensuring specialised training of officers who will be filling these positions. |
| <u>ST</u> | (b) Establish regular mechanism for collaboration and consultation between DMRIF and other institutions with fisheries-related interests at the national, regional, and international levels.  |
| <u>ST</u> | (c) In particular, move to set up a Fisheries Advisory Council as soon as possible.  |

**N.B.:** It is extremely important to undertake the departmental

**restructuring exercise on an urgent basis: ideally a workable set-up should be elaborated and implemented as soon as possible after the termination of the present TCP Project, in order to avoid any loss of momentum in the push to strengthen the Department's capabilities to fulfill its planning and management responsibilities for the sector. See Project Profile No. 1.**

### 13.2 New department sections

ST (a) Establish three new sections in DMRIF for "Planning and Project Co-ordination", "Resources and Environment", and "Production and Marketing". Ensure that necessary staffing requirements are met through recruitment and/or training of suitable officers.

ST (b) Assign the Planning and Co-ordination Section responsibility for charting out, monitoring, and evaluation of the fisheries development process in the country overall, including reassessment of policy in terms of changing circumstances within the sector and the wider national setting.

## 14. Management

### 14.1 Fisheries legislation

ST (a) Finalise and adopt draft fisheries legislation.

ST (b) Identify and formulate priority regulations as necessary.

ST→MT (c) Consult with other relevant Government departments and chart a programme for drafting and enacting maritime zone legislation. On this basis and after careful examination of the cost implications review the need for establishing an enforcement scheme.

ST (e) Verify the legal status of fisher co-operatives/associations, if any, and draft and enact such legislation as required to secure it or to revise it as appropriate.

### 14.2 Enforcement

ST→MT (a) Consider plans for monitoring, control, and surveillance (MCS) activities.

ST→MT (b) Carefully examine the cost implications of any enforcement scheme with a view to adopting modest MCS routines that can be effected with existing staff and facilities.

ST→MT (c) If the need for waterborne patrolling arises, explore possibilities of establishing co-operative and cost-sharing agreements with the Navy and/or the Ports and Maritime Transport authorities.

### 14.3 Fisheries statistics

ST (a) Possibly as a unit under the planning section, move to establish a properly equipped and staffed office responsible for the systematic collection, compilation, analysis, and reporting of fisheries catch, socio-economic, and marketing statistics.

ST (b) Conduct further frame survey work as necessary and on this basis design and implement a Catch Assessment Survey programme for all marine fisheries, taking particular care to collect important data pertaining to processed products and the harvests of the land-based

collection or foot fishery.

#### 14.4 Fisheries and marine resources research

- ST (a) Work quickly to develop fish stock assessment and monitoring and other marine resource survey research capabilities in cost effective ways.
- ST (b) Conduct *ad hoc* socio-economic investigations of fishing communities, fishing unit operations, traders and the trade network, and consumer buying and utilisation patterns.
- ST+MT (c) Closely co-ordinate research work with the University of Asmara and other regional and overseas institutions with fisheries and marine resource interests, but maintain a distinctly practical, problem-solving orientation in all research activities.
- ST (d) Formulate a short/medium term plan for applied research.

#### 14.5 Training

- ST (a) Encourage further training activities for young novice fishers but establish them on a more consolidated methodological and financial basis.
- ST (b) Continue present training activities involving local women net-makers but seek ways and means of expanding training for women in fisheries to support other aspects of their productive work.
- ST→MT (c) Identify further sectoral training needs in a systematic way for the short/medium term and, accordingly, to design and implement a fisheries training plan.

#### 14.6 Credit facilities

- ST (a) Closely monitor the performance of the revolving fund scheme being set up with project assistance to help small-scale fishers obtain necessary inputs. Likewise monitor the credit arrangements that are to be extended to private local fish traders.
- ST→MT (b) Consider eventual function of local fisher associations as credit "intermediaries" rather than as credit scheme managers or administrators.
- ST→MT (c) Use loan indexing to maintain the real value of funds being circulated through revolving credit schemes.
- ST→MT (d) Explore possibilities for extending credit facilities also to support the production, processing, and marketing activities of womenfolk, many of whom are active as shore-based "foot-fisher" collectors.
- MT (e) Use the lessons from these experiences to build a model for establishing fisheries credit facilities as part of the normal national banking system.

