

Report of the First Session of the

COMMITTEE ON FISHERIES

Rome, 13-18 June 1966



FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS
ROME, 1966



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Mr. Maurice Gemayel
Président Indépendant du Conseil
Député au Parlement et Président
de la Commission du Plan
Beyrouth, Liban

Dear Sir,

I have the honor to transmit to your herewith the Report of the First Session
of the Committee on Fisheries which was held in Rome from 13 to 18 June 1966.

Yours faithfully,

A. W. H. Needler
Chairman
Committee on Fisheries

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REPORT OF THE FIRST SESSION OF THE COMMITTEE ON FISHERIES

INTRODUCTION

1. The Committee on Fisheries (COFI) held its first Session from 13 - 18 June 1966 at FAO Headquarters, Rome, Italy. The Session was attended by the representatives of twenty-nine member countries of the Committee, eighteen observer countries and six international organizations. A list of participants is given in Appendix A to this report.
2. The Committee adopted the agenda shown in Appendix B to this report.
3. In accordance with Rule XXX-9 of the General Rules of the Organization, the Committee adopted the Rules of Procedure shown in Appendix C to this report.
4. The Committee elected Dr. A.W.H. Needler (Canada) as Chairman, Mr. J. Labarthe-Correa (Peru) as First Vice-Chairman, and the representatives of France, India, Japan and Senegal as further Vice-Chairmen. This group acted as a Steering Committee in accordance with Rule I-1 of the Rules of Procedure and also as a drafting committee for the report on the First Session. The Committee felt that the principles set out in Rule XXX-1 of the General Rules for selecting the members of the Committee should also apply to the selection of the members of the Steering Committee.
5. The Session was opened by the Director-General, Dr. B.R. Sen, whose remarks, at the request of the Committee, are reproduced as Appendix D to this Report.
6. At the invitation of the Director-General, Dr. Cyril Lucas, FRS, addressed the Committee on "Fisheries: Penalties and Rewards". The text of his address is given in Appendix E to this Report.

Objectives and Working Methods of the Committee

7. A short debate took place on the objectives and working methods of the Committee. It was agreed that the two principal tasks of the Committee - review of the programs of work of FAO and international co-operation in fisheries - deserved equal attention. The Committee should orient the programming and keep a check on the execution of FAO's work in the field of fisheries and on the other hand provide a driving force so as to keep the activities of FAO in line with the dynamic development of world fisheries. The Committee should concern itself mainly with the broad lines of the program and its general balance rather than with much detail and it would therefore not need to set up subsidiary bodies for the discharge of its program functions.
8. Care should be taken to avoid overlapping and confusion as between the work of the Committee on Fisheries and that of the Technical Committee on Fisheries customarily set up by the Conference. While the Technical Committee on Fisheries of the Conference provided a forum for all Member Nations to comment on the Program of Work and Budget in relation to fisheries in its final form, several members of the Committee felt that these functions could adequately be taken over by the Committee on Fisheries and that the Council might well review this matter again to see whether the Technical Committee on Fisheries of the Conference was really necessary in the future. The Committee therefore decided to place on the agenda of its Second Session a consideration of its own functions vis-à-vis those of the Technical Committee on Fisheries of the Conference. In the

meantime the Committee decided to recommend to the FAO Council that it consider the areas of competence and constitutional status of the two bodies and advise the Committee on Fisheries accordingly.

9. With regard to international co-operation in the field of fisheries, the Committee re-emphasized that its task was to supplement rather than supplant international organizations already effectively working in the field of fisheries and to promote action to fill gaps in the international machinery necessary to ensure rational harvesting of the seas and conservation of their resources. The global nature of fisheries and the growing interdependence of national and regional fishery activities required the exercise of a driving force and of co-ordination which it was a task of the Committee to provide.

INTERNATIONAL CO-OPERATION IN FISHERIES

10. The Committee discussed the question of international co-operation in fisheries in the light of the recommendation of the Thirteenth Session of the Conference that the Committee should so conduct its work as to supplement rather than supplant other organizations working effectively in the field of fisheries. It also recalled the recommendation of the Conference that the Committee, when giving consideration to the development both of its subsidiary structure and of collaboration with other bodies concerned, should take into account the work of regional fishery councils and commissions.

11. In accordance with the Agenda, the Committee dealt separately with its role in relation to other international fishery bodies and with specific fishery problems of an international character of which that of the rational utilization of the pelagic fishery resources in the Indian Ocean had been specifically referred to it by the Conference.

Role of the Committee on Fisheries in Relation to other International Fishery Bodies

12. The discussion on this subject was based on a Secretariat paper ^{1/} "International Fishery Bodies" together with a supplement, and information paper.

13. The Committee was agreed that in order to adequately perform its function in the field of international co-operation, it needed to define those subjects and areas where such co-operation was needed but not yet effectively provided by existing bodies. The Committee came to the conclusion that the best way of approaching this task was through the establishment of a Sub-Committee to review the terms of reference, composition, and activities of existing bodies and to draw from that review suitable conclusions with regard both to the need for further action by the Committee and FAO and also regarding steps that the bodies concerned, or their members, could take in order to ensure their greatest possible success.

14. The Committee considered that the Sub-Committee should pay special attention to the best possible forms of co-operation between FAO and existing bodies and noted in this connection that in a number of fields such collaboration already existed and was working satisfactorily. This was confirmed by the observers from some of the bodies in question.

15. It was agreed that the Sub-Committee in accomplishing its purpose would need to rely specifically on information and views from the international bodies concerned and from the member governments of these bodies. These bodies and governments should therefore be approached to seek their collaboration.

^{1/} Now issued as FAO Fisheries Technical Paper No. 64.

16. The Committee recognized that an assessment of the effectiveness of existing fishery bodies would be a delicate and difficult task, but that the terms of reference of the Sub-Committee should be broad enough for the Sub-Committee itself to determine to what extent it should be attempted.

17. The Committee noted that the Advisory Committee on Marine Resources Research had established a Working Party to look into the functioning of the regional bodies set up within the framework of FAO, particularly the Indo-Pacific Fisheries Council with regard to marine resources research and that the material collected by the Working Party and its views would be available to the Sub-Committee for study and consideration. Individual members made a number of suggestions for consideration by the Sub-Committee.

18. The Committee established an Ad Hoc Working Party to draft terms of reference for the proposed Sub-Committee and to suggest its membership.

Rational Utilization of the Fishery Resources of the Indian Ocean

19. The Committee considered Secretariat documents prepared with reference to this question which had been called to the attention of the Committee at the request of the Thirteenth Session of the FAO Conference. Reference was also made to the important review paper prepared for the Indian Ocean and Antarctic Section of the Second International Oceanographic Congress on behalf of the ACMRR by Dr. N.K. Panikkar (India), with the assistance of Mr. M. Edelman (USSR, FAO Technical Assistance expert) entitled: "Fishery Resources of the Indian Ocean".

20. Thirteen members of the Committee and three of the observer countries attending the Session have borders on the Indian Ocean (defined for the purpose of discussion as including the Red Sea and the Persian Gulf) or, though not bordering this Ocean, fish there for tunas and other fishes, while others have carried out fishery exploration. Most of these expressed their great interest in the resources of the region and in the development of an effective international body for the promotion and co-ordination of investigations of these resources and their utilization with a view to the assessment of their potential, as a basis for rational exploitation.

21. It was agreed without dissent that the Committee should establish a subsidiary body of selected countries to study this problem in detail and to prepare proposals for further action. The Ad Hoc Working Party set up to prepare proposals under Item 6(a) of the agenda was assigned the additional task of drafting terms of reference for this subsidiary body and of making proposals for its membership and methods of work.

22. Views were exchanged on important matters which the subsidiary body, when established, would need to examine and on which it should make specific proposals. One was the membership an international body should have so as to be an effective instrument for rational utilization of the marine resources. In this connection it was pointed out that interested countries include those having borders on the Indian Ocean, those fishing there, and those which have conducted or are conducting surveys in the area.

23. Another was whether the Indo-Pacific Fisheries Council could become an effective instrument for this purpose or whether a new body would need to be created. Several countries expressed themselves firmly in favour of each of these alternatives while others had at present no preference. It was noted that the subsidiary body would need to work in close consultation with appropriate and interested intergovernmental and international non-governmental organizations.

24. A further matter to be examined by the subsidiary body was the means to bring together and to apply existing data about the resources and information concerning the fisheries. It was pointed out that the ACMRR had, at its Third Session, made several proposals, embodied in its Recommendation ACMRR/3/Rec.15, for following up the fishery aspects of the International Indian Ocean Expedition, several of which had already been implemented. These included the partial analysis,

under a United Nations Development Programme (Special Fund) project, of the physical oceanographic data for the Arabian Sea, and arranging for the prompt deposition in the FAO Fishery Data Centre of the fisheries data obtained. In this connection the proposal to convene in 1968 a technical conference on the living resources of the Indian Ocean had been noted under Item 5 of the Agenda. Thus it could be expected that there would become available further appraisals of the relevant data, physical and biological, from the IIOE, although views differed somewhat as the contribution which this co-operative oceanographic investigation had made to knowledge of the fishery resources.

25. It was agreed that the subsidiary body would benefit from the further discussion of the research aspects of this problem at the Fourth Session of ACMRR in January 1967, and also that it should itself define more precisely the geographic area to which its proposals would refer. The Secretariat would prepare for the subsidiary body a revised version of its document which would incorporate additions and amendments suggested by members of the Committee, including a revision of the lists of interested countries and of the summary data for catch rates of tuna taken by Japanese vessels.

Other Fishery Problems of an International Character

26. This sub-item covered a number of different problems. Several delegations referred to the problems of the Middle and South Atlantic, and it was suggested that the resources and fisheries of this area demanded urgent international attention. It was pointed out that the North Atlantic was well served, with regard both to research and to conservation, by existing regional bodies and that an important step had been taken for the whole ocean with regard to tuna resources; this might be taken as a good example for other species and regions. It was noted that a new initiative is required in the Southeast Atlantic where fishing intensity by many nations is rapidly increasing off South Western Africa. Concern was also expressed by some representatives over the consequences of intensified trawling off the West African coast (Gulf of Guinea).

27. It was agreed that the Committee would examine Middle and South Atlantic problems, especially with reference to the eastern side, in detail at its Second Session. The Secretariat was requested to attempt to secure and compile statistical and other data especially for the South Eastern Atlantic Ocean fisheries, and the Committee agreed that Member Nations of FAO and others fishing in the area should be urged to collect and submit such data. It would draw on important scientific background information likely to become available from a Symposium on Oceanography and Fishery Resources of the Tropical Atlantic to be sponsored by FAO, UNESCO and the Organization for African Unity (OAU) in Abidjan in October 1966.

28. With regard to the South Western Atlantic, attention was drawn to the recommendation by the Regional Fisheries Advisory Commission for the South West Atlantic (CARPAS) at its Third Session held in Montevideo, Uruguay, in April 1966, that the Director-General of FAO take the necessary steps for revision of its statutes along lines which would ensure the active co-operation of all the countries whose fishing fleets frequent the CARPAS statistical area or undertake fishery research in that area, and which would permit the incorporation of measures for the implementation of joint projects or programs sponsored by its member governments.

Marine Pollution

29. The Committee also examined the subject of the possible effects of marine pollution on the ocean environment and the resources living in it. Several delegations expressed their concern over the possible effects of contamination from nuclear tests on the fishery resources and the subsequent effects on human consumers. Others expressed growing worries over effects arising from increased use of pesticides and herbicides, the discharge of oily substances from ships, drilling in the seabed, the effects of stable detergents discharging from rivers into the nearshore habitats, the disposal of persistent solid rubbish such as plastic materials, metal containers, unexploded ammunition, used machinery, etc., on the seabed, and the growing volume of urban, industrial and agricultural

wastes of many kinds that were being introduced into the ocean with effects that were possibly deleterious to the ocean environment, marine resources and public health and welfare. Much remained to be learned about all aspects of this problem including volumes of different sorts of wastes being discharged into the ocean, national practices and legislation to regulate it, and the form as well as the need for international measures for its control.

30. The Committee was pleased to note the vigorous manner in which work had been proceeding under the appropriate resolution of the third session of ACMRR to elicit information required to deal with the subject of marine pollution on a global and regional basis. It expressed the wish that this work proceed with all due speed and that the national agencies respond to the questionnaire recently circulated on this question to all member countries of FAO and of the United Nations. Bearing in mind that the ACMRR would have an opportunity to deal with this subject further before its Second Session, the Committee decided to ask FAO to proceed as rapidly as possible with its review and recommendations, but in any case to present to the Committee members and other interested Member Nations of FAO before the Second Session a progress report which would bring to them as much information as possible on the sources of these kinds of pollution and their effects upon the fish and their environment. The Committee would review that work and deal further with the subject of marine pollution in the broad sense at the Second Session.

Toxicity

31. Several delegations mentioned that the toxicity of some marine species in certain areas and at certain seasons constituted a serious problem, and requested the Secretariat to make available an up-to-date bibliography and review of this subject taking account of recent work and publications in Member Countries, including "Poisonous and Venomous Marine Animals of the World" by B. W. Halstead, 1966, available from the Superintendent of Documents, Government Printing Office, Washington, D.C., U.S.A.

Longer Term View

32. One representative expressed the view that new concepts of fishery exploration and conservation are likely to develop and noted further that the effectiveness of international organizations varied widely. The same representative also noted that the Convention of Fishing and Conservation of the Living Resources of the High Seas which has now come into force, is likely increasingly to be invoked one way or another. This representative considered that these new developments needed extensive discussion and debate and proposed that the Director-General should be asked to consider inclusion in the Organization's program of a world conference on the rational development and conservation of fishery resources. This view was also shared by some other representatives.

33. Opinion was divided as to the need for such a conference and some representatives expressed the view that it was the work of this Committee rather than of such a conference to discuss these fishery problems. One delegation also considered it inappropriate for this Committee to discuss the effects of the Geneva Conventions.

34. The Committee decided to hold over further consideration of this matter to its next session, on the basis of necessary information to be assembled by the Secretariat.

Desirability of International Convention under Article XIV of FAO Constitution

35. Rule XXX-6(d) of the General Rules of the Organization (The Committee's Statutes), required the Committee to consider "the desirability of preparing and submitting to Member Nations an International Convention under Article XIV of the Constitution to ensure effective international co-operation and consultation in fisheries on a world scale". Many representatives stated that this was inadvisable and the Committee then decided unanimously to defer this matter to some future

occasion. It was felt that this Committee, having only just started its work, should be allowed to develop its program and determine, in the light of experience, how effectively it can work as presently constituted.

REVIEW OF PROGRAM OF WORK IN THE FIELD OF FISHERIES

36. The Committee had before it a paper containing a review of the current programs of the Department of Fisheries and the Director-General's tentative proposals for the Department's regular program of work for 1968/69. Background information was also provided on organization and staffing, current fishery field projects and on conferences, meetings and training centres organized by the Department of Fisheries. The subject was introduced by the Assistant Director-General (Fisheries), Mr. Roy I. Jackson, and oral information and explanations were provided by the Directors of the Department of Fisheries.

37. The Committee supported the proposals set out in the Secretariat document. In reviewing them, members of the Committee and observers who participated in the discussion pointed out specific fields which in their view deserved priority or where the program appeared to be inadequate to meet urgent needs. The Committee suggested that in the future the Program of Work might also be presented in a different form so as to enable the Committee to see readily how the proposed activities of the Department of Fisheries related to specific urgent problems in the development of world fisheries, presented in an order of priority.

38. The Committee as a whole was agreed that training at all levels from fishermen to fishery scientists and administrators deserved the highest priority in the Department's work, as the lack of training was the most serious obstacle to fishery development and to the fullest use of the resources of the sea and inland waters all over the world. The Committee urged that the Director-General's plans for 1968/69 should be reviewed so as to improve still further FAO's ability to assist Member Countries in the field of training for fisheries and the Committee wished to be assured that the Assistant Director-General would himself give attention to co-ordination of the Department's work in this field.

39. The Committee was also unanimous in the view that adequate fishery statistics were an essential prerequisite both for development of fisheries and for maintaining already developed fisheries at productive levels. It commended the work already carried out by FAO in this regard and the close co-operation that had been established with certain regional bodies such as the International Commission for the North-West Atlantic Fisheries, the International Council for the Exploration of the Sea and the Regional Fisheries Advisory Commission for the South-West Atlantic. There was urgent need for further work along these lines and also for advice to Member Governments in the organization and methods to be used in the collection and presentation of fishery statistics which should be, as far as possible, on a common basis.

40. Another serious obstacle to the desirable development of fisheries in developing countries which was pointed out by several members was the inadequacy of marketing systems and the lack of information necessary to improve them. This was of particular concern to countries which had already made a certain amount of progress in developing their primary fishing industries. They urged that strengthening of the Department of Fisheries in this respect should be speeded up. The view was also expressed that studies related to marketing should be directed to particular marketing situations in individual countries or groups of countries and should be of a practical rather than theoretical nature. The market evaluation of new products deserved attention along with their technical development.

41. Many members of the Committee emphasized the importance of inland fishery development including fish culture.

42. Attention was also drawn to the importance of studies on the productivity and profitability of the various types of the tools of production, particularly fishing vessels and gear. Studies on the productivity of particular sea areas were also needed.

43. In discussing the Program of Work of the Fishery Resources and Exploitation Division it was noted with satisfaction that the program was oriented towards exploration and assessment of fish stocks and not only towards the conservation of already exploited stocks and that attention was being given to the problems of improving marine as well as inland fishery resources. The Committee noted that the Advisory Committee on Marine Resources Research was giving attention to these problems and considered that improvement of resources on the fringe of the sea and in inland waters would become of increasing practical importance in the future. The necessity for developing fishing as well as processing and marketing methods suited to the harvesting of resources that are at present unutilized or inadequately used was also emphasized.

44. The Committee noted and generally approved the wide range of activities to be undertaken by the Fishery Economics and Products Division and in addition to the matters mentioned above, gave special emphasis to the economic aspects of resources management and to the economic study of fishery development projects, particularly in connection with projects assisted by the United Nations Development Program, the International Bank for Reconstruction and Development and other international financing agencies. It was suggested that if a joint program between FAO and the Asian Development Bank were established similar to the joint FAO/IBRD Program already in existence, fishery development in Asia would greatly benefit. With reference to the fishery aspects of the Indicative World Plan for Agricultural Development, the Committee drew attention to the scarcity of basic information to support the predictions that were to be made under the plan. These predictions would therefore have to be of a fairly general nature. In this connection some representatives expressed the view that general and theoretical studies were not advisable at this time.

45. In regard to the Program of Work already accomplished or in course of implementation, the Committee considered that it was being adapted progressively to the changing needs of countries. Basically the problem to be solved remained that of ensuring that the oceans and inland waters of the world supplied a much greater proportion of urgently needed protein food for the rapidly growing populations who urgently needed it. Recent developments in world fishing had brought international problems to the fore. Accordingly FAO's assistance was required not only by individual countries but also by the regional fishery organizations that had developed and were still being created. In this respect FAO had to play the role of co-ordinator to some degree, to provide skilled technical assistance, and to help fill gaps by sponsoring and encouraging international action to this end. The role of the Committee on Fisheries in this respect was the subject of the next item on its agenda.

46. The Committee noted and welcomed the extensive field program which was being conducted and supported by the Department of Fisheries but which was basically financed from sources other than the Regular Program. While some additional staff was being provided for this purpose by the sponsoring agencies, the workload on the Regular Program staff arising from the field program was still extremely heavy and took up approximately 50 percent of the available staff time. The Committee felt that governments should review this situation to see whether more adequate support could be provided by the governing bodies of the sponsoring agencies for the FAO Headquarters operations necessary for the conduct of the field programs.

47. Some discussion took place on the need for increased direct support for national fishery developmental activities under the Regular Program and in this connection the question of strengthening of the Regular Program staff outposted to the regions was raised. The Committee was informed that the whole question of the regional structure of the Organization was under review by the Council and that any definite proposals relating to fisheries would have to await the outcome of that review. The Committee was pleased to hear that the Director-General's proposals for 1968/69 envisaged increased support for the FAO regional fishery bodies, particularly in order to enable them to make greater use of expert working parties between sessions.

PRELIMINARY REVIEW OF ITEMS FOR CONSIDERATION AT FUTURE SESSIONS

48. The Committee reviewed a number of items of importance to fishery development with a view to future study, and for consideration under Agenda Item 10, Date, Place and Agenda of Next Session. The Committee found a number of topics of great importance and these resolved into the following sub-heads:

Training in the Field of Fisheries

49. The need for a comprehensive study of training at all levels in the field of fisheries was uppermost in the minds of most representatives. The Committee felt that the following factors should be given further study with a view to examination in depth at the Second Session of the Committee. Training at high level, especially of fishery scientists and high level technologists, may often be completed through fellowships in countries where the appropriate sciences are at a high level of development; developing countries may fulfil their needs at this level by training comparatively few officers. But at medium levels, and at upper medium and university levels, very much larger numbers of technologists, junior scientists and other officers were needed in many fields, including processing technologists, fish handling operators, fishermen and marine engineers. Such training, it was felt, was best carried out in the countries concerned and in the environment where the training was to be used. For this purpose the immediate urgency was for the training of local trainee by instructors from outside the country. Special measures should therefore be taken and special methods of training developed in this regard. The results obtained by FAO with UNDP support in Korea and India might well be studied with a view to their adaptation and application elsewhere. Many representatives insisted on the need for training in applied work and emphasized that training should be included as an integral part of national development plans and that all fishing nations developed and developing, should examine their own systems. The Committee felt that FAO should take a lead in this field and, as appropriate, enlist the co-operation of UNESCO and other interested agencies. The Committee at its next Session would have the benefit of the discussions of the Symposium which will take place at the Twelfth Session of the IPFC in the fall of 1966. Several representatives gratefully acknowledged training that their nationals have received through bilateral programs and the Committee felt that a concerted effort should be made to co-ordinate all efforts, multi-lateral and bi-lateral in this field, especially in the pooling of knowledge on methodology arising out of direct experience. More advantage should be taken of exchange facilities between neighbouring countries.

World Appraisal of Fishery Resources

50. The Committee noted that the ACMRR had already given some consideration to this matter in which FAO should take the lead. Any concerted action to search for new food resources from the oceans, and develop fisheries from stocks only lightly fished would require a comprehensive approach; it was noted that the International Biological Programme of ICSU, the natural resources and marine science programs of UNESCO and FAO's IWP were all aimed in the same general direction, supported also by an ECOSOC resolution on developing non-agricultural resources from the high seas beyond the continental shelf.

Utilization of Fishery Resources

51. The Committee gave high priority in its future program to problems of effective utilization of fishery resources, particularly for human consumption. The scope of the problem ranged from suitably adapting methods of handling fish on ice or frozen to special circumstances in tropical countries, to studies of the special characteristics of tropical species of fish which behave under treatment in ways that differ from those of high latitude fish on which most experiments had hitherto been carried out. The importance of suitable and improved fishing crafts and methods in relation to surveys, fishing and utilization of fishery products was also noted in view of the different stages of development in different countries.

52. As a special case of fish utilization, the Committee stressed the importance of the studies currently being carried out in many Member Nations on Fish Protein Concentrates for human consumption, it being borne in mind that 40 percent of the total world catch is being converted to fish meal for animal feeding. As one representative put it, the need is dire in many countries with grave protein shortages, and the stakes therefore are high. Studies also will be necessary to see how much concentrates could be made acceptable to consumers with varying tastes and food habits.

Economic Aspects of Fishery Management

53. The Committee stressed the unique characteristics of the common property fishery resources of the high seas, and endorsed the general objective of fishing nations to obtain the optimum economic yield from all fish stocks and resources. While techniques for the biological assessment of fish stocks were relatively well advanced (although far from universally applied), the basic concepts of criteria for judging economic returns were still in a relatively early stage of development. The Committee therefore placed a more intensive study of the economic aspects of fishery management high in priority in its future program.

RELATIONSHIP OF THE COMMITTEE ON FISHERIES TO THE ACMRR

54. The Committee took note that the Advisory Committee on Marine Resources Research (ACMRR) is composed of experts appointed annually in their personal capacity by the Director-General of FAO, selected on the basis of their scientific knowledge after consultation with governments and intergovernmental and other bodies concerned with fishery research, account being taken of the need for subject and regional representation. The ACMRR was established in 1962 and has two functions: to advise the Director-General of FAO on the formulation and execution of the Organization's program concerned with marine resources research and on the dissemination, interpretation and application of the results of such research; and to advise the Intergovernmental Oceanographic Commission (IOC) under UNESCO on the fisheries aspects of oceanography. For the latter purpose the membership of 13 is augmented by the addition of two members from countries not members of FAO, appointed by the Director-General on the basis of nominations by the Bureau of IOC. The ACMRR is empowered to establish subsidiary bodies, and indeed had undertaken several of its important tasks through the function of Working Parties of experts on particular subjects, the membership of which included scientists who were not members of the ACMRR itself.

55. The Committee recognized that the terms of reference and work of ACMRR were complementary to its own, and there was no overlapping of functions. The Committee has already suggested that the views of ACMRR would be useful to it on matters concerning marine pollution, and the resources of the Indian Ocean and of the Middle and South Atlantic. It anticipated that there would be many occasions on which it might recommend that the Director-General seek the scientific and technical advice of the ACMRR on matters with which it was concerned. Conversely, the ACMRR might, through the Director-General, draw the Committee's attention to problems which it might examine.

56. The Committee requested the Director-General to arrange for it to be provided, on a continuing basis, with full information about the activities of the ACMRR and of its Working Parties. The Committee also asked specifically that its Sub-Committee on the Development of Co-operation with International Bodies concerned with Fisheries be kept informed about the ACMRR and its relevant work.

DATE, PLACE AND AGENDA OF NEXT SESSION

57. The Committee in conformity with Rule XXX. 4 and 5 of the General Rules of the Organization and Rule II. 1 of its Rules of Procedure decided to hold its Second Session in Rome in the first half of 1967. The exact date was left to the discretion of the Director-General in consultation with the Chairman of the Committee, provided that the timing did not clash with any meeting of some other important international fishery organization and that it be held before the Spring meeting of the FAO Council.

58. Many Members of the Committee felt on the basis of experience at the present Session that the period of one week was scarcely sufficiently adequate to dispose of its agenda, and hoped that consideration might be given to scheduling the Second Session to last for about ten days; on the other hand, some members felt that if meetings were prolonged, this might make it difficult to maintain representation by senior officers. This, again, was left to the discretion of the Director-General in consultation with the Chairman, since matters of timing in relation to other meetings will also have to be considered in fixing the duration of the Session.

ESTABLISHMENT OF SUB-COMMITTEES, SUBSIDIARY WORKING PARTIES OR STUDY GROUPS UNDER RULE XXX-10

59. The Committee established two subsidiary bodies by resolutions which are attached as appendices to this Report, respectively a Sub-Committee on the Development of Co-operation with International Organizations Concerned with Fisheries (Appendix F), and a Working Party on the Rational Utilization of the Fishery Resources of the Indian Ocean (Appendix G).

60. As regards the first of these, there was some discussion in the Committee regarding the length of its term of existence. It was recognized that the problems with which it would deal are very complex, and that it may be some time before it will be in a position to submit a final report; but the Committee expected that this Sub-Committee would present at least an interim report to the Second Session of this Committee. It will be the responsibility of the Committee itself to decide when the Sub-Committee has completed its task.

61. As regards the Working Party on the Rational Utilization of the Fishery Resources of the Indian Ocean, the Committee stressed the urgency of assembling material on which substantive action could be recommended, and desired that the views of the Indo-Pacific Fisheries Council on its subject matter should be ascertained. The Committee desired that the Working Party should, if possible, present its report to the Second Session of the Committee.

62. The Committee, having no other business to transact, adopted its Report.

MATTERS REQUIRING THE ATTENTION OF THE COUNCIL

The following matters specifically require the attention of the Council:

- (a) The Rules of Procedure of the Committee (para. 3 and Appendix C). These need to be confirmed by the Council.
- (b) The Committee's recommendation that the FAO Council consider the areas of competence and constitutional status respectively of the Committee on Fisheries and the Technical Committee on Fisheries of the Conference (para. 8).

- (c) Revision of the Statutes of the Regional Fisheries Advisory Commission for the South West Atlantic (CARPAS) (para. 28).
- (d) The Committee's decision to establish a Working Party on the Rational Utilization of the Fishery Resources of the Indian Ocean and to invite the USSR to membership, subject to the approval of the FAO Council (paras. 59, 61 and Appendix G; and paras. 19 to 25).

APPENDIX A

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* * * * *

AGENDA

(Adopted 13 June 1966)

1. Election of the Chairman
2. Election of Vice Chairmen
3. Adoption of the Agenda and arrangements for the Session
4. Adoption of the Rules of Procedure (Document COFI/66/3)
5. Review of programs of work of FAO in the field of fisheries
6. International co-operation in fisheries
 - (a) Role of Committee on Fisheries in relation to other international fishery bodies.
 - (b) Rational utilization of the pelagic fishery resources in the Indian Ocean
 - (c) Other fishery problems of an international character
 - (d) Desirability of international convention under Article XIV of FAO Constitution
7. Preliminary review of items for consideration at future sessions
 - (a) World appraisal of fishery resources
 - (b) Utilization of fishery resources
 - (c) Economic aspects of fishery management
 - (d) Training in the field of fisheries
 - (e) Promotion of the production and use of Fish Protein Concentrates
8. Relationship of the Committee on Fisheries to the Advisory Committee on Marine Resources Research (ACMRR)
9. Establishment of Sub-Committees, subsidiary working parties or study groups under Rule XXX-10
10. Date, place and agenda of next session
11. Any other business
12. Adoption of Report and Recommendations

APPENDIX C

RULES OF PROCEDURE OF THE COMMITTEE ON FISHERIES

RULE I

Officers

1. At the first session after the election of its members by the Council, pursuant to Rule XXX-1 of the General Rules of the Organization, the Committee shall elect a Chairman, a Vice-Chairman and four other Vice-Chairmen from among the representatives of its members, who shall remain in office until the election of a new Chairman and new Vice-Chairmen and who will act as a Steering Committee during sessions.
2. The Chairman, or in his absence the first Vice-Chairman, shall preside at meetings of the Committee and exercise such other functions as may be required to facilitate its work. In the event of the Chairman and the first Vice-Chairman not being able to preside at a meeting, the Committee shall appoint one of the other Vice-Chairmen or, failing these, another of its members to take the chair.
3. The Director-General of the Organization shall appoint a secretary, who shall perform such duties as the work of the Committee may require and prepare the records of the proceedings of the Committee.

RULE II

Sessions

1. The Committee shall hold sessions as provided in Rule XXX-4 and 5 of the General Rules of the Organization.
2. Any number of separate meetings may be held during each session of the Committee.
3. The sessions of the Committee shall in the years immediately following a regular session of the Conference be held at the seat of the Organization; in other years they may be held in another place in pursuance of a decision taken by the Committee in consultation with the Director-General.
4. Notice of the date and place of each session shall normally be communicated at least two months in advance of the session to all Member Nations and Associate Members of the Organization, and to such nonmember nations and international organizations as may have been invited to attend the session.

5. Each Member Nation of the Committee may appoint an alternate and advisers to its representative on the Committee.

6. Presence of members representing a majority of the Member Nations of the Committee shall constitute a quorum for any formal action by the Committee.

RULE III

Attendance

1. Participation of international organizations in an observer capacity in the work of the Committee shall be governed by the relevant provisions of the Constitution and the General Rules of the Organization, 1/ as well as by the general rules of the Organization on relations with international organizations.

2. Attendance by nonmember nations of the Organization at sessions of the Committee shall be governed by the principles relating to the granting of observer status to nations adopted by the Conference.

3. (a) Meetings of the Committee shall be held in public, unless the Committee decides to meet in private for discussion of any items on its agenda.

(b) Subject to the provisions of subparagraph (c) below, any Member Nation not represented on the Committee, any Associate Member or any nonmember nation invited to attend in an observer capacity a session of the Committee, may submit memoranda and participate without vote in any discussion at a public or private meeting of the Committee.

(c) In exceptional circumstances, the Committee may decide to restrict attendance at private meetings to the representative or observer of each Member Nation of the Organization.

RULE IV

Agenda and Documents

1. The Director-General, in consultation with the Chairman of the Committee, shall prepare a provisional agenda and shall normally circulate it at least two months in advance of the session to all Member Nations and Associate Members of the Organization and to all nonmember nations and international organizations invited to attend the session.

1/ It is understood that in this context the terms "Constitution" and "the General Rules of the Organization" are to be taken to include all general rules and policy statements formally adopted by the Conference and intended to supplement the Constitution and the Rules, such as the "Statement of principles relating to the granting of observer status to nations," the "Principles and procedures which should govern conventions and agreements concluded under Articles XIV and XV of the Constitution" and commissions and committees established under Article VI of the Constitution and the general rules regarding relationship between the Organization and governmental and nongovernmental organizations.

2. All Member Nations of the Organization and Associate Members acting within the limits of their status may request the Director-General normally not less than 30 days before the proposed date of the session to insert an item on the provisional agenda. The Director-General shall thereupon circulate the proposed item to all members of the Committee, together with any necessary papers.
3. The first item on the provisional agenda shall be the adoption of the agenda. The Committee in session may by general consent amend the agenda by the deletion, addition or modification of any item, provided that no matter referred to it by the Council or on the request of the Conference may be omitted from the agenda.
4. Documents not already circulated shall be dispatched with the provisional agenda, or as soon as possible thereafter.

RULE V

Voting

1. Each member of the Committee shall have one vote.
2. The decisions of the Committee shall be ascertained by the Chairman, who shall resort, upon the request of one or more members, to a vote, in which case the pertinent provisions of Rule XII of the General Rules of the Organization shall apply mutatis mutandis.

RULE VI

Records and Reports

1. At each session, the Committee shall approve a report embodying its views, recommendations and decisions, including, when requested, a statement of minority views.
2. Reports of sessions and records of open meetings of a session shall be circulated to all Member Nations and Associate Members of the Organization and to nonmember nations invited to attend the session, as well as to interested international organizations entitled to be represented at the session.
3. The comments of the Committee on the report of any of its subsidiary bodies and, if one or more Member Nations of the Committee so request, the views of those Member Nations, shall be incorporated into the Committee's report. If any Member Nation so requests, this part of the Committee's report shall be circulated as soon as possible by the Director-General to the nations or international organizations which normally receive the reports of the subsidiary body in question. The Committee may also request the Director-General, in transmitting the report and records of its proceedings to Member Nations, to call particular attention to its views and comments on the report of any of its subsidiary bodies.
4. Whenever a private meeting of the Committee is held, the Committee shall, at the beginning of that meeting, decide whether a record of the meeting shall be kept and, if so, what circulation, not exceeding that provided for in paragraph 2 above, shall be given to it.
5. The Committee shall determine the procedures in regard to press communiqués concerning its activities.

RULE VII

Subsidiary Bodies

1. In accordance with the provisions of Rule XXX-10 of the General Rules of the Organization, the Committee may, when necessary, establish subcommittees, subsidiary working parties or study groups, subject to the necessary funds being available in the relevant chapter of the approved budget of the Organization, and may include in the membership of such subcommittees subsidiary working parties on Study Groups Member Nations that are not members of the Committee and Associate Members. The membership of such subcommittees, subsidiary working parties and study groups established by the Committee may include nations which, while not Member Nations or Associate Members of the Organization, are members of the United Nations.
2. Before taking any decision involving expenditure in connection with the establishment of subsidiary bodies, the Committee shall have before it a report from the Director-General on the administrative and financial implications thereof.
3. The Committee shall determine the terms of reference of its subsidiary bodies who shall report to the Committee. The reports of the subsidiary bodies shall be made available for information to all members of the subsidiary bodies concerned, all Member Nations and Associate Members of the Organization, nonmember nations invited to the session of the subsidiary bodies, and to interested international organizations entitled to attend such sessions.

RULE VIII

Suspension of Rules

The Committee may decide to suspend any of the foregoing Rules of Procedure, provided that 24 hours' notice of the proposal for the suspension has been given and that the action contemplated is consistent with the Constitution and the General Rules of the Organization. 1/ Such notice may be waived if no member objects.

RULE IX

Amendment of Rules

The Committee may, by a two-thirds majority of the votes cast, amend its Rules of Procedure, provided that such amendment is consistent with the Constitution and the General Rules of the Organization. No proposal for the amendment of these Rules shall be included in the agenda of any session of the Committee, unless notice thereof has been dispatched by the Director-General to members of the Committee at least 30 days before the opening of the session.

1/ See footnote to Rule III, paragraph 1.

APPENDIX D

OPENING ADDRESS BY THE DIRECTOR-GENERAL

Distinguished Delegates, Ladies and Gentlemen:

I have much pleasure in opening the First Session of the Committee on Fisheries and in welcoming you to the Headquarters of the Food and Agriculture Organization.

2. You are meeting at a moment when the world is deeply preoccupied with questions of food supply. The next twenty or so years are likely to be especially critical. The present rapid growth of population will inevitably maintain its momentum at least to the end of this century. Without a corresponding increase in food supplies, there must be several shortages that might well reach famine proportions. The most pressing need in many parts of the world is that for high quality protein.

3. It was in this urgent human context that the Conference, at its Twelfth Session in November 1933 demanded that in relation to fisheries "FAO should have the status of being the leading inter-Governmental body in encouraging rational harvesting of food from the oceans and inland waters." I at once put in hand a complete re-assessment of FAO's role in fishery development which, as in other fields, is determined by the basic aims of the Organization: namely, improving nutrition, well-being of rural populations and promoting economic development. After exhaustive consultations with member nations and interested international bodies, I came to the conclusion that this Organization had a very special role to play at this time. The seas and inland waters of the world have an enormous unrealized potential of high-quality protein, but it is only recently that the application of science and technology, together with modern management and improved marketing, have made possible a much greater contribution from the fisheries to protein supplies. My re-assessment of FAO's role in fisheries was, therefore, viewed against a background of urgent nutritional need, rapid technological advance and opportunities for economic growth.

4. In the last decade or so the production of the world's fisheries has already doubled. In the developing countries where there is already heavy pressure on the land, more and more attention is being directed to the potentialities of the sea and inland waters. Larger modern commercial enterprises are being established, but with varying degrees of success due to lack of commercial and technical experience. Governments are turning to FAO for operational and training assistance in developing their fisheries, and in establishing the necessary research programs and Government services. As the rapid growth of our programs in this field demonstrates, FAO is trying to meet the challenge, but needs to be much better equipped.

5. The review made it clear that FAO had been unable to develop adequate collaboration with a number of international bodies concerned with fish resources assessment and management. There were many gaps and anomalies in the working of these bodies and a first necessity was to try and promote a more rational and a more complete arrangement. Also certain important fields of activity had remained inadequately covered by FAO or any other agency, such as the organization of co-operative fishery exploration and assessment of fish stocks which must be systematized within a world plan; the establishment of a world fishery data center; the systematic world-wide compilation of economic intelligence, since economic factors are becoming increasingly recognized as important in the development and management of international fisheries; methodology of development planning in fisheries; management and marketing studies relating to international fisheries; studies on the economic analysis of fishery industries, for instance in the management of large distant water fleets and overseas bases; methods of training for fishery administrative and research officers to staff government services and for the managers and staff of fishery enterprises; and studies on the economic utilization of fishery resources, fish handling, fish preservation and canning, and the development of new fish products such as fish protein concentrates.

6. Most of the stocks of fish which are available for increased exploitation lie wholly or in part in international waters, and as great new fisheries develop on the high seas, new problems arise. It soon becomes urgently necessary to carry out research on the stocks of fish as they become more heavily exploited, and to arrange for the collection and publication of statistics and other basic information. Even more important, for production to be further increased and gains maintained, it is urgently necessary that exploitation of the resources be carried out in a rational manner; otherwise, fishing becomes uneconomical and the resource itself may be impaired. Machinery for all this must, therefore, be created where it does not exist; for bringing nations sharing a fishery to the conference table to agree and share programs of research; to provide the necessary statistics; and, above all, to agree in good time on management measures when the yields are approaching the levels, as ascertained by fishery scientists and economists, that should be maintained indefinitely. To be effective, such management must be agreed upon by all the nations concerned. This Organization is uniquely qualified to provide such machinery for the co-ordination of research and exchange of information, and for initiating, where necessary, the establishment of regulatory bodies by the nations concerned.

7. It was to meet these urgent demands for raising FAO's work in the field of fisheries to a new level of effectiveness, and provide a framework for international consultation on a world-wide basis, that I proposed to the FAO Council and later to the Thirteenth Session of the Conference last November a twofold action: first, the creation of an Intergovernmental body to report to the Council or tender advice to the Director-General on all matters of policy and on important international fishery problems, as well as on the program of work of the Organization in the field of fisheries; and second, the establishment within the FAO Secretariat of a Department of Fisheries, in place of the former Fisheries Division - the organization and staffing of which was to be spread over three biennia. The Conference accepted both these proposals, and this Committee and the Department have since been set up in pursuance of this decision.

8. Your terms of reference (fully set out in document COFI/66/2 before you) therefore include, as one of your principal functions, periodic general reviews of fishery problems of an international character, and the appraisal of such problems and of their possible solutions with a view to concerted action by nations, by FAO and by other intergovernmental bodies. The Conference specially enjoined us to supplement and not supplant the activities of those long-established organizations which already provide machinery for international consultation in some parts of the world and whose work is effective, but it also recognized that with the intensification of world-wide fishing operations that is now going on, existing international machinery is no longer adequate. Co-operation among all international bodies concerned with fisheries is essential and it will be for your Committee to provide leadership in this. As far as possible the FAO Department of Fisheries already collaborates closely, and I think fruitfully, with many existing bodies, particularly on the technical level.

9. In performance of your second main function, you are charged with reviewing the programs of work of FAO in the field of fisheries and their implementation. In this capacity your Committee will play an important part in ensuring that the Department of Fisheries as it is progressively developed and staffed provides much more adequately the assistance that Member Governments require, both individually and collectively, in making full and effective use of fishery resources.

10. It is appropriate, therefore, that you have before you for consideration, as the first substantive item on your agenda, a general review of the Department's current programs, together with my tentative proposals for the Department's work under the Regular Program for FAO for the 1968/69 biennium. These will be included eventually in my program and budget proposals for FAO as a whole. These tentative proposals have been framed in the light of general guidance from the Thirteenth Session of the Conference, especially on the search for new sources for food. The additional staffing and resources proposed for the Department of Fisheries will complete the second phase of the six-year growth period approved in principle, near unanimously, by the Thirteenth Session of the Conference. The proposals follow the lines laid down in the Program of Work and Budget for 1966/67 as approved by the Conference and are designed as was stated there "to ensure an orderly and phased strengthening of the Organization's work in the field of fisheries at a rate of growth both realistic in terms of management and staffing and yet meeting to some extent the urgent immediate requirements of the world fishery situation". The detailed justification for the specific proposals now made are indicated in document COFI/66/5 before you. Mr. Jackson and his staff will, of course, provide additional information as required when the matter comes up under your agenda.

11. I myself would like to invite you to support my proposals with any further recommendations which you as a Committee may wish to add to them, in order to give effect to this second phase of the six-year program; I consider that what I have proposed is essential if the Organization is to discharge its rapidly growing responsibilities to its Member Nations in this field. I would also ask you to consider these proposals in relation to the even greater responsibilities and tasks of the Department of Fisheries which lie outside the Regular Program but must rely to a great extent on the expertise of Regular Program staff and on the support of Regular Program activities. I refer particularly to the extensive field work carried out with the support of the United Nations Development Program in all parts of the world, to the new rapidly growing activities in support of the Joint FAO/IBRD program and similar activities. To give you the order of magnitude of these programs and the responsibilities involved, the Department of Fisheries is currently responsible for twenty-four approved field projects under the United Nations Development Program (Special Fund) representing some twenty-five million dollars of UNDP funds, together with fifty million dollars of counterpart funds put up by the recipient countries; with a total of around six hundred and eighty man/years of expert staff. To this may be added some ten projects not yet approved but at an advanced stage of negotiation. Under UNDP Technical Assistance a further seventy-eight field experts, thirty fellowships, and eight training centers and seminars are programmed in the current biennium.

12. The other most important item on your agenda is entitled "International Co-operation in Fisheries". Here you will not only generally define your own role in relation to other fishery bodies, but will be confronted straight away and in concrete form with the question of the adequacy of existing machinery to deal with newly emerging or newly recognized international fishery problems. One specific problem which the Conference has referred to you is that of the pelagic fish resources of the Indian Ocean. In considering what should be done in this case, you will no doubt bear in mind the steps that have recently led to the drawing up of an International Convention for the Conservation of Atlantic Tunas by a conference convened by FAO, at Rio de Janeiro, at which representatives of seventeen nations widely differing in interests, economic and political ideas, and in degree of development, all collaborated harmoniously to a common purpose.

13. Other problems of an international character that deserve your attention are exemplified in document COFI/66/8 and I will mention here only one: that of marine pollution about which concern is felt by a number of governments as well as international organizations besides FAO.

14. Obviously, at this your first session, you cannot deal with all the questions that you are qualified to handle, but you might like to take a quick look at several of them to decide which should be brought up for more thorough review at your next sessions and what preparation should be undertaken in the meantime. Item 7 of your agenda provides for such a preliminary review and document COFI/66/10 lists some items for it. They include a world appraisal of fishery resources; economic aspects of fishery management - and it must be remembered that management should be directed toward improving economic yields and not purely toward maximizing physical yields; problems of utilization including fish protein concentrates; and lastly, but not least in importance, the question of education and training of fishery scientists and operators at all levels.

15. The problems facing the world cannot be solved by FAO alone. Each and every interested Member Nation will need to think and act on its own in many of these matters, and each Member Nation may also need to correlate more closely its policies toward the programs of this Organization and those of other international agencies of which it may be a member. I am glad to state that on the Secretariat side we already have close and cordial working relationships on several of these fishery matters with, for instance, UNESCO, ILO, IMCO, WHO and WMO and hope to strengthen these relationships further, especially in direct collaboration in specific activities and field projects. I look forward therefore with confidence to the support of Member Nations in our endeavours to develop effectively and efficiently these cross-ties with other agencies of the United Nations family.

16. If your agenda already looks somewhat heavy, and may become even longer if you have additional items to propose, this is some indication of the needs and urgencies which have called your Committee into being. The problems before you are complex and the policies to be recommended call for expert consideration. It is most gratifying therefore that Member Nations have taken to heart the special request of the Conference, in appointing so many high-ranking fishery administrators and scientists to represent them on this Committee. It is also significant that a number of Nations not members of the Committee have nevertheless sent some of their senior fishery officers to act as observers. I have no doubt that your deliberations will be well informed and therefore effective, and I look forward with the greatest interest to the conclusions and recommendations that will emerge from your discussions over the next few days.

17. At the end of these remarks, it remains for me to conduct the election of the Chairman of this Committee. I accordingly call for nominations.

APPENDIX E

ADDRESS TO THE COMMITTEE ON FISHERIES BY DR C.E. LUCAS, FRS

Mr Chairman, Distinguished Delegates, Ladies and Gentlemen, may I first thank Mr Jackson for his kind remarks and then say how very much I appreciate the opportunity to address the new FAO Committee on Fisheries. This would be an honour in any event but, in particular, I appreciate it as yet another of the privileges I have been granted, to participate in international fisheries work over most of twenty years; first, and still today, with colleagues in the International Council for the Exploration of the Sea (our oldest international body), and on many occasions during that period with the International Commission for the Northwest Atlantic Fisheries, with the Intergovernmental Oceanographic Commission, and with the Fisheries Division of FAO, which I with many others now gladly recognise as a new Department of FAO, a Department which will be greatly strengthened in its world-wide tasks by the establishment of the Committee on Fisheries whose first meeting this is.

I have stressed the world-wide tasks facing the new Department of Fisheries, although I realise that none will appreciate this more than you do, nor indeed the members of the Department itself. In one sense the international nature of fisheries problems and work needs no stressing; they are as international as the fish themselves. I speak, however, as a scientist, and would like, if I may, to give you something of the scientist's views of some of the problems with which I think you will be concerned, sooner or later. They will, of course, be my personal views, although I think most will be shared by many of my colleagues, partly because I shall not hesitate to draw upon their knowledge and experience, and partly because of the recognised tendency for scientific views to be relatively objective, and therefore neutral. One of the best examples of this is the tradition that the members of scientific "assessment" working parties ultimately serving the Commissions of the North Atlantic are selected not for their nationality but for their ability and knowledