

REPORT  
OF THE  
FIFTH SESSION OF THE INDIAN OCEAN FISHERY COMMISSION

Cochin, India, 19-26 October 1977

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

M-40

ISBN 92-5-100549-4

The copyright in this book is vested in the Food and Agriculture Organization of the United Nations. The book may not be reproduced, in whole or in part, by any method or process, without written permission from the copyright holder. Applications for such permission, with a statement of the purpose and extent of the reproduction desired, should be addressed to the Director, Publications Division, Food and Agriculture Organization of the United Nations, Via delle Terme di Caracalla, 00100 Rome, Italy.

## PREPARATION OF THIS REPORT

This is the final version of the report as approved by the Fifth Session of the Indian Ocean Fishery Commission.

### Distribution

Participants in the session  
Members of the Commission  
Other interested nations and  
international organizations  
FAO Fisheries Department  
Fishery Officers in FAO Regional  
Offices

### Bibliographic entry

Indian Ocean Fishery Commission, Cochin,  
India, 19-26 October 1977 (1978)  
FAO Fish.Rep., (199):36 p.  
Report of the fifth session of the .....  
Meeting report. Fishery statistics.  
Stock assessment. Sea law. Fishery  
surveys. Fishery development. Aquaculture.  
International exchange. ISW.

CONTENTS

	<u>Paragraphs</u>
OPENING OF THE SESSION	1 - 2
ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION	3
FISHERY STATISTICS	4 - 11
STATE OF STOCKS	12 - 15
INTERNATIONAL INDIAN OCEAN FISHERY SURVEY AND DEVELOPMENT PROGRAMME	16 - 36
(a) Report of the Executive Committee (sixth session)	16 - 24
(b) Research and survey activities	25 - 29
(c) Fishery development opportunities	30 - 36
MANAGEMENT	37 - 45
(a) Tuna	37 - 40
(b) Other stocks	41 - 45
DEVELOPMENTS IN THE REGIME OF THE SEA AND THEIR IMPLICATIONS FOR FISHERIES WITH PARTICULAR REFERENCE TO IOFC	46 - 51
NATIONAL AND REGIONAL EFFECTS OF AN EXTENDED ZONE OF JURISDICTION OVER FISHERIES	52
RELATIONS WITH IPFC AND OTHER REGIONAL FISHERY BODIES	53 - 64
SUBSIDIARY BODIES OF THE INDIAN OCEAN FISHERY COMMISSION	65 - 75
AMENDMENTS TO THE RULES OF PROCEDURE OF IOFC	76 - 77
ANY OTHER MATTERS	78
ELECTION OF OFFICERS	79 - 81
DATE AND PLACE OF THE SIXTH SESSION	82
ADOPTION OF THE REPORT	83
	<u>Page</u>
Appendix A List of delegates and observers	13
B Address by Shri A.K. Antony, Chief Minister of Kerala	19
C Address by Shri G.V.K. Rao, Secretary to Government of India, Ministry of Agriculture and Irrigation, New Delhi	21
D Address by Mr. H. Watzinger, Assistant Director-General (Fisheries), FAO	23

	<u>Page</u>
Appendix E    Agenda	26
F    List of documents	27
G    National and regional effects of an extended zone of jurisdiction over fisheries - Summary of discussions	29
H    Statement by the Representative of Iraq, relevant to paragraph 21 of the report, as he was not present at the time of discussion of the item in the Commission	36

## OPENING OF THE SESSION

1. The Indian Ocean Fishery Commission (IOFC) held its fifth session from 19 to 26 October 1977 at the Central Institute of Fisheries Technology at Cochin, India. The session was attended by the representatives of 18 members of the Commission, by an observer from one other Member Nation of FAO, by the observers from two non-Member Nations of the Organization that were applicants for FAO membership and by the representative of one intergovernmental organization. A list of delegates and observers is given in Appendix A to this report.

2. An opening ceremony was held at the Fine Arts Hall and addresses were made by Shri A.K. Antony, Chief Minister of Kerala, Shri G.V.K. Rao, Secretary to Government of India, Ministry of Agriculture and Irrigation (Department of Agriculture and Rural Development) and Mr. H. Watzinger, Assistant Director-General (Fisheries Department), FAO. The texts of these speeches are to be found in Appendices B, C and D.

## ADOPTION OF THE AGENDA AND ARRANGEMENTS FOR THE SESSION

3. The Commission adopted the agenda reproduced in Appendix E. The documents before the Commission are listed in Appendix F. At the suggestion of the Chairman, the Commission appointed a Nominations Committee, consisting of the representatives of Kenya, Madagascar, Qatar, Tanzania, Thailand and United States of America, to facilitate the election of officers to serve during the inter-sessional period and the Sixth Session of the Commission and to propose up to four additional members of the Executive Committee for the Implementation of the Indian Ocean Fishery Survey and Development Programme.

## FISHERY STATISTICS

4. Statistics of different types are the basic data for most policy actions regarding fisheries, from investment planning to the assessment and management of fish resources, especially heavily fished stocks. The importance of adequate statistics has long been recognized in theory, but in practice the statistics available for Indian Ocean fisheries are poor, and their inadequacies are among the reasons for failing to achieve a fully rational utilization of the resources of the region.

5. A number of reasons for their inadequacies were outlined in document IOFC/77/4 and suggestions made for overcoming these weaknesses. The actions included providing greater support in terms of finance and manpower, improved methodology, training at all levels, and removal of some institutional constraints.

6. It was recognized that collection of statistics was a national responsibility, and that this would be increased by the greater responsibilities of the coastal states for management and rational utilization resulting from extended jurisdiction. Member countries were therefore urged to make appropriate provision for statistical activities. It was also noted that the allocation of adequate resources and their effective use was often made more difficult by the administrative structure within a country, so that, for example, the ultimate user of statistics had little influence on how they were collected. The Commission then recommended that Member Nations, in recognition of their management and conservation responsibilities in areas under their jurisdiction, improve their central statistical collection machinery.

7. Countries required assistance in statistics particularly in establishing methods of collection and compilation, and in training. The methods used might vary between different types of fisheries (e.g. industrial - for which complete records were usually obtainable, and artisanal - for which sampling surveys are needed), and between different ultimate uses (e.g. for national accounts, resource management or others).

8. International assistance could help in providing standard methods or guidelines for all stages of planning and implementing the collection of statistics, and in their compilation. Direct assistance to individual countries was also needed. The Commission

recommended that a post of a fishery statistician, based in the region, should be established. He could pay regular and repeated visits to countries needing assistance to help plan and implement improved methods of statistical collection, particularly the design of frame surveys.

9. Assistance through training at all levels was also needed. Regional activities would be most effective in training at higher levels, in relation to the planning and design of statistical surveys, and in their supervision. Regional training courses could be most effective in this; the proposed training course planned for 1978 was welcomed, and it was hoped that consideration would be given to further courses.

10. It was noted that despite the current weaknesses of most statistics, progress was being achieved. The delegate of Indonesia reported the improvements that were being achieved in his country, which was receiving assistance on this from FAO/UNDP. The delegate of the Republic of Korea stated that his country would be able to supply to FAO statistics of tuna fishery in the Indian Ocean with details of catch, fishing effort, and location of catch similar to those reported to the International Commission for the Conservation of Atlantic Tunas (ICCAT).

11. It was also noted that the IPFC/IOFC Joint Working Party on Fishery Statistics had done much in establishing standards of area divisions, species, gear, and vessel classifications, to be used in reporting statistics to regional or world-wide bodies. These were matters requiring attention by a group with a wide area of interest, for which a joint IPFC/IOFC body was appropriate. The matters now requiring attention within IOFC were mainly those of more strictly regional or sub-regional interest, dealing with the improvement of statistics for specific fisheries. It was therefore agreed that, if IPFC, at its session immediately after the next scheduled session of the IPFC/IOFC Joint Working Party in March 1978, should propose the abolition of the Working Party, IOFC should agree. In that case the questions of inter-regional standardization of species, gears etc. would be appropriately looked after by FAO, possibly through the mechanism of the Coordinating Working Party on Atlantic Fishery Statistics.

#### STATE OF STOCKS

12. A summary review of the current knowledge of the resources in the Indian Ocean was presented in document IOFC/77/5 and a more detailed review of the tuna resources in IOFC/77/Inf.11. These reviews revealed a large degree of uncertainty concerning these resources, even in respect of those already supporting important fisheries. The most recent information including that arising from regional resource surveys had suggested that some of the earlier figures of the potential yield of the conventional types of fish from the Indian Ocean might be too high.

13. It was stressed that it was too early and the data too scanty to be sure which estimate was closest to the actual magnitude of the annual harvest, which (ignoring technical and economic constraints) could potentially be taken from the Indian Ocean. It is clear that this figure is considerably in excess of the present catch. The catch in 1975 (the last year for which reasonably complete data are available) was some 3 million tons, an increase of 50 percent over the catch a decade earlier.

14. The resource data are therefore adequate to determine that the catches from the Indian Ocean taken as a whole can be increased, at least as far as the biological constraints are concerned. This is not the case in respect of individual resources. Some of these (e.g. shrimp in some areas) are already heavily exploited and improved and detailed resource data are needed to ensure that they can be properly managed and their productivity maintained. Many other stocks (including most shrimp stocks not already fully exploited, and many demersal stocks) are exploited to at least a moderate extent. The resource information on most of these is insufficient to determine the extent to which the fishing effort can be further expanded, and the impact that such expansion might have on the existing fishery.

15. Information on the activities of non-local vessels is very important in evaluating the state of the resources, but was not readily available in respect of many individual resources.

The data available to FAO, such as that summarized in the tables in IOFC/77/5, referred to the total catches in the Indian Ocean. Several countries did not report directly the detailed location of their catches, though this could sometimes be deduced from other information. The catch by non-coastal countries, amounted in peak years to about 10 percent of the total, or around 300 000 tons. Of this about 100 000 tons was long-line tuna (much of it outside 200 miles). Most of the rest consisted of trawl catches around Kerguelen and in several parts of the eastern Indian Ocean. In other areas, non-local fishing appeared to be slight. The Commission stressed that further information on the magnitude and distribution of non-coastal fishing was urgently needed, and requested FAO to collect and compile this information on past and current activities and to distribute the information to member countries.

#### INTERNATIONAL INDIAN OCEAN FISHERY SURVEY AND DEVELOPMENT PROGRAMME

##### (a) Report of the Executive Committee (sixth session)

16. In presenting the report of its sixth session (IOFC/77/6) the Chairman of the Executive Committee for the Implementation of the International Indian Ocean Fishery Survey and Development Programme drew attention to the fact that, since the fourth session of the Commission, the Executive Committee had held its fifth session in April 1976 in Rome. The Second Phase of the Programme was completed as of 31 December 1976 and a Review and Evaluation Mission had recommended continuation of the Programme into a Third Phase which was endorsed by the Executive Committee at its fifth session in 1976. Subsequently, the United Nations Development Programme (UNDP) had approved the Third Phase of the Programme, but for financial reasons its budget was limited to U.S. \$2.5 million for three years. The Programme had received additional funds from UNDP for use in 1977 to organize fish quality assurance programmes and for missions to assist participating countries in developing extended areas of jurisdiction over fisheries.

17. It was observed that the report of the Review and Evaluation Mission for the Indian Ocean Programme had been well prepared and it could serve as a model for similar inter-regional or regional programmes. The Commission noted with satisfaction that the activities in the Third Phase of the Programme had started in accordance with the Mission's recommendations as adopted by the Executive Committee.

18. The Commission was informed that of the three major resource surveys, the Norwegian Agency for International Development (NORAD) and UNDP funded North Arabian Sea Survey with some vessel time provided by the Government of Japan was completed at the end of 1976. It had identified four main areas of small pelagic fish concentrations and over the survey area in general a relatively large biomass of mesopelagic fish. A follow-up workshop, with NORAD funding, to consider development opportunities that might arise from the findings of the survey which was originally planned by the Indian Ocean Programme to be held in Karachi just prior to the present session of the Commission, had been re-scheduled for the period 16 to 28 January 1978 with the kind concurrence of Pakistan.

19. The East Africa Fishery Resource Survey would be completed by the end of 1977 after a delay due to an engine room fire on board the survey vessel R/V "PROFESSOR MESYATSVEV", while the proposed Regional Fisheries Survey, South Indonesia/Northwest Australia, had been redesigned to consist of three independent modules to be coordinated by the Indian Ocean Programme. Funding for various modules and coordination of the Regional Fisheries Survey was under consideration by the participating and donor governments as well as UNDP.

20. The Programme was heavily involved in the preparation of a proposed operational phase of the "Project for the Development of Small-Scale Fisheries in the Bay of Bengal". The Commission noted with appreciation the information provided by the delegate of Sweden that the Project Request had already been approved by the Swedish International Development Authority (SIDA) Board of Directors and was presently under consideration for funding approval.

21. The Commission noted with satisfaction that both the Regional Fisheries Survey and Development Project (Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, United Arab Emirates) and Sub-Regional Training Centre (Kuwait) were fully operational (see Appendix H).



22. The need for a follow-up of the survey work was stressed by several delegates. Reference was made particularly to the East Africa Fishery Resource Survey. The Commission welcomed the availability of vessels from Kenya and Tanzania for a proposed inshore survey to supplement the work of R/V "PROFESSOR MESYATSEV" and hoped that the proposed survey could be implemented in the very near future. The Commission also agreed that a Workshop on Fishery Resources and Development Opportunities similar to that for the North Arabian Sea should be held in the area following the completion of the East Africa Fishery Resource Survey.

23. The Commission noted the statement of the delegate of Madagascar on the re-establishment of the Marine Research Centre at Nosy Be and plans for it to cater for regional needs. It further noted that the Indian Ocean Programme was in contact with the appropriate authorities on this subject.

24. The Commission expressed its appreciation of the work carried out by the International Indian Ocean Fishery Survey and Development Programme in its Second Phase and endorsed the activities of the Third Phase.

(b) Research and survey activities

25. The Commission emphasized that more research work was required on the fish resources so that government and industry could be supplied with the information they needed. At the same time it was stressed that the research efforts should be so oriented as to provide information that can be immediately applied. This was particularly the case in respect of resource surveys by large research vessels. While it was appropriate that these surveys should be carried out with advanced technology, such as modern acoustic equipment so as to get the most information, it was important that these surveys should be planned and directed to provide information on resources and exploitation methods that could be utilized by the fishing industry and by the local fishermen.

26. It was also emphasized that the information from resource surveys of an unexploited resource which was usually in terms of the abundance (biomass) of the stock, its distribution in time and space, and the magnitude of the possible total annual yield, needed to be supplemented before it was immediately useful for commercial development. In particular there was a need for pilot scale or test fishing to establish the probable level of the catch rates by the types of vessels likely to be used.

27. Nevertheless properly planned and selected resource surveys had proved their usefulness, and there was an important role for them in the future development of Indian Ocean fisheries. Areas which it was suggested should receive priority attention for future regional surveys were the Upper Bay of Bengal and the Indonesia - Australian area. Guidance on the selection of resources to receive priority in selecting future surveys, might also be provided by a review of the extent to which information from past national and regional surveys had been used on actual fishery development.

28. The Commission discussed ways to improve the required data on those resources which were already being exploited by the coastal fishermen. These included a better flow of information from the fishermen themselves, training of local scientists in resource evaluation techniques, and the holding of regional or sub-regional workshops to review available resource data.

29. It was indicated that workshops could usefully combine training of national scientists with the evaluation of local fish resources. Experience had shown that training in stock assessment techniques was most effective when data from local fisheries were used in demonstrating the methods of analysis. It was therefore suggested that FAO should identify the fisheries in the Indian Ocean for which there were data suitable for application of stock assessment methods at different levels of sophistication and organize one or more workshops to use these data, giving particular attention to stocks of national importance.

(c) Fishery development opportunities

30. The paper (IOFC/77/8) introduced by the secretariat outlined development opportunities related to surveyed areas in the North Arabian Sea and identified locations of fish concentrations in those areas. The Commission was informed that the surveys indicated stocks of small pelagic fish of between 1.4 million and 2.2 million tons, from Ras-Hafun to the Indus River. The standing stock of demersal fish measured in the region from the Horn of Africa to the Indus River, varied from 320 000 tons to 1 360 000 tons. A stock of meso-pelagic fish composed mainly of lantern fish and cardinal fish was estimated, using acoustic methods, at about 100 million tons.

31. The secretariat stressed that any development had to be preceded by pre-feasibility and feasibility studies and that the paper presented to the Commission was for the purpose of giving a general indication of development opportunities and a rough estimation of financial returns which might be expected from two methods of catch - bottom trawling and purse-seining and three methods of processing the catch - freezing, canning and reduction. Until further work was done on fish processing technology and marketing development, it would appear that the only processing method presently suitable for handling high volume catches of small pelagic species was conversion to fish meal. There was clearly an urgent need for market development work and the use of more efficient techniques of handling and processing small pelagic fish for human consumption.

32. The Commission, in expressing its appreciation of the survey work already undertaken, noted that there were still areas which needed to be surveyed, in particular South Indonesia/Northwest Australia and the Bay of Bengal. Survey plans for these two areas which had been under discussion for some time had not yet come to fruition.

33. In the discussion which ensued, the Commission expressed the view that priority attention should be given to the exploitation and utilization of the conventional species and that the catch and processing technology adopted should insofar as possible be within the capabilities of the countries in whose waters the fish were caught. A distinction was made between the technology used on vessels for research work and on commercial vessels. As noted already in paragraph 25 the former should be as advanced as possible, but it was important that the results from the research work should be orientated to local needs. The importance of training was stressed.

34. The Commission recognized that in some instances the reduction of small pelagic fish to fish meal might be the only way at the present time of getting a viable fishery started, but enterprises should be encouraged to move as rapidly as possible to food products.

35. As for meso-pelagic fish, the Commission recognized the long-term significance of the findings of the North Arabian Sea Survey. It urged caution in the interpretation of these findings in relation to the benefits that might accrue to the coastal states. Much work had still to be done to arrive at a suitable technology for utilization of this fish. In the foreseeable future, it was unlikely that the meso-pelagic stocks would be used for food purposes, but rather that they would be converted into fish meal.

36. The secretariat confirmed that in FAO's Work Programme top priority was given to the use of fish for direct human consumption and specific reference was made to projects which were already underway to improve the handling and processing of small pelagic fish.

MANAGEMENT

(a) Tuna

37. The Commission reviewed the outcome of the relevant meetings and other activities that had taken place since its last session in Mombasa. These included the Second Session of the IOFC Ad Hoc Committee of Nations on the Mechanics of Tuna Research and Management (December 1975), the Fourth Joint Meeting of the IOFC and IPFC Tuna Management Committees (October 1976), and the Seventeenth Session of the IPFC (October 1976). The Commission found itself

in general agreement with the conclusions reached at these meetings regarding the proposed arrangements for tuna management within IOFC and IPFC, and the approximate level of funding required for a central secretariat, as set out in the report of the Joint Meeting of the Tuna Management Committees (IOFC/77/12). One delegation, however, believed that in the long run a treaty-based body would be needed.

38. It was noted, in relation to the detailed chart given in Appendix D of document IOFC/77/12, that IOFC, unlike IPFC, had not at present a standing committee concerned with resource research and the scientific review of information on the resources. In this connection some delegations felt that the IPFC/IOFC Ad Hoc Working Party of Scientists on Stock Assessment of Tuna (which, after the restructuring of IPFC, had become a purely IOFC body) should as soon as possible review the current state of stocks, since the available information was out of date.

39. As regards funding, it was noted that at the request of IPFC, the secretariat had circulated a questionnaire to member countries of IOFC and IPFC, soliciting their views on possible funding arrangements. Few countries had so far replied, and there was some diversity in the replies received, which were compiled in document IOFC/77/12, Sup.1. As yet, no consensus could be reached concerning the long term methods of funding, and the Commission recommended that FAO should take further steps to find sources of funding, at least for an interim period.

40. The importance of taking action to manage tuna stocks was stressed, both for the benefit of those already engaged in the long-line fishery and of the coastal states, which were finding it difficult to enter the fishery while catch rates were at the current low levels. There were difficulties in selecting measures and regulations appropriate to the general principle, set out at an early joint meeting of the tuna management committees, that the total amount of fishing should be controlled without prejudice to a more equitable participation of the coastal states in the fishery. It was suggested that this matter should be placed on the agenda of the next joint meeting of the Tuna Management Committees.

(b) Other stocks

41. Several other stocks, in addition to tuna, were probably heavily fished and in need of management. These included the stocks round Kerguelen, which for statistical purposes had until recently been included in the western Indian Ocean. The Commission noted that these resources were being considered by other groups, and it was therefore agreed that the Commission should not concern itself with them.

42. For most countries round the Indian Ocean shrimp is the most valuable resource, and its high export value had in many cases resulted in very heavy exploitation. The Chairman of the Ad Hoc Group of the IOFC Special Working Party on Stock Assessment of Shrimp in the Indian Ocean Area reported on the meeting of that Group in April 1976 to consider the state of shrimp stocks in the Gulf area. The work of the Group showed that most of these stocks were heavily fished, that management measures were desirable and that there was a need for better statistics and for improved and regularly revised assessments.

43. The report of the Group had been presented to the Coordinating Sub-committee of the Committee for the Development and Management of the Fishery Resources in the Gulfs and was distributed to member countries.

44. Delegates from member countries in the Gulf area reported that the meeting had served a most useful purpose, and action was being taken to follow-up the recommendations in the Group's report. Limitation on the number of vessels was being found the most appropriate method of controlling the total amount of fishing.

45. It was also noted that the shrimp stocks on the west coast of India were generally heavily fished and that, while those on the east coast had until recently received little attention, fishing on these, especially in the northern part of the Bay of Bengal, was now increasing rapidly. Steps should be urgently taken to review the information on both groups

of resources so as to determine the state of the stocks, and the possible need for measures to manage these fisheries. This might be done by holding a workshop at an early date to review all the information relating to shrimp in the central part of the Indian Ocean.

DEVELOPMENTS IN THE REGIME OF THE SEA AND THEIR IMPLICATIONS FOR FISHERIES WITH PARTICULAR REFERENCE TO IOFC

46. The Commission considered this item on the basis of documents IOFC/77/14 and IOFC/77/17 and bearing in mind that this item was closely related to item 8 dealing with the national and regional effects of an extended zone of jurisdiction over fisheries.

47. The Commission noted that the prospective convention on the Law of the Sea would most likely set out general principles to be observed in the management and use of the living resources of the oceans, but would not offer solutions to all the scientific, administrative or political questions relating to the rational management and optimum utilization of these resources. Stressing that extended zones of jurisdiction, while providing greater opportunities to coastal states in many cases, placed increased responsibilities on them for fishery management and development, it welcomed FAO's present and planned activities aimed at assisting developing coastal states in taking full advantage of these opportunities and in discharging these responsibilities. In particular, it noted with satisfaction that the Committee on Fisheries, at its eleventh session in April 1977, had requested the FAO secretariat to prepare a comprehensive programme designed to help developing countries implement their exclusive economic zones and it felt that its own discussions under items 7 and 8 might contribute to the elaboration of this programme. In this respect, the Commission heard with great interest statements made by the delegates of the United States of America and Australia to describe the technical, institutional and legislative measures adopted or envisaged by their countries to ensure the optimum utilization of fishery resources in extended zones of jurisdiction.

48. The Commission was informed that the secretariat was preparing an annotated compendium of national legislation enacted by coastal states to implement exclusive economic zones; a series of regional studies on fishery development corporations and other parastatal bodies established to accelerate the development of fisheries in extended zones of jurisdiction; a manual providing guidelines for the negotiation of fishery joint ventures; and a report analysing bilateral agreements on fisheries concluded by coastal states as a result of the new regime of the oceans. It emphasized that these publications would be of considerable interest and practical value to many coastal states and it recommended that they should be accorded as much priority as possible. It noted with satisfaction that in addition to compiling, analysing and disseminating this type of information, the secretariat stood ready to assist individual countries, on request, in drafting or reviewing legislation on fisheries, in establishing institutions or other bodies for the management, development and utilization of fishery resources, and in making preparations for the negotiation of joint ventures and bilateral agreements on fisheries.

49. As regards management, the Commission heard with interest about the action taken by another FAO regional fishery body, the Fishery Committee for the Eastern Central Atlantic (CECAF). At its last session in March 1977, CECAF had identified the stocks which could be considered to be multinational; it had described the area of distribution of these stocks and indicated which countries were concerned with their rational exploitation; it had then requested FAO to organize, within the framework of CECAF itself, a series of meetings for the purpose of allowing the countries involved to define concerted management schemes. Most delegations agreed that the Commission constituted the proper forum to discuss and agree on the management of stocks that are of interest to several countries. It was suggested that the Commission should, where necessary, set up subsidiary bodies to deal with specific fisheries. If urgency so required FAO was requested to consult with officers of the Commission to take appropriate interim measures. A particular reference was made to the tuna stocks of interest to the oceanic island states in the area. Lastly, the Commission noted that the successful management of stocks belonging to several economic zones would depend on a determination of the total allowable catch from the stock as a whole, regardless of the area of capture, followed by an agreement on how the total allowable catch can be

divided. As requested by the Commission, FAO could usefully undertake a study of the various criteria that could be considered when apportioning the total catch among the countries concerned and report back to the sixth session of the Commission.

50. When considering the implications that developments in the regime of the sea would have for fisheries at the regional level, the Commission centred its discussions on its own role as a management body and on the proposed gradual decentralization of FAO activities.

51. As to the question of decentralization of FAO activities and its implications for regional fishery bodies, the Commission pointed out that this matter had been considered by the IOFC Executive Committee for the Implementation of the International Indian Ocean Fishery Survey and Development Programme, which had also discussed the related question of establishing a regional secretariat in the region in order to ensure closer links between the secretariat of the Commission and the Programme (see document IOFC/77/6, paragraphs 56-59). While endorsing the statements of some delegates about the need to maintain a strong Headquarters, the Commission welcomed the decentralization policy and further requested that early steps should be taken to implement that policy. Other delegations drew attention to the cost of the operation which was an important factor. In this latter respect, the Commission recommended that FAO should approach donor agencies to secure funding for programmes, including training centres, workshops and fellowships, designed to promote a gradual involvement of scientists and administrators from the coastal countries in the functioning of the Commission.

#### NATIONAL AND REGIONAL EFFECTS OF AN EXTENDED ZONE OF JURISDICTION OVER FISHERIES

52. As had been suggested by the secretariat in document IOFC/77/15, the Commission agreed to organize discussion of this item in an informal way. The main purpose of this approach was to promote a free and frank exchange of views among participants. The Vice-Chairman of the Commission Prof. P.C. George (India), presided over the deliberations, which were divided into the following topics: knowledge of resources; management; policy and planning; and development. Messrs. E.G. Silas, Director, Central Marine Fisheries Research Institute (India), B.K. Bowen, Director, Western Australian Department of Fisheries and Wildlife (Australia), A. Labon, Director, Fishery Industries Division (FAO) and J.E. Carroz (Principal Legal Officer (International Fisheries) (FAO) acted as discussion leaders for these four topics, respectively. A summary of the discussions is given in Appendix G. The purpose of the summary was to provide a Rapporteur's view of the discussion rather than an agreed Commission statement. It was, therefore, not considered formally for adoption.

#### RELATIONS WITH IPFC AND OTHER REGIONAL FISHERY BODIES

53. The Commission discussed cooperation between itself and other international fishery bodies on the basis of the information provided in document IOFC/77/18. It noted that this document contained information on cooperation with IPFC. This had already been discussed under other items of the agenda and particularly under item 6(a). The Commission noted that the document also contained sections on cooperation with the United Nations Environment Programme (UNEP) and with the Intergovernmental Oceanographic Commission (IOC). These were for the information of participants and called for no comment. The document also discussed a proposal to establish a Regional Fishery Commission for the Near East and the Commission devoted its attention to this proposal.

54. The proposal had emanated from the Thirteenth FAO Regional Conference for the Near East which had been held in October 1976. The proposal was for a Commission, the members of which would be the countries serviced by the FAO Near East Regional Office in Cairo.

55. The Commission on Fisheries, at its eleventh session in April 1977 had agreed to it in principle and had requested the Director-General to consult the countries concerned and to solicit their views on the way of funding the activities of the Commission and also on the ways of coordinating the work of the proposed new Commission and the activities of the General Fisheries Council for the Mediterranean (GFCM) and IOFC. The FAO Council at its seventy-first meeting in June 1977 had endorsed the report of the Committee on Fisheries.

56. On 19 August 1977 the Director-General of FAO had, in accordance with the request of the Committee on Fisheries, sent a circular letter to the FAO Member Nations serviced by the Near East Regional Office. Certain of the questions asked were of direct interest to IOFC and in particular the questions concerning overlap in work, authority and membership between IOFC and the proposed new body.

57. The coastal countries in the Indian Ocean area which were eligible for membership of the proposed new Commission were Bahrain, Egypt, Iran, Iraq, Jordan, Kuwait, Oman, Pakistan, Qatar, Somalia, Sudan, United Arab Emirates, Yemen (Arab Republic of), and Yemen (People's Democratic Republic of).

58. The Arab delegates present explained that inland fisheries presented great opportunities but needed coordinated development for which there was at present no mechanism in the Near East. The new Commission would fill this gap. Marine fishery activities for the new body in the present IOFC area would be restricted to the Gulfs, the Red Sea and the northern part of the Arabian Sea. These areas had special problems and geographical obstacles stood in the way of the adoption of a 200-mile limit by most countries in the area. The Arab countries hoped that the creation of the new Commission would lead to FAO giving special attention to the problems of the area where the members considered themselves to be in a geographically disadvantageous situation.

59. The Arab delegates present did not feel that there would be any need for major changes in IOFC when the new Commission was set up, but certain adjustments would be needed. For example the existing regional fisheries projects in the Gulfs would eventually be expected to report to the new Commission. In the view of the Arab delegations, what was likely to be needed in the long run was a coordination committee between IOFC and the new body.

60. The Commission noted that the only reply so far received to the questionnaire sent by the Director-General had been from the Government of Iraq.

61. In the circumstances, the Commission felt that it was premature for it to examine all the consequences of the proposal to establish the new Commission. It did, however, express support for the proposal to establish the new Commission. It was to be foreseen that a number of practical problems would inevitably arise, even if the countries which were members of IOFC and were eligible for membership of the proposed new body, decided to belong to both. The division of responsibility between the two bodies, particularly for management measures whenever these became necessary, would need careful coordination in which FAO Headquarters would perforce be involved. There was already overlap in the eastern part of the Indian Ocean with IPFC (which body also had responsibility for freshwater fisheries). If the new body was set up for the Gulfs, the Red Sea and the northern part of the Arabian Sea, the only countries in the Indian Ocean that were not already members of IPFC and would not be eligible for membership of the proposed Near East Fishery Commission would be those down the eastern coast of Africa, south of Somalia and the Island States in the western Indian Ocean. In view of this, it was noted that the limitation of the area of responsibility of IOFC to the western Indian Ocean was just one other possible course of action.

62. It was felt that IOFC should not recommend any specific action regarding its own future until replies had been received to the questionnaire from all the countries serviced by the Near East Regional Office. If the new body was set up, the matters that would require immediate attention would be coordination between the two bodies and the general position of the Indian Ocean Programme (IOP). In this latter respect the Commission agreed that IOP should continue to report to IOFC only, while the situation would need review after the establishment of the new body, which was unlikely to become active during the present phase of IOP.

63. The Commission decided that the future of IOFC should be a major item on the agenda of its sixth session. It also recommended that this matter should be drawn to the attention of IPFC at its eighteenth session in Manila in 1978.

64. A proposal was made that a sub-regional body of IOFC should be established for the western part of the Indian Ocean and, particularly, for the island states in that area. It



was, however, agreed that no action should be taken on this proposal until it was known whether the new proposed Fishery Commission for the Near East would, in fact, be set up and until IOFC had discussed its consequences at its sixth session.

#### SUBSIDIARY BODIES OF THE INDIAN OCEAN FISHERY COMMISSION

65. The Commission discussed this item on the basis of the information contained in document IOFC/77/19 - Activities of the subsidiary bodies of IOFC. It took note of the costs of IOFC meetings in 1976-77 as shown in Annex 1 to this document and the details of the membership and functions of the six subsidiary bodies of IOFC given in Annex 2 to the document.

66. It approved the report of the subsidiary bodies before it and decided to consider briefly the activities and future of each of them.

67. The Commission agreed that the next session of the IPFC/IOFC Joint Working Party of Experts on Indian Ocean and Western Pacific Fishery Statistics should be held in March 1978 immediately before the eighteenth session of IPFC. It noted that at that time the working party as presently constituted might well recommend to IPFC that it had completed its mandate in laying down standards for the collection of statistics and establishing statistical areas in the Indian Ocean and western Pacific areas. The type of body likely to be needed in the future was one that could deal with statistics of particular stocks on a more detailed basis and must for that reason cover a smaller and more manageable area. It seemed likely that IPFC would make recommendations along those lines. The Commission agreed that if IPFC did make such recommendations, IOFC would go along with them and would decide on appropriate action and terms of reference for its own part of the working party at the sixth session.

68. The Commission agreed that the Committee on the Management of Indian Ocean Tuna should hold its sixth session as a joint meeting with the IPFC Tuna Management Committee in March 1978.

69. IOFC agreed that the Executive Committee for the Implementation of IOP should hold its seventh session in June 1978 at the time of the twelfth session of the Committee on Fisheries.

70. The Commission noted that the Special Working Party on Stock Assessment of Shrimp in the Indian Ocean Area had met once only (29 November-2 December 1971). The report of that meeting presented a general description of the major shrimp fisheries of the Indian Ocean and drew attention to the fact that most of the stocks were each limited to the waters of a single country. There were exceptions such as the shrimp fisheries in the Gulf between Iran and the Arabian Peninsula. This same view was expressed in document IOFC/77/9 - Current management problems in the Indian Ocean area.

71. The Commission also noted that an Ad Hoc Group of the IOFC Special Working Party had been established at the fourth session of IOFC for the specific purpose of reporting upon the stocks of shrimp in the Gulf. The report of this Ad Hoc Group (IOFC/77/13) had been commended to the Gulf countries for their consideration. The Ad Hoc Group had now completed the task for which it had been set up.

72. Considering the experience gained from the meetings held to date, the Commission expressed the view that there would be merit in retaining the Special Working Party on Stock Assessment but that its function should in future be to establish Ad Hoc Working Groups of Shrimp Stock Assessment specialists from time to time to assist nations, at their request, to analyse shrimp data and prepare reports on the state of the shrimp stocks and alternate management strategies. The terms of reference of the working party should be amended to reflect this change in function.

73. The Commission noted that the Committee for the Development and Management of the Fishery Resources of the Gulfs had great potential. A meeting of this Committee was in the programme of meetings for the coming biennium. IOFC expressed the view that if the proposed Fishery Commission for the Near East was set up, the work of this Committee would then come within the purview of the new Commission.

74. The Commission took note of the fact that the IPFC/IOFC Working Party of Scientists on Stock Assessment of Tuna would in future be a purely IOFC body as the functions of the IPFC part of the Working Party had been absorbed within the framework of the newly established IPFC Standing Committee on Resource Research and Development (SCRRD) (IOFC/77/Inf.7, paragraph 44). It was proposed that the IOFC part of the Working Party should not be abolished but its membership should be expanded to include all those member countries with an interest in the fisheries of the Indian Ocean. Expert observers from other international tuna commissions should also attend as observers. It could also be redesigned in such a way that it would become a standing committee on tuna resource research and development for IOFC and would accordingly be the scientific body shown in the diagram in Appendix 3 to the report of the IOFC Ad Hoc Committee of Nations on the Mechanics of Tuna Research and Management (IOFC/77/10). A matter that required early attention from the Ad Hoc Committee, or a future Standing Committee was the determination of the degree to which the total catch of larger tuna could be increased by increased surface fishing on the intermediate sizes of fish.

75. It was agreed that the IOFC Tuna Management Committee should at its sixth session in March 1978 study the need for IOFC to have an SCRRD for tuna. If the Tuna Management Committee believed there was such a need, the secretariat should be invited to draft new terms of reference for an SCRRD for tuna for IOFC and present them to the sixth session of IOFC for consideration.

#### AMENDMENTS TO THE RULES OF PROCEDURE OF IOFC

76. The Commission was informed that at its seventeenth and eighteenth sessions in 1973 and 1975, the Conference of FAO had adopted amendments to the Basic Texts of the Organization with respect to (i) the participation of non-Member States in FAO bodies and meetings and (ii) the Rules of Procedure of bodies established under Article VI or Article XIV of the Constitution. On that occasion, the Conference had invited the bodies concerned to bring their Rules of Procedure into line with those amendments.

77. Accordingly, the Commission adopted the following amendments to its Rules of Procedure:

(i) It replaced paragraph 2 of Rule VII with the following text:

"States which, while not Member Nations of the Organization, are members of the United Nations, any of its Specialized Agencies or the International Atomic Energy Agency, may, upon their request and subject to the provisions adopted by the Conference of the Organization relating to the granting of observer status to nations, be invited to attend sessions of the Commission, its subsidiary bodies, and Ad Hoc meetings in an observer capacity. The status of States invited to such sessions or meetings shall be governed by the relevant provisions adopted by the Conference of the Organization".

(ii) In the second sentence of paragraph 1 of Rule XII, it deleted the words "subject to confirmation by the Council of the Organization" and replaced the comma by a full stop after the words "upon approval by the Director-General".

#### ANY OTHER MATTERS

78. None

#### ELECTION OF OFFICERS

79. Under Rule II-1 of its Rules of Procedure, the Commission is required to elect, at the end of every session, a Chairman and a maximum of six Vice-Chairmen who shall remain in office until the election of the new Chairman and Vice-Chairmen.

80. Acting on the recommendation of the Nominations Committee, the representative of India, Professor P.C. George, was unanimously elected Chairman of the Commission and the representative of Indonesia, Admiral I. Sardjono, first Vice-Chairman. Australia, Bahrain, Sweden, Tanzania and the United Kingdom were elected as other Vice-Chairmen.



81. The membership of the Executive Committee consisted of the Chairman and the Vice-Chairmen of the Commission as well as representatives of not more than four other countries. Acting on the recommendation of the Nominations Committee the Commission elected Japan, Kenya, Qatar and Thailand as members of the Executive Committee.

#### DATE AND PLACE OF THE SIXTH SESSION

82. The Commission accepted with pleasure an invitation by Australia to hold the sixth session of IOFC in Perth, preferably in October 1979.

#### ADOPTION OF THE REPORT

83. This report was adopted by IOFC on 26 October 1977.

LIST OF DELEGATES AND OBSERVERS

MEMBERS OF THE COMMISSION

Australia

WALKER, R.H.  
Director  
Resources Management Section  
Operations Branch  
Fisheries Division  
Department of Primary Industry  
Canberra, A.C.T. 2600

BOWEN, B.K.  
Director  
Western Australian Department of  
Fisheries and Wildlife  
108 Adelaide Terrace  
Perth, W.A. 6000

Bahrain

FAKHRO, K.  
Superintendent of Fisheries  
Ministry of Commerce and Agriculture  
P.O. Box 251  
Manama

Cuba

RIESGO, Lic. A.  
Funcionario  
Dirección de Relaciones Internacionales  
Ministerio de Industrias Pesqueras  
Ensenada de Pote y Atares  
Havana

ZAYAS BRINGAS, Eng. E.G.  
First Secretary  
Embassy of the Republic of Cuba  
D5 South Extension Part II  
New Delhi 19, India

Ethiopia

France

MARCILLE, J.  
Chargé de recherches  
Office de la recherche scientifique  
et technique Outre Mer  
ORSTOM  
24, rue Bayard  
75008 Paris

Greece

India

GEORGE, Prof. P.C.  
Joint Commissioner (Fisheries)  
Department of Agriculture  
Ministry of Agriculture and Irrigation  
Krishi Bhavan  
New Delhi 110001

KUMARADAS, P.S.  
Joint Director of Fisheries  
Vikas Bhavan  
Trivandrum, Kerala

SILAS, Dr. E.G.  
Director  
Central Marine Fisheries Research Institute  
P.O. Box 1912  
Cochin 682018, Kerala

KURIYAN, G.K.  
Director  
Central Institute of Fisheries Technology  
Willingdon Island  
Matsyapuri Po  
Cochin 682029, Kerala

GNANADOSS, D.A.S.  
Director  
Central Institute of Fisheries, Nautical  
and Engineering Training  
P.O. Box 1724  
Dewan's Road  
Cochin 682016, Kerala

KRISHNAMURTI, B.  
Director  
Integrated Fisheries Project  
P.O. Box 1801  
Cochin 692016, Kerala

PRABHU, Dr. M.S.  
Director  
UNDP/FAO Pelagic Fisheries Project  
Foreshore Road  
P.O. Box 1791  
Cochin 682018, Kerala

MAMMEN, Dr. T.A.  
Director  
Marine Products Export Development Authority  
Cochin, Kerala

MENON, Commander C.S.  
Indian Navy  
Fort  
Madras 600009, Tamil Nadu

ANTONY RAJA, Dr. B.T.  
Assistant Commissioner (Fisheries)  
Department of Agriculture  
Ministry of Agriculture and Irrigation  
Krishi Bhavan  
New Delhi 110001

#### Indonesia

SARDJONO, Admiral I.  
Director-General of Fisheries  
Department of Agriculture  
Jalan Salemba Raja 16  
Jakarta

SOESANTO, V.  
Director  
Biological Resources Development  
Directorate-General of Fisheries  
Department of Agriculture  
Jalan Salemba Raya 16  
Jakarta

#### Iraq

ALMALAIKA, I.S.  
Assistant Director-General  
State Fisheries Company  
Baghdad

#### Israel

#### Japan

IMAMURA, K.  
Deputy Director  
Research Division  
Department of Research and Development  
Fishery Agency  
Ministry of Agriculture and Forestry  
2-1, 2-Chome, Kasumigaseki  
Chiyoda-ku, Tokyo

SUZUKI, K.  
Director of Guidance Section  
Guidance Department  
Federation of Japanese Tuna Fisheries  
Cooperative Associations  
2-3-22 Kudankita  
Chiyoda-ku, Tokyo

#### Jordan

#### Kenya

ODERO, N.  
Director of Fisheries  
Fisheries Department  
Ministry of Tourism and Wildlife  
P.O. Box 40241  
Nairobi

ALLELA, S.O.  
Senior Research Officer  
Fisheries Department  
Marine Fisheries Research Laboratory  
P.O. Box 81651  
Mombasa

#### Korea (Republic of)

HUE, JONG-SOO  
Chief  
Deep Sea Fisheries Resources Section  
Fisheries Research and Development Agency  
Yeongdo-ku  
Pusan

#### Kuwait

Madagascar

RANDRIANJAFIZANAKA, A.  
Chef a.i.  
Service de la pêche maritime  
B.P. 291  
Antananarivo

Sri Lanka

Sweden

LINDQUIST, Dr. A.  
Director  
Institute of Marine Research  
S-453 00 Lysekil

Malaysia

Tanzania

LIBABA, G.K.  
Director of Fisheries  
P.O. Box 2462  
Dar-es-Salaam

Mauritius

MROPE, R.A.  
Chairman and Managing Director  
Tanzania Fisheries Corporation  
P.O. Box 4296  
Dar-es-Salaam

Netherlands

Norway

ANONSEN, C.  
NORAD Resident Representative in New Delhi  
Embassy of Norway  
New Delhi, India

Thailand

CHAREONPOL, Commander S.  
Deputy Director-General  
Department of Fisheries  
Ministry of Agriculture and Cooperatives  
Rajadamnern Avenue  
Bangkok 2

Oman

United Arab Emirates

Pakistan

United Kingdom

HALL, Dr. D.N.F.  
Principal Fisheries Adviser  
Ministry of Overseas Development  
Eland House  
Stag Place  
London SW1E 5DH

Portugal

United States of America

ROEDEL, P.M.  
Fisheries Adviser  
Agency for International Development  
U.S. Department of State  
Washington, D.C.

Qatar

IMAM, Dr. A.K.  
Head  
Fisheries Section  
Ministry of Industry and Agriculture  
Doha

Spain

WEIDNER, D.M.  
Foreign Affairs Specialist  
National Marine Fisheries Service  
National Oceanic and Atmospheric  
Administration  
U.S. Department of Commerce  
Washington, D.C. 20235

SHOMURA, R.  
Director  
Honolulu Laboratory  
National Marine Fisheries Service  
Honolulu, Hawaii

Viet Nam

OBSERVER FROM A MEMBER NATION  
NOT MEMBER OF THE COMMISSION

Bangladesh

ALI, Dr. M.Y.  
Joint Secretary  
Forest, Fisheries and Livestock Division  
Ministry of Agriculture  
Dacca

OBSERVERS FROM COUNTRIES THAT WERE  
APPLICANTS FOR FAO MEMBERSHIP

Comoros

HAMDANI SALIM, A.  
Director of Fisheries  
B.P. 353  
Moroni

Seychelles

VIDOT, S.  
Fisheries Officer  
Ministry of Agriculture and Land Use  
P.O. Box 54  
Mahe

OBSERVER FROM AN INTERGOVERNMENTAL ORGANIZATION

East African Marine Fisheries Research  
Organization

KILLANGO, A.B.C.  
Acting Director  
East African Marine Fisheries Research  
Organization  
P.O. Box 668  
Zanzibar, Tanzania

FAO DEPARTMENT OF FISHERIES

Headquarters

WATZINGER, H.  
Assistant Director-General (Fisheries)  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

LABON, Dr. A.  
Director  
Fishery Industries Division  
Fisheries Department  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

WINSOR, H.C.  
Programme Leader  
International Indian Ocean Fishery  
Survey and Development Programme  
Fisheries Department  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

CARROZ, J.E.  
Principal Legal Officer (International  
Fisheries)  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

GULLAND, Dr. J.A.  
Chief, Aquatic Resources Survey and  
Evaluation Service  
Fishery Resources and Environment Division  
Fisheries Department  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

HENDERSON, J.D.M.  
Senior Fishery Liaison Officer  
Policy and Planning Service  
Fisheries Department  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

SRIBHIBHADH, Dr. A.  
Senior Fishery Officer  
International Indian Ocean Fishery  
Survey and Development Programme  
Fisheries Department  
FAO  
Via delle Terme di Caracalla  
00100 Rome, Italy

ENGVAL, L.  
Senior Development Officer  
c/o Resident Representative of UNDP  
P.O. Box 1505  
Colombo, Sri Lanka

MEECHAM, K.  
Fisheries Coordinator  
Fisheries Development in Bangladesh  
c/o UNDP  
P.O. Box 224  
Ramna, Dacca, Bangladesh

Consultant

DAY, C.

Field

MURDOCH, W.  
Project Manager  
Pelagic Fishery Investigation on the  
Southwest Coast Project  
P.O. Box 1791  
Ernakulam, Cochin 16, India

SECRETARIAT

Host Government

Liaison Officer	D.A.S. Gnanadoss
Conference Hall Officer	G.K. Kuriyan
assisted by:	M.R. Nair S. Ayyappan Pillai
Assistant Liaison Officers	V.A. Puthran T.R. Menon R. Sathiarajan J.A. Eappen K.B.C. Menon
Information Officer	R. Balan
Executive Officer	L.K. Antony
Assistant to Executive Officer	G. Ramamoorthy
Secretarial Staff	K.J. Thomas K. Ravindran N. Gopalakrishnan S. Sekhar C. Zachariah T.S. Baby

FAO

Secretary of the Commission	J.D.M. Henderson
Meetings Officer	Myrtha Poblete-de la Fuente
Translator	Marcelle Lindemann
Interpreters	L. Bastit J.D. Katz Nadine Kieffer R. Sivachanemougam
Interpretation Equipment Operator	V. Khattiyalah
Secretarial Staff	Luisa Almagià Maria Teresa Ruspantini Ulla Schütt

ADDRESS BY SHRI A.K. ANTONY  
CHIEF MINISTER OF KERALA

Mr. Chairman, Distinguished Guests and Friends,

It gives me the greatest pleasure to be associated with this august function here this morning. I am thankful to the Food and Agriculture Organization of the United Nations and the Ministry of Agriculture of the Government of India for choosing Cochin as the venue of this year's Conference of the Indian Ocean Fishery Commission. I heartily welcome the distinguished guests to Kerala and hope you will thoroughly enjoy your stay of one week in this State.

The optimum exploitation of the resources of the Indian Ocean is an economic problem of the highest magnitude so far as the nations lying around the ocean are concerned. I am happy to see that the Food and Agriculture Organization has fully realized the urgency and importance of this problem and constituted the Indian Ocean Fishery Commission to deal with it internationally at the highest level. It is also gratifying to note that not only the countries which have close proximity to the Indian Ocean but also other nations which have an involvement in the problems of the ocean are represented in this Commission. It is also in the fitness of things that other world organizations which are interested in the exploitation of fishery resources have also been invited to join the deliberations here.

I am told that the fishery resources in the Indian Ocean are not being fully exploited now, owing to so many reasons. If I understand correctly, only about three million tons of fish are being caught every year from the Indian Ocean at present. It is necessary that the fish landing in this area must be stepped up to at least 12 million tonnes or even more. India has certainly got a great stake in the matter since at present about 40 per cent of the fish landing from the Indian Ocean is being made by India. Of this, I am happy to mention, a considerable portion is caught in Kerala State alone. I hope during the ensuing sessions, you will discuss in detail methods and procedures for enhancing the fishery exploitation of the Indian Ocean without detriment, at the same time, to the requirement of conservation of marine biological wealth.

When several countries are engaged in the exploitation of the wealth of the same ocean, it is very important to ensure that there is a proper understanding among them regarding the rights of each nation. As you are all aware, most of the nations of the world have already declared a 200-mile economic zone in the seas surrounding them. This would mean that the area of the oceans which can be freely exploited by all countries has now been considerably restricted. If this new situation is not handled with care and prudence, a lot of illwill can be generated. I hope that your deliberations here will lead to a proper collective understanding of long-term value in this particular field.

Even though the technology of fishing has made great strides in the advanced nations of the world, it is a fact that in the underdeveloped countries, including most of the States lying close to the Indian Ocean, fishing still continues to be carried on in the traditional and primitive manner which is becoming more and more uneconomical. It is necessary that the benefits of the latest developments in fisheries science should be brought nearer to the fishing communities of the backward countries also. I think it should be one of the foremost objectives of the Indian Ocean Fishery Commission to see that this goal is achieved in the shortest possible time.

I may also mention here that, apart from the maximum exploitation of the fishery wealth of the ocean in the most scientific manner, there is another aspect which should also receive urgent attention. I am referring to the plight of the actual fishermen in many underdeveloped countries. Traditional fishermen constitute one of the most unprivileged sections of the community in these countries. Even though they are engaged in the occupation of producing



valuable protein food for others, they are themselves ill-fed, ill clothed and poorly housed. It is my earnest request to you all that the problem of the speedy uplift of these unfortunate brethren may also be given due importance in your discussion.

You are going to have your sessions at the Central Institute of Fisheries Technology which lies within the area of the Cochin Port. This reminds me of the fact that Cochin is one of the foremost centres of fish export in Asia. Great strides have been made by Cochin in the field of export of sea foods in the last two decades. A new well developed fishing harbour is going to be inaugurated at Cochin within another three months and it will certainly open a new chapter of effort and achievement in the history of Cochin Port.

I once again thank the organizers of this Conference in having called upon me to inaugurate it. With the consent of all assembled here, I declare the Fifth Session of the Indian Ocean Fishery Commission formally inaugurated.

Thank you all.

ADDRESS BY SHRI G.V.K. RAO  
SECRETARY TO GOVERNMENT OF INDIA  
MINISTRY OF AGRICULTURE AND IRRIGATION, NEW DELHI

Honourable Chief Minister, Mr. Watzinger, Mr. Odero, Distinguished Delegates, Ladies and Gentlemen,

It is my pleasant duty and privilege to be present at this important session of the Indian Ocean Fishery Commission. We are grateful to the Food and Agriculture Organization of the United Nations to have agreed to host this Conference in India particularly in this beautiful city in Kerala. Kerala is one of the smaller States of India, but at the same time, is one of the most important States in fishery development. This State accounts for about 35 percent of the total marine fish production and a sizeable export of marine products also takes place from Kerala.

The deliberations of the Commission as well as its timing are important to the countries in the Indian Ocean area in general and to my country in particular. Anticipating the emerging trends of the United Nations Conference on the Law of the Sea, India has declared an exclusive economic zone of 200-miles and this has taken effect from 15 January 1977. You are aware that several countries in the Indian Ocean area as well as of other areas, have also taken similar action. As far as my country is concerned, this has brought in, among other things, the responsibility of optimum utilization of about two million km<sup>2</sup> of the sea. In order to avoid a vacuum being created due to the withdrawal of distant water fishing fleet, India has launched a massive programme of introduction of deep sea fishing vessels, training of technical manpower and construction of several fishing harbours and establishment of adequate storage facilities ashore, tied up with suitable marketing arrangements. By a recent public notice we have invited applications from the industry for import of deep sea fishing vessels from various sources and I am very happy to mention that this has received very favourable response from the Indian fishing industry. Similarly fishing companies from advanced fishing countries are now holding active negotiations for joint ventures with Indian industry in fishing and utilization of marine products. We have to achieve the projected target of 200 numbers of deep sea fishing vessels in a couple of years.

India's position as far as fishery development is concerned is that of a teenager. We are not in any way in our infancy as far as fishery development is concerned. At the same time, we have not reached the full stature of a deep sea fishing nation. Already 13 000 coastal mechanized fishing vessels are operating from our coasts along with 100 000 indigenous sailing vessels, bringing a catch of one and a half million tonnes of fish from our seas. Our export of marine products have reached an all-time high value of 2 000 million rupees. However, our exploitation of living resources is limited mainly to the coastal belt and we have at present only a small fleet of deep sea fishing vessels. In view of these, we have to implement an accelerated programme of fishery development for optimum utilization of all the located resources covering all activities connected with fishing, processing and marketing.

It is understood that the agenda of the Indian Ocean Fishery Commission includes several items on management and optimum utilization of resources. As you are aware, India is the largest producer of fish from the Indian Ocean. But our requirement is several times that of our present production. Per capita consumption of fish in India is only about four kg per annum when compared to 15 kg in the United States of America and 21 kg for the United Kingdom. Hence we look to our seas as an important source to fill the protein gap in the diet of our people, to provide gainful employment to the people in coastal areas and as an important source for earning foreign exchange.

It has been mentioned that the annual yield of the Indian Ocean fisheries is estimated to be about three million tonnes as against 26 million tonnes of the Atlantic and 30 million tonnes of the Pacific. It may be remembered that more than 30 percent of the global popula-

tion live in the countries bordering the Indian Ocean and that about five percent of the world sea fish catch only is available to them. While these statistics call for all our efforts to be devoted to fisheries development in the Indian Ocean area, the projection that with the existing technology the yield of the Indian Ocean fisheries can be increased to four to five times, is extremely gratifying.

We have always been of the view that the Indian Ocean should serve as a zone of peace. I would wish to suggest to this august body to develop a strategy so that the Indian Ocean should not only serve as an area of peace but also as a source of prosperity for the countries of the area. There is urgent need for massive assistance by way of modern technology and various inputs to raise the capabilities of the countries bordering the Indian Ocean. I am happy to note that not only the littoral nations but also countries that have been assisting in the fisheries development in the area are also actively participating in this Conference. I also understand that the various funding and financing institutions are also represented in the meetings to assess the requirements and to assist in identifying priorities for development. I am sure that you would sit together and devise measures by which national capabilities could be adequately raised so that the fishery resources of the Indian Ocean are exploited to the optimum level for the direct benefit of the peoples of this region.

India has achieved self-sufficiency to some extent in coastal fishery management. We have also several national fishery institutions which are doing good work in the development of technology for management of fisheries. I do not know the details of the technological development in our neighbouring countries but I wish to inform the distinguished delegates from participating countries that India is ready to share with them the technology and expertise we have developed in the management of fishery resources. Similarly, we look forward to such gestures from countries with advanced technology and expertise and from the international organizations.

While I do not profess any technical competence to suggest priorities in your deliberations, I am sure, the problems and programmes of the artisanal sector will not be lost sight of as you are quite aware the traditional fishing sector is still the main backbone of the fishing industry in most of the developing countries. In India we have nearly a million fishermen engaged in fishing and ancillary industries. More than 70 percent of the total fish production is contributed by them and the bulk of our raw material for export also comes through the efforts of the coastal fishermen. In this context, the problems of the small fishermen and the small processor, particularly in updating his technology of fishing and processing, in the supply of inputs and to ensure a better return for his produce, cease to be small but gigantic and complicated, and I am sure, you will devote all the attention this sector deserves and come out with a new strategy for development of the artisanal sector along with the other sectors of the fishery industry.

I am sure that these and several other problems relating to the exploitation and management of resources both coastal and oceanic would be discussed by you in the next few days of your stay in this country. We also look forward to the new strategy you will be evolving for better utilization of all the resources. I use this occasion to reiterate our Government's best wishes for the Conference and my country's readiness to cooperate with the countries in the Indian Ocean area and with the regional and global bodies, for evolving and implementing management programmes for the optimum utilization of the living resources.

ADDRESS BY MR. H. WATZINGER  
ASSISTANT DIRECTOR-GENERAL (FISHERIES), FAO

Mr. Chairman, Honourable Minister, Members of the Commission, Ladies and Gentlemen,

It is my pleasant duty to address you today and to convey to you our Director General's best wishes for the success of your deliberations and to thank the Government of India and the Government of the State of Kerala for being host to this meeting.

I would like to add that for me it is a particularly happy occasion not only because we are in this area which has a long tradition as a centre of fisheries but also because it will enable me to gain first-hand knowledge of the conditions and problems of fisheries in this southern region of India and to see how you are tackling them and the progress you are making.

We meet at a time of significant changes in the world which will strongly affect not only the fishery activities of countries of this region but also the activities of the Commission itself and its future. The Indo-Pacific Fisheries Council which met in October-November 1976 examined its own functions and responsibilities in the light of world-wide developments and decided in its own interests and those of its member countries that it should modify its constitution so as to be able to play a more significant role in the development of fisheries in the region. I suggest that this Commission is faced with a similar challenge. The two most significant recent developments for fisheries are: the demand for a New International Economic Order and the Law of the Sea negotiations, the latter in fact being a manifestation of one aspect of the former. As the Director-General of FAO has stated, "The NIEO is not an empty slogan. For FAO it is very important and relevant". Indeed it has been a predominant concern behind the new policy of FAO, for, in effect, it calls for the promotion of national self-reliance through the build-up of the capabilities of the developing world, with special concern for the interests of the poorer segments of society.

The Law of the Sea negotiations have not been concluded but the principle of exclusive economic zones has been accepted and most countries have declared such zones. And FAO, in its work in fisheries, has accordingly prepared itself, through new orientations in policy and changes in the structure of the Fisheries Department, to meet the new responsibilities.

At its last session in April 1977, the Committee on Fisheries examined and endorsed the major proposals for future activities of the Fisheries Department. I shall pick out only two elements of strategy of particular relevance to your deliberations. They are to:

- (1) seek to achieve the objectives of the New International Economic Order by working with developing countries. These countries should:
  - (i) attain self-reliance by, among other things, taking full advantage of technology transfer
  - (ii) increase the availability and consumption of protein from fisheries
  - (iii) execute developmental and management programmes, including inter-country and regional projects in close association with regional fishery bodies, giving especial attention to development of small-scale fisheries
  - (iv) improve the socio-economic condition of fishermen and other fishery operatives
  - (v) and develop as much as possible international trade in their fish and fishery products

and the second element is to:

- (2) promote inter-country collaboration, on a regional basis where appropriate, by:
  - (i) decentralization of activities to the extent feasible, relying on regional fishery bodies located as far as possible in the areas concerned for this purpose; an increase in efforts to service these bodies, including the posting of specialist staff to them, thus increasing their competence and their self-reliance
  - (ii) the establishment of agreed common practices in the conduct of industrial activities through arrangements between the countries directly concerned. The establishment of institutions relative to the new regime of the seas and their procedures is expected to extend over a transitional period of, perhaps, five years. FAO could contribute to this process as requested by Member Governments.

This strategy of self-reliance, decentralization and strengthening of regional bodies was endorsed by the Committee on Fisheries and I hope that you will examine your work and the future of this Commission in its light.

Among the matters to be discussed at your meeting are: the International Indian Ocean Fishery Survey and Development Programme; developments in the regime of the sea and their implications for fisheries with particular reference to IOFC; national and regional effects of extended zones of jurisdiction over fisheries; relations with IPFC and other regional fishery bodies; and the rules of procedure. These five items are intimately related. As I have pointed out, developments in the regime of the sea have had, and will have, profound effects on the fisheries of developing countries. Hitherto these countries had little or no responsibility in the use of these resources and now they have exclusive rights and full responsibility which presents them with problems of development, of industry and of institutions.

These changes of jurisdiction have effects on regional bodies. You are aware that proposals have been made for establishing a Near East Fisheries Commission and this and the question of relations with the Indo-Pacific Fisheries Council have relevance to the extent of your jurisdiction and the nature of your activities. The Indian Ocean Fishery Survey and Development Programme could, in a sense, be considered a development arm of IOFC. In fact, you have a special Executive Committee to oversee the implementation of the Indian Ocean Programme.

Within this complex of interrelated and interacting situations, the Commission can usefully examine how best it might assist in promoting self-reliance through strengthening of the fishery bodies as well as establishing their secretariats in the region concerned.

We, in FAO, have considered it very important that fishery administrators and others from the region should be given facilities for access to the work of regional fishery bodies, both those established under FAO and those independent of the Organization.

Indeed, in order to build up administrative and secretariat strength in the region, we should like to see provision made for practical training in this field of work towards which we, in FAO Headquarters, would contribute. The need is for a continuing effort in such training, a scheme calling for modest financing, yielding results of lasting value to the regional bodies and to the Governments concerned.

Relative to the question of the future of the Indian Ocean Programme you should keep in mind the possibility that it could provide services to the Commission. It could accept seconded local personnel to be trained in the Programme work and it perhaps could assume a secretariat role even as an interim measure. But whereas this programme will not continue indefinitely we may reasonably expect that the Commission will, and could assume its functions.

Mr. Chairman, I have given you a brief statement of FAO's policy regarding fishery commissions and of some critical issues requiring consideration. In the final analysis, the responsibility for these regional bodies will rest with member countries. FAO as you know played a pioneering role in setting up these regional fishery bodies. As participating countries have acquired greater experience, this has become a supporting role, particularly at the technical level, and in the secretariats. With the assumption of even greater responsibilities by the member states in the future, FAO's role should, in our view, be consultative, that is to provide professional and expert advice, when requested and to act as a service organization to the member countries, while the role of the Indian Ocean Programme will continue to be oriented to the high priority areas in the region. It is my earnest wish, therefore, that you give serious consideration to the issues I have raised to provide a clear picture of how you would wish IOFC to function in the future.

Appendix E

AGENDA

1. Opening of the session
2. Adoption of the agenda and arrangements for the session
3. Fishery statistics
4. State of stocks
5. International Indian Ocean Fishery Survey and Development Programme
  - (a) Report of the Executive Committee (sixth session)
  - (b) Research and survey activities
  - (c) Fishery development opportunities
6. Management
  - (a) Tuna
  - (b) Other stocks
7. Developments in the regime of the sea and their implications for fisheries with particular reference to IOFC
8. National and regional effects of an extended zone of jurisdiction over fisheries
9. Relations with IPFC and other regional fishery bodies
10. Subsidiary bodies of the Indian Ocean Fishery Commission
11. Amendments to the Rules of Procedure of IOFC
12. Any other matters
13. Election of officers
14. Date and place of the sixth session
15. Adoption of the report

LIST OF DOCUMENTS

IOFC/77/1	Provisional agenda
2	Annotated provisional agenda
3, Rev.1	Provisional timetable
4	Action needed for improvement of national fishery statistical systems in the Indian Ocean
5	Review of the state of exploitation of the fish resources of the Indian Ocean
6	Report of the Sixth Session of the IOFC Executive Committee for the Implementation of the International Indian Ocean Fishery Survey and Development Programme, Cochin, India, 17-18 October 1977
7	Regional cooperation in resource research
8	Fishery development opportunities in the Indian Ocean
9	Current management problems in the Indian Ocean area
10	Report of the Second Session of the IOFC <u>Ad Hoc</u> Committee of Nations on the Mechanics of Tuna Research and Management, Bangkok, Thailand, 12-13 December 1975
11	An immediate management programme for tuna in the IPFC/IOFC region
11, Sup.1	Comments on the management programme by Japan
12	Report of the Fourth Joint Meeting of the IPFC Special Committee on Management of Indo-Pacific Tuna (Fourth Session) and the IOFC Committee on Management of Indian Ocean Tuna (Fifth Session), Colombo, Sri Lanka, 29-30 October 1976
12, Sup.1	Replies to the questionnaire on the proposed establishment of a trust fund for an IOFC/IPFC tuna management programme
13	Report of the Meeting of the <u>Ad Hoc</u> Group of the IOFC Special Working Party on Stock Assessment of Shrimp in the Indian Ocean area, to consider the stocks in the area covered by the UNDP/FAO Regional Fishery Survey and Development Project (REM/71/278)
14	Developments in the regime of the sea and their implications for fisheries with particular reference to IOFC
15	Effects of extended jurisdiction - Explanatory notes
16	Distribution and migration of major fishery resources in the IOFC area
17	National legislation and bilateral agreements related to extended zones of jurisdiction in the IOFC area



- IOFC/77/18                    Cooperation between the Indian Ocean Fishery Commission and international bodies
- 19                    Activities of the subsidiary bodies of IOFC
- 20                    Proposed amendments to the Rules of Procedure of IOFC
- IOFC/77/Inf.1                List of documents
- 2                    Information for participants
- 3, Rev.1                List of delegates and observers
- 4                    Bibliography of Indian Ocean fisheries
- 5                    Report of the Fourth Session of the Indian Ocean Fishery Commission, Mombasa, Kenya, 21-25 July 1975
- 6                    Report of the Eleventh Session of the Committee on Fisheries, Rome, Italy, 19-26 April 1977
- 7                    Report of the Seventeenth Session of the Indo-Pacific Fisheries Council, Colombo, Sri Lanka, 27 October-5 November 1976
- 8                    Functions, methods of operation and financing of secretariat and committees
- 9                    [This document was not issued]
- 10                    Report of the Fourth Session of the IPFC/IOFC Joint Working Party of Experts on Indian Ocean and Western Pacific Fishery Statistics, Colombo, Sri Lanka, 25-28 October 1976
- 11                    The tuna stocks of the Indian Ocean and their fisheries
- 12                    Report of the IPFC Ad Hoc Committee to Review the Functions and Responsibilities of IPFC, Bangkok, Thailand, 8-11 December 1975
- 13                    Extracts from the Report of the Ninth Session of the Coordinating Working Party on Atlantic Fishery Statistics, Dartmouth, Canada, 17-23 August 1977
- 13, Corr.1                Working Party on Atlantic Fishery Statistics, Dartmouth, Canada, 17-23 August 1977
- 14                    Address by Mr. H. Watzinger, Assistant Director-General (Fisheries), FAO, at the opening ceremony of the Fifth Session of the Indian Ocean Fishery Commission
- 15                    Presidential address by Shri G.V.K. Rao, Secretary to Government of India, Ministry of Agriculture and Irrigation, New Delhi, at the opening ceremony of the Fifth Session of the Indian Ocean Fishery Commission

Appendix G

NATIONAL AND REGIONAL EFFECTS OF AN EXTENDED ZONE OF  
JURISDICTION OVER FISHERIES

Summary of discussions

(i) KNOWLEDGE OF RESOURCES

Rapporteur: Mr. E.G. Silas  
Director  
Central Marine Fisheries Research Institute, India

The extension of limits of jurisdiction is a milestone in fishery history, affecting all elements from research through administration and planning, to the industry and the individual fisherman. In some cases the impact is direct and traumatic, as when long range fishermen no longer having uncontrolled access to the grounds they have been accustomed to fish. In other cases, the impact is more psychological, making countries aware of the possibilities in the resources off their coasts, and of their responsibilities for the conservation and rational utilization of these resources. The latter is generally the situation in the Indian Ocean. Fishing by non-coastal countries accounts for a much smaller proportion of the total catch than in most other regions. Also fishing by countries from outside the Indian Ocean is mainly confined to long-lining for tuna, which is or can be largely carried out outside 200 miles. The practical obstacles (poor knowledge of the resources, and of the appropriate catching and processing technology, poor markets, high costs of capture, etc.) which have inhibited development of fisheries on the off-shore resources will not be reduced as a result of the change in jurisdiction. At the same time the fact of extended jurisdiction is providing the incentive to seek solutions to these problems. Similarly there are few, if any, management problems in the Indian Ocean that will be immediately made easier by extended jurisdiction (unlike the situation in the North Atlantic), but the fact of extended jurisdiction gives a boost to the consideration of management problems, including those of the coastal fisheries within the narrow territorial limits.

The extension of jurisdiction thus makes few essentially new demands on the knowledge of resources, but does make it more likely that this knowledge will be used, and therefore more important that the research on the resources is properly matched to the type of knowledge that is required by the ultimate users. These requirements are more closely related to the state of development of the fishery, than to the position of the resources inside or outside the narrow limits of jurisdiction.

When a resource is unexploited the resource information needed may be very little, though the details needed are related to the way in which development takes place. In developed countries the main growth has in the past taken place in small steps. New stocks usually became exploited through the activities of one or two more adventurous skippers in existing fisheries making trial voyages somewhat further afield. If these were successful they were followed by others from the existing fisheries; later new vessels, possibly modified in size or type of gear used might be constructed specially for the new resource. Developments were seldom the result of carefully worked out plans based on resource surveys, test fishing, etc. More recently, partly because of the greater costs involved in trial voyages even of only one or two commercial vessels away from the well-known grounds, there has been greater governmental involvement in exploratory and trial fishing. Also, with the expansion of general scientific knowledge of the oceans, even trial voyages by commercial enterprises involving the use of scientific resource information to a greater extent.

The history of the blue whiting fishery in Atlantic north-west of the British Isles illustrates several of the stages. The existence of this large resource was first established from the occurrence of eggs and larvae in samples collected for purely scientific purposes. Its magnitude and distribution were then mapped by acoustic surveys by fishery research vessels. Commercial vessels fishing for fish meal in the North Sea took advantage

of this information to develop a successful fish meal fishery, but government sponsored trial voyages for fish from this stock for human consumption have so far not been successful.

The existence of a resource, and knowledge of its magnitude and distribution is no guarantee that a viable fishery can exist. For example there is a substantial jack mackerel resource off south-eastern Australia, with a potential yield of some tens of thousands of tons. Attempts to develop a purse-seine fishery on jack-mackerels have been a failure because the small school size did not allow daily catch sufficient for the vessels being used.

The basic minimum needs for resource information about a stock that is not yet exploited are therefore usually simple.

- (a) An assurance that the resource is at least big enough to support the scale of exploitation planned for the initial phase of development.
- (b) Information on catch rates by the vessels being planned, including the seasonal patterns, and the likely magnitude of year-to-year fluctuations.
- (c) The likely price for the fish caught - this is not strictly a resource question, but is linked to the question of the species, size, and quality of the fish caught.

Of these (b) requires the greatest precision, (a) need not be known at all precisely. It is usually enough to know that the lower limit of the potential yield is above the size of the initial harvest, which is usually small except for fish meal operations. Sometimes, if catch rates or possible uses (and hence prices) are not well known, it will be necessary to carry out extensive studies to establish them. In that case one should know that the resource is big enough to make this study worthwhile. For example, the present value of knowing that the potential yield of Antarctic krill is nearer to 50 million tons than one million tons, is that the larger figure makes it very worthwhile to study ways of economically catching and processing krill.

When a resource is already being exploited the information needs are different. So far as further development is concerned, the required information on potential catch rates etc. can largely come from the existing fishery. The policy makers need information on the level of exploitation so that they can decide on the degree of encouragement to be given to further development. If the current catches are a small fraction (less than say 10-20 percent) of the estimated potential yield, then development can be actively encouraged; at higher levels further development, though quite feasible, will begin to affect the catch rates in the existing fishery and the government may wish to be neutral towards development; when the catches approach the limit set by the resource, further development will need to be actively discouraged.

The basic information is therefore the degree of exploitation, expressed perhaps as the percentage of the possible catch that is currently being taken; the precision required will increase with the level of exploitation, being initially fairly low. Important additional information concerns the distribution and migration of the fish, so that the identity or separation of individual stocks can be established. From this, it is possible to determine whether or not a new fishery in one area will affect existing fisheries in other areas.

The most detailed information is required when stocks are heavily fished, and management measures have to be introduced. The most important information is merely the establishment of the fact that the stock is indeed heavily fished. What other information is needed, mostly concerning the effects of different possible management measures (catch quotas, closed seasons, etc.) will depend on the type of measures that are politically and legally feasible, and on the range of social and economic effects that may have to be taken into account in addition to the effects on total catch.

Resource information will only be fully utilized if there are adequate arrangements for the flow of information from those carrying out resource studies to the ultimate users. Even within the Government structure there is very often inadequate communication between

administrators and research workers. The former do not know what the others can provide, and the latter do not know what the others need. Outside the government, large commercial undertakings are usually aware of where they can obtain the resource information they need but this is not true of smaller enterprises. These may have difficulty in finding information, or even becoming aware that it exists. Advantage should be taken of the new atmosphere resulting from extended jurisdiction to improve communication regarding resources both within and outside government.

This communication should be in both directions; much of the most valuable information on resources come from the fishermen themselves. In the Indian Ocean, the small-scale coastal fishermen are particularly important. Arrangements need to be made to ensure that they can be helped and trained to supply the information from which the status of the resources they exploit can be assessed, and that they, as well as policy makers, are informed of the results of such assessments.

Where a stock occurs within more than one national jurisdiction, or on the high seas, arrangements need to be made for the information and research results from all countries interested in the resource to be combined. Where only two or three countries, especially adjacent coastal states, are concerned the arrangements can be informal though, as has been the case for discussions between Japan and Australia on southern bluefin tuna it can be convenient for these to be carried out within the structure of a body like IOFC. Where more countries are concerned a more formal structure, especially for central data compilation, and discussion between scientists to reach a clear agreement on the state of the stocks, may be necessary.

(ii) MANAGEMENT

Rapporteur: Mr. B.K. Bowen  
Director  
Western Australian Department of Fisheries and Wildlife (Australia)

Some participants noted that in accordance with the provisions of the Informal Composite Negotiating Text now before the Conference on the Law of the Sea, the coastal States should determine the allowable catch of the living resources in their exclusive economic zones, as well as their capacity to harvest these resources, and, under prescribed conditions, give other States access to the surplus of this total allowable catch (TAC). The difficulty in applying the simple formula - TAC minus coastal state catch equals surplus available for foreign vessels - is that the TAC is not uniquely defined. Different objectives (high total yield, high catch rates, high net economic return, etc.) will lead to different points on the yield curve being determined as optimum, and hence to different values of fishing effort and of TAC. In practice, the choice of TAC, and hence of any surplus, will be made by the coastal state in the light of national objectives.

Whenever a stock occurs within the jurisdiction of more than one country the management policies of the countries concerned should be closely coordinated. This may take the form of setting an overall TAC for the stock, and then agreeing on the proportions of that TAC to be taken within each jurisdiction.

Highly migratory species like tuna present special problems. Allocations of shares have to take account of catches on the high seas as well as those within national jurisdiction. It was suggested that some aspects of this problem could be placed on the agenda of the next joint meeting of the IOFC/IPFC Tuna Management Committees. Where small island states have contiguous areas of jurisdiction which together cover large ocean areas, especially when the distribution of tuna in these areas is highly variable, there could be advantages in joint systems of fishing as well as cooperation in management.

While the limits on the amount of fishing will often be expressed as an allowable catch, for enforcement purposes there are advantages in expressing limits in terms that are more readily observed and controlled, e.g. as numbers of vessels. In either case, there are operational advantages in having the permits to operate a vessel or to take a given annual catch valid over as long a period as possible. However, for short lived fish, e.g. sardine or anchovy, year to year changes in the stock abundance make it difficult for management controls to be set for periods longer than a year.

Surveillance and enforcement are essential for successful management. Surveillance, which is most often carried out by the coastguard, is expensive but, because vessels are usually concentrated in certain favoured areas, it is not as difficult as the size of the 200-mile zone might suggest. It can be made easier by requesting radio reports at regular intervals, or when entering and leaving the EEZ. A requirement to put into port is not usually needed, except possibly where a check on the compliance with the regulations, e.g. on species caught, makes a physical inspection of the catches desirable. In any case, checking on compliance will be helped by a requirement to use a standard log-book, such as that suggested for the North Atlantic.

(iii) POLICY AND PLANNING

Rapporteur: Dr. A. Labon  
Director  
Fishery Industries Division (FAO)

Current national fisheries policy will, in many cases, have to be reviewed and probably revised in the light of extended jurisdiction zones. Countries which as a result of introduction of extended zones have the responsibility to manage and exploit the resources within their jurisdiction, will have to define the time frame within which they want to expand their fisheries so as to meet the policy objectives. Fisheries policy has to be viewed as a part of the government's overall economic policy and would therefore embrace amongst others the following important objectives:

the contribution of fisheries to national food production

the role of the fisheries industry as a foreign currency earner/saver (exports or reduction/elimination of imports)

employment opportunities

socio-economic aspects of existing fishing communities.

Economic viability of fisheries development on a national scale has to be analyzed. This includes not only viability of the industry in monetary terms, but also socio-economic impact of the fishery and its spin-off effect on the country's economy. Planning of fisheries development should be considered as a translation of the governments policy into specific action programmes aimed at the implementation of the policy. The countries' fisheries policy should also define the government's inputs required for the implementation of the policy, as well as the extent to which the government wished to be directly involved in commercial operations in addition to its responsibilities for the creation of essential infrastructure like harbours and roads, as well as well-designed fisheries administration including credit facilities.

In the discussion which ensued, it was pointed out, that the needs for a review and possible revision of the countries policy will largely depend upon the changed responsibilities of the countries for management and utilization of resources. In some countries the introduction of EEZ has not resulted in significant changes in the resources situation, while others have acquired significant responsibility due to substantial resources available within their EEZ. Several speakers pointed out, that there was a need for resources abundance

estimation prior to working out national policy and development plans for the utilization of the resources. On the other hand, however, development work in most instances could start immediately as there were sufficient indications that resources available would warrant such a development.

The introduction of EEZ's has strengthened the interest and commitments of governments towards accelerating the development of fisheries. In some countries this increased interest is expressed by larger funds which have been allocated to fisheries development. The contribution that fishery can make to food supplies for the countries has become clearer in many cases. It was generally felt that the small-scale fisheries sector would also clearly benefit from the impact the changed legal regime of the sea had on the policy of the countries. Caution was expressed with respect to possible adverse effects which the development of offshore fisheries could have on the small-scale fisheries sector. Examples were quoted as to how individual countries had separated areas of operations for offshore vessels from areas reserved for small-scale fisheries. This was done by having delimitation of inner limits within which larger vessels were not allowed to operate, while at the same time no outer limits were defined for small-scale fisheries to allow the traditional fishermen to expand the area of their operations. Another measure taken to protect the interests of small-scale fishermen was to oblige the offshore operators to market their products beyond traditional outlets of the small-scale fishermen. Promotion of training was considered an important factor for encouraging small-scale fishermen to up-grade their skills and enable them to participate in the more modern offshore fishing.

Several speakers pointed to the need for strengthening necessary institutional mechanisms and it was felt that until recently fisheries had been exclusively a domain of fisheries departments and the respective ministries under which the latter were established, while the extension of the range of operations unavoidably involved several other ministries. The need for coordination of responsibilities between ministries was stressed. Some countries which had relatively well established administrative structures would not require any substantial assistance in this field from outside, but were anxious to receive information on legal steps related to EEZ taken by other countries, model joint venture agreements, models of agreements pertaining to transfer of technology. Several speakers, however, emphasized the need for external assistance, possibly from FAO, in setting up adequate institutional structures for fisheries development. It was felt, that in many instances in the past planning had not received the attention it deserved and countries felt, that they would need assistance in carrying out this task, which at the present time was one of the more urgent. The need for training of fisheries administrators as well as managers and operatives was emphasized.

Countries which were adversely affected by the introduction of economic zones would have to reconsider their policy and orientate this towards coastal aquaculture projects. Some countries had a general idea as to the time-span required for making full use of resources within their EEZ, while others felt, that this needed to be determined on the basis of detailed planning.

#### (iv) DEVELOPMENT

Rapporteur: Mr. J.E. Carroz  
Principal Legal Officer (International Fisheries) (FAO)

The participants started consideration of this sub-item by recalling that there were two basic policy approaches to securing the optimum utilization of resources in extended zones of jurisdiction and that these approaches were or could be adopted either as alternative policies or, more normally, in some form of combination. The first one was based essentially on self-reliance and consisted of encouraging local fishing efforts and the development of local fishery industries. The second one was to rely, at least in a first

stage, on foreign vessels or firms to help accelerate the transfer of technology and skills in all sectors of fisheries from production to marketing.

In both cases, the principal objective was to increase the capability of coastal states to take advantage themselves of the resources available in their economic zones. In view of the time limitation, participants found it necessary to concentrate discussions on selected ways of increasing this capability and it was agreed to consider more particularly fishery development corporations and joint ventures and bilateral agreements.

#### Fishery development corporations

It was recognized that traditional fishery administrations were not particularly suited to the needs of accelerating local fishery development, since their main functions were directed rather towards research, conservation and regulation. In fact many countries in the area were now experimenting new forms of institutions, such as development corporations or other parastatal bodies, to stimulate fishery development and operate commercial enterprises or infrastructure facilities. However, the experience so far was not altogether encouraging and very few participants were in a position to report that corporations had been successful in their countries.

Participants identified a number of causes that seemed to be responsible for these disappointing results and they suggested solutions to remedy this situation.

In the first place, it often happened that the objectives assigned to corporations were ill-defined and impractical. It was essential that these functions should be clearly formulated and should be consistent with the national fishery policy. In this respect, it was felt preferable to avoid combining commercial with administrative and regulatory responsibilities. The need to distinguish clearly commercial and socio-economic functions was stressed.

Shortcomings were also due to the lack of personnel with the necessary technical and managerial qualifications. Some participants noted that corporations were sometimes used as a source of employment irrespective of the skills required. It was stressed that where corporations were entrusted with commercial or technical operations, the staff should be commercially or technically orientated; it should also enjoy fairly flexible working methods and remain free of political interference. However, it was recognized that it was essential to avoid having corporations competing with private sector enterprises.

Another difficulty faced by corporations was the lack of sufficient capital. In this respect, several participants considered that adequate financial support was all the more necessary since corporations were often expected to engage in operations, such as fishing for new fish species or providing marketing facilities and outlets for artisanal fisheries, that were not attractive to the private sector but useful for the community as a whole. Several participants emphasized the role that corporations should play in ensuring that fishermen get good prices for their products and that consumers can buy fish at reasonable conditions.

Lastly, it was suggested that corporations might prove more effective if their objectives and responsibilities were defined on the basis of an integrated approach to fishery development.

#### Joint ventures and bilateral agreements

It was generally recognized that joint ventures and bilateral agreements, provided the latter were not merely licensing arrangements, could contribute to the transfer of technology and skills, and thus help increase the capability of coastal states. The length of the transition period during which developing coastal states would seek the cooperation of foreign vessels and firms, would depend on the objectives of national policy in each particular case.



Some participants pointed out that with extended zones of jurisdiction over fisheries coastal states were or would be in a more advantageous negotiating position. It was also noted that the new regime for the oceans would bring about a certain dislocation of fishing fleets and new uses would have to be found for excess vessels in several countries. Marketing arrangements would also be affected. At any rate, it was agreed that complementarity of interests of all parties was essential for the success of joint ventures and similar arrangements.

It was also recognized that incentives were an important factor. More perhaps in the case of joint ventures than for bilateral agreements, which often included a technical co-operation component at the government level, it was necessary to ensure that the prospective operations would be profitable. The importance of careful preparatory work, including feasibility studies, was therefore emphasized. This work should also cover consideration of the socio-economic situation prevailing in the host country.

Several participants indicated that their countries would entertain on a priority basis applications for foreign collaboration in fishery sectors where local equipment, expertise or capital did not exist. It was stressed that the relevant agreements and arrangements should include detailed provisions on transfer of technology and training, together with a calendar for the gradual replacement of expatriates with local personnel.

It was recognized that joint ventures or bilateral agreements could also be particularly useful to explore new fishing grounds or to exploit species for which there was no domestic market. In this regard, attention was drawn to the need for avoiding any conflict with local fishermen who might resent better foreign vessels or equipment. Some participants described the experience gained in delimiting areas or describing types of fishing reserved for local fishermen.

Lastly, discussions were held on the factors that should be taken into account when determining the duration of joint ventures or bilateral agreements. Placing too much emphasis on short-term arrangements might sometimes prove detrimental to the interests of the host country and lead to its missing opportunities.



Appendix H

STATEMENT BY THE REPRESENTATIVE OF IRAQ, RELEVANT TO  
PARAGRAPH 21 OF THE REPORT, AS HE WAS NOT PRESENT  
AT THE TIME OF DISCUSSION OF THE ITEM IN THE COMMISSION

The delegate of Iraq made the following statement which he requested should be attached to the report of the session as an Appendix:

1. The implementation of the Gulf Survey Programme had been delayed by some 15 months. This delay could have been avoided if serious steps had been taken to hasten implementation
2. The expected shortage in the project budget could be avoided by eliminating some of the posts provided for in the Project document
3. The analysis of data of the survey could be carried out in centres in Iraq which have computer time available. At the same time Iraqi personnel could be trained in data analysis as a basis for the subsequent establishment of a regional centre for the analysis of fishery statistical data from the Gulf region
4. The Gulf Survey project administration should take serious steps to complete the Survey Programme as soon as possible
5. More Arabic speaking instructors are needed for the Sub-Regional Fishery Training Centre (Kuwait) to reach the stage where training would be completely in the Arabic language.