### DEVELOPING PRODUCTION

#### 15. Production Inputs

- ST→MT (a) Encourage the development of a private network of production input suppliers by establishing special mechanisms to allow them to

secure necessary foreign exchange for the import of such items.

ST→MT (b) Advocate that customs duties and taxes applied to imports of fishing inputs be kept very minimal for the time being, bearing in mind that excessive levies can act as disincentives to suppliers. Consider organising a mission or special task force to conduct a techno-economic study to determine appropriate tax and duty levels.

ST→MT (c) Discourage the creation of artificialities within the production sector by avoiding the sale/distribution of gear and other production inputs at Government- or donor-subsidised prices.

ST→MT (d) Help to assure the optimum use of gear and equipment through the organisation of courses for local fishers in handling and maintenance, and through the training of local artisans in repair skills.

#### 16. Pricing

ST (a) Move towards a system of liberalised controls on prices, aiming to achieve early deregulation and the operation of free auction buying at landing sites in order to provide producers with appropriate incentives and counter possibly unattractive cost-earning balances in small unit operations.

ST→MT (b) Closely monitor the impact of such measures on local communities and export flows and reassess the overall price policy accordingly.

#### 17. Private Fish Buyers

ST→MT (a) Avoiding government involvement in the fish trade as much as possible, encourage small-and large-scale national and international buyers to operate directly from Eritrean coastal towns, settlements, and landings with appropriate incentives in terms of tax and duty liabilities, licensing procedures, and currency exchange restrictions that are not burdensome and complicated.

ST→MT (b) In so doing consolidate a strong routine of fish and fish product landings in domestic ports rather than elsewhere in the region.

#### 18. Resumption of Industrial Trawling

MT (a) Over the medium term allow for a step-wise recommencement of the industrial trawl fishery in the Red Sea in areas and on stock that will not pose any complications or interference to the artisanal smallcraft fishery. Control the gradual expansion of the trawler fleet over the course of the next three to five years up to a modest level through close monitoring of catches and effects of initial operations.

ST (b) In the immediate to short term, consider requesting an investment mission to look into options for this expansion process including the possible creation of joint ventures and entering into fishing agreements, and to recommend a programme of implementation.

#### 19. Use of Government Revenues for Infrastructural Development

ST→MT (a) Use funds generated through the levying of modest facility user fees, landing fees, and licenses to develop/rehabilitate basic infrastructure at coastal and island landing sites.

ST→MT (b) Consider the establishment of a "Fisheries Development Fund" to



serve as a mechanism for this purpose.

20. **Aquaculture and Inland Fisheries**

- ST (a) Refrain from any short-term, production-oriented project work to develop inland fisheries and aquaculture, as the costs involved appear to be grossly disproportionate to any socio-economic benefits that might be realised.
- MT (b) In the medium to long term, ensure that any contemplated development begins with comprehensive assessment of water quality and availability, and by small pilot operations to establish technical and socio-economic feasibilities within the context of integrated rural development activity.
- ST→MT (c) Wait to assess the results of marine aquaculture projects now in the feasibility study or early implementation stages before considering further expansion of ventures in this area.
- ST→MT (d) As a techno-economic criterion to use in the assessment of marine aquaculture ventures, check the development and production costs of ventures against those that could be expected from capture fisheries operations on comparable species.
- ST→MT (e) Refrain from public investment in marine aquaculture ventures.

**N.B.:** See Project Profile No. 2.

**DOMESTIC MARKETING AND CONSUMPTION**

21. **Distribution and Marketing**

- ST→MT (a) Promote the steady improvement in infrastructure and services to support fish distribution and marketing activities, including ice plants, road communications, refrigerated/insulated transport units, central holding and wholesaling facilities, and retail outlets. Insofar as possible encourage small-scale private investor initiative to secure distribution and market facility development.
- ST→MT (b) Place particular emphasis on towns/population centres not currently served with fresh fish outlets, including also neighbourhoods outside of central Asmara.
- ST (c) Ensure that traders have flexibility to adjust prices in accordance to demand both in terms of quantities and particular species, and to explore new market outlet possibilities both domestically and within the region.

22. **Consumption**

- ST→MT (a) As large sections of the national population do not eat fish, strive to reverse this situation through publicity campaigns, extension work at market places and with community groups, cookery demonstrations, etc.
- ST→MT (b) Aim especially to improve levels of consumption amongst the urban poor and rural dwellers in general, as these groups have had the least opportunity to acquire an appreciation for fish as food.
- ST→MT (c) Explore possibilities for increased domestic utilisation of lower-priced and/or currently underexploited species that may not be in

heavy demand in external regional or overseas markets.

ST (d) In the short term formulate and implement a pilot project with the specific aim of facilitating fish consumption, concentrating especially on lower income urban households.

ST→MT (e) For all these purposes seek maximum collaboration with those government departments and other agencies concerned with food and nutrition issues and education and extension activities.

**N.B.:** See Project Profile No. 3.

## **DEVELOPMENT OF FISHERIES EXPORTS**

### **23. Artisanal/Industrial Operations**

ST (a) Encourage feasibility studies and private initiative to restore specialised fisheries product export enterprises that would produce value-added for Eritrea and establish on-shore facilities and employment opportunities.

ST→MT (b) Study the possibility of developing modest artisanal and/or industrial (purse seining) capacity for small pelagic fish to supply domestic and regional markets. Consider the fielding of a technical expert to review the situation and develop a set of proposals for the small pelagic fishery, possibly in the context of the mission suggested above.

### **24. Export Support Services**

ST (a) Elaborate a scheme for collection boat and marketing operations for export products. Provide for a system of quality controls as part of this scheme. Also determine which sites are to be developed as bulking points and shipping outlets.

ST (b) Move quickly to re-establish Assab area artisanal production for the Ethiopian (Addis Ababa) market, which has a proven demand for fresh seafood products.

ST→MT (c) In terms of other regional trade in fish products, seek gradually to regularise links with neighbouring and adjacent countries in the Red Sea basin through a system of formal but streamlined export procedures and the inducements of adequate remuneration to fishers and full availability at fair cost of goods and services needed for fishing and harvesting activities.

ST→MT (d) In this connection ensure that a sufficient portion of foreign exchange generated through export sales be earmarked for acquisition of those inputs that must be obtained from abroad.

ST (e) Immediately detail a working group to review existing provisions of the Investment Proclamation and draw up recommendations for the clearer accomodation of fisheries interests in a revised/updated issue of the Proclamation.

---

*Hyperlinks to non-FAO Internet sites do not imply any official endorsement of or responsibility for the opinions, ideas, data or products presented at these*

*locations, or guarantee the validity of the information provided. The sole purpose of links to non-FAO sites is to indicate further information available on related topics.*

*This electronic document has been scanned using optical character recognition (OCR) software. FAO declines all responsibility for any discrepancies that may exist between the present document and its original printed version.*

---

## **TABLE OF CONTENTS**

### PART I. SECTOR REVIEW

#### FOREWORD

#### SUMMARY AND RECOMMENDATIONS

#### ABBREVIATIONS USED

#### EXCHANGE RATES

### 1. GENERAL BACKGROUND

#### 1.1 Overview

#### 1.2 Agriculture and the Economy

#### 1.3 Fisheries and National Recovery and Rehabilitation

### 2. MARINE CAPTURE FISHERIES

#### 2.1 Resources

##### 2.1.1 Small pelagic resources

##### 2.1.2 Large pelagic resources

##### 2.1.3 Demersal resources

##### 2.1.4 Shrimp and lobster resources

##### 2.1.5 Other resources

#### 2.2 History of Exploitation

##### 2.2.1 Evolution of artisanal fisheries

##### 2.2.2 Evolution of industrial fisheries

#### 2.3 Current Production and Capabilities

[2.3.1 Production](#)

[2.3.2 Fishing fleet, equipment, and gear](#)

[2.4 Socio-economic Characteristics](#)

[2.4.1 Occupational patterns](#)

[2.4.2 Settlements and services](#)

[2.4.3 Fishing seasonality and migration](#)

[2.4.4 Patterns of trade](#)

[2.4.5 Effort and financial performance of fishing units](#)

[3. AQUACULTURE AND INLAND FISHERIES](#)

[3.1 Present Situation of Inland Fisheries](#)

[3.1.1 Existing reservoirs](#)

[3.1.2 Fish populations](#)

[3.1.3 Fishing activities](#)

[3.1.4 Freshwater fish market](#)

[3.2 Potential for the Development of Inland Fisheries](#)

[3.2.1 Water resources potential](#)

[3.2.2 Market potential](#)

[3.3 Economic Considerations for Inland Fisheries Development](#)

[3.4 Marine Aquaculture Prospects and Constraints](#)

[3.4.1 General background](#)

[3.4.2 Extensive aquaculture of mullet and/or milkfish](#)

[3.4.3 Commercial shrimp culture](#)

[4. DOMESTIC AND EXPORT MARKETING](#)

[4.1 Domestic Distribution and Supplies](#)

[4.1.1 The distribution chain](#)

[4.1.2 Fish supplies to principal domestic markets](#)

[4.2 Domestic Marketing and Consumption](#)

[4.2.1 Fish in local diets](#)

[4.2.2 Fish market prices](#)

[4.2.3 Asmara fish markets survey](#)

### 4.3 Import and Export Products and Markets

#### 4.3.1 Fish product imports

#### 4.3.2 Fish product exports

## 5. FISHERIES INSTITUTIONS AND SERVICES

### 5.1 Government Policies

### 5.2 The Department of Marine Resources and Inland Fisheries (DMRIF)

#### 5.2.1 Areas of competencies

#### 5.2.2 Organisation, staffing, and facilities

#### 5.2.3 Sectoral development

#### 5.2.4 Management

#### 5.2.5 Applied research

#### 5.2.6 Training

### 5.3 Other Institutions with Direct Fisheries Competencies

#### 5.3.1 Fisheries Advisory Council (FAC)

#### 5.3.2 Fisher associations and co-operatives

### 5.4 Other Institutions with Fisheries-Related Functions

#### 5.4.1 University of Asmara

#### 5.4.2 Other Government departments

#### 5.4.3 Other agencies

## 6. FISCALITY, INVESTMENT, AND CREDIT

### 6.1 Monetary and Exchange Rate Issues

### 6.2 Budgetary Issues

### 6.3 The Investment Proclamation and the Investment Centre

### 6.4 Credit Institutions and Services

#### 6.4.1 Commercial banking system

#### 6.4.2 Fisheries credit services

## 7. REFERENCES CITED AND CONSULTED

### 7.1 FAO/TCP/ERT/2251 Sector Studies

## [7.2 Other Documents](#)

### [ANNEX 1. STATISTICAL TABLES](#)

### [ANNEX 2. 1992 FISHING CRAFT TRACER STUDY, MASSAWA-DAHLAK UNITS](#)

### [ANNEX 3. TENTATIVE FINANCIAL ANALYSES OF FISHING OPERATIONS](#)

### [ANNEX 4. ASMARA FISH MARKETS CUSTOMER SURVEY](#)

### [ANNEX 5. PROVISIONAL ORGANISATION OF DMRIF, OCTOBER 1992](#)

### [ANNEX 6. DMRIF STAFF ESTABLISHMENT AND PHYSICAL FACILITIES](#)

### [ANNEX 7. IDEAS FOR FUTURE PROJECTS](#)

## **LIST OF FIGURES**

[Fig.1 Regions and main towns of Eritrea](#)

[Fig.2 Major Past Fishing Areas, Eritrean Red Sea Waters](#)

[Fig.3 Distribution of active units by type](#)

[Fig.4 Distribution of fishers by region](#)

[Fig.5 Distribution of foot-fishers by region](#)

[Fig.6 Fresh fish distribution chain, principal markets \(late 1992\)](#)

[Fig.7 Distribution of income earner by employment status](#)

[Fig.8 Frequency of fish purchase by income classes](#)

[Fig.9 Quantity of fish purchased by income classes](#)

## **LIST OF TABLES**

[Table 1 Social indicators for Eritrea compared with Sub-Saharan African averages](#)

[Table 2 Estimations of MSY, Eritrean Marine Waters](#)

[Table 3 Evolution of marine resource landings in Eritrea from 1954/55 to 1983/84](#)

[Table 4 Mid-1960s export level of Eritrean marine commodities](#)

[Table 5 Level of marine fishing craft in the 1960s](#)

[Table 6 Number of Eritrean coastal fishers in the 1960s](#)

[Table 7 Recorded landings at Assab and Massawa, 1992](#)

[Table 8 Major species caught, Eritrean marine fisheries](#)

[Table 9 Distribution of foot-fishers](#)

[Table 10 Frequency of market disposal of products](#)

[Table 11 Evaluation of water quality for fish culture/fisheries, 11 Eritrean reservoirs](#)

[Table 12 Estimation of fish productivity in selected reservoirs](#)

[Table 13 Fish landings and major market sales](#)

[Table 14 Asmara market prices for “protein foods”](#)

[Table 15 Changes in regulated price for fish, 1992](#)

## **ANNEX 1**

[Table A1. Length frequency distribution of fishing craft by type](#)

[Table A2. Average purchase and replacement costs for fishing craft by length class](#)

[Table A3. Average engine power by type of engine and region](#)

[Table A4. Engine power distribution by engine and craft type](#)

[Table A5. Average purchase and replacement costs for various engines](#)

[Table A6. Place of engine purchase](#)

[Table A7. Average age \(years\) of engines by engine and craft type](#)

[Table A8. Age frequency distribution of engines by type](#)

[Table A9. Average purchase and replacement costs for major gear](#)

[Table A10. Place of gear purchase](#)

[Table A11. Availability of services & amenities, Eritrean coastal fishing sites, 1992](#)

[Table A12. Summary of landings at Massawa 1992](#)

[Table A13. Number of distinct fishing boats landing per month at Massawa, Feb.-Aug. 1992](#)

[Table A14. Frequency of landings per fishing craft, Massawa, Feb.-Aug. 1992](#)

[Table A15. Estimation of fisheries potential, Eritrean inland reservoirs with known area](#)

[Table A16. Estimation of fisheries potential, Eritrean inland reservoirs without known area](#)

[Table A17a. Dried products purchased and sold - Massawa, March 1992](#)

[Table A17b. Dried products purchased and sold - Massawa, April 1992](#)

[Table A17c. Dried products purchased and sold - Massawa, June 1992](#)

[Table A17d. Dried products purchased and sold - Assab, June 1992](#)

[Table A17e. Dried products purchased and sold - Massawa, July-August 1992](#)

[Table A17f. Dried products purchased and sold - Massawa, Sept. 1992](#)

[Table A17g. Dried products purchased and sold - Massawa, Oct. 1992](#)

## **ANNEX 2**

[Table T1. Average crew size per trip by craft type and gear type](#)

[Table T2. Average quantity of fuel taken per fishing trip](#)

[Table T3. Average quantity of fuel used per day](#)

[Table T4. Average amount of ice blocks per fishing day](#)

[Table T5. Average amount of landed fish per grade](#)



[Table T6. Average landings per gear type and per grade](#)

### **ANNEX 3**

[Table A. Houri selling at Massawa landing \(pre-December 1992 producer prices\)](#)

[Table B. Houri selling at Massawa landing \(post-December 1992 producer prices\)](#)

[Table C. Sambuk selling at Massawa landing \(pre-December 1992 producer prices\)](#)

[Table D. Sambuk selling at Massawa landing \(post-December 1992 producer prices\)](#)

### **ANNEX 4**

[Table M1. Frequency of market visits](#)

[Table M2. Usual grade of fish purchased](#)

[Table M3. Fish availability at times of market visits](#)

[Table M4. Occupation of family main income earners](#)

[Table M5. Institutional buyers, Asmara fish markets](#)

[Table M6. Distribution of institutional purchases by days of week](#)

[Table M7. Purchase characteristics, ten largest institutional buyers](#)

[Table M8. Purchase characteristics ten largest restaurant buyers](#)

[Table M9. Estimated quantity of fish purchased during survey period](#)

[Table M10. Distribution of Asmara restaurants by number of years fish offered on menu](#)

## **PART II. PROPOSED NATIONAL FISHERIES STRATEGY AND DEVELOPMENT PROGRAMME**

### **FORWARD**

#### **1. DEVELOPMENT OPPORTUNITIES AND CONSTRAINTS**

## 1.1 Opportunities for Fisheries Development

### 1.1.1 Restoration/expansion of Red Sea fisheries production

#### 1.1.2 Market demand

#### 1.1.3 Investment and business environment

## 1.2 Constraints to Fisheries Development

### 1.2.1 Institutional, planning, and management constraints

#### 1.2.2 Constraints to productive capabilities

#### 1.2.3 Post-harvest constraints: distribution, marketing, and consumer orientation

## 2. NATIONAL OBJECTIVES AND FISHERIES STRATEGY

### 2.1 Development Objectives

#### 2.1.1 Government orientation

#### 2.1.2 Fisheries strategy

## 3. ACTION PROGRAMME COMPONENTS

### 3.1 Strengthening Fisheries Institutions and Services

#### 3.1.1 DMRIF organisation and functions

#### 3.1.2 Management

### 3.2 Developing Production

#### 3.2.1 Production inputs

#### 3.2.2 Pricing

#### 3.2.3 Private fish buyers

#### 3.2.4 Resumption of industrial trawling

#### 3.2.5 Use of Government revenues for infrastructural development

#### 3.2.6 Aquaculture and inland fisheries

### 3.3 Domestic marketing and consumption

#### 3.3.1 Distribution and marketing

#### 3.3.2 Consumption

### 3.4 Development of Fisheries Exports

#### 3.4.1 Artisanal/industrial operations

#### 3.4.2 Export support services

## [ANNEX 1. PROPOSED ORGANISATION OF DMRIF](#)

## [ANNEX 2. PROJECT PROFILES](#)

### [No. 1: Fisheries Development Planning & Management](#)

### [No. 2: Pilot Inland Fisheries Development](#)

### [No. 3: Fish Consumption Promotion, Pilot Phase](#)

## **ABBREVIATIONS USED**

AC	Activity Coefficient
AIDB	Agricultural and Industrial Development Bank
CBE	Commercial Bank of Eritrea
CERA	Commission for Eritrean Refugee Affairs
DEDC	Department of Economic Development and Cooperation
DMBF	Department of Marine Biology and Fisheries (University of Asmara)
DMRIF	Department of Marine Resources and Inland Fisheries
DPMT	Department of Ports and Maritime Transport
EEAP	Eritrean Environmental Action Plan
EEZ	Exclusive Economic Zone
EPLF	Eritrean People's Liberation Front
ERRA	Eritrean Relief and Rehabilitation Agency
FAC	Fisheries Advisory Council
FAO	Food and Agriculture Organization of the United Nations
FS	Frame Survey
FPMC	Fish Production and Marketing Corporation (Ethiopia)
GDP	Gross Domestic Product
JEFAD	Joint United Nations Economic Commission for Africa/FAO Agriculture Division
LWF	Lutheran World Federation
MCS	Monitoring, Control and Surveillance
MSY	Maximum Sustainable Yield
NGO	Non-Governmental Organisation
PGE	Provisional Government of Eritrea
PIU	Project Implementation Unit
TCP	Technical Cooperation Programme (FAO)
UNCDF	United Nations Capital Development Fund
UNDP	United Nations Development Programme
UNHCR	United Nations High Commission for Refugees

## EXCHANGE RATES

Pre-October 1992: Birr 2.07 = 1 US\$ (Standard Rate)  
Birr 7.00 = 1 US\$ (Free Market Rate)

Post-October 1992: Birr 5.00 = 1 US\$ (Standard Rate)  
Birr 7.00 = 1 US\$ (Free Market Rate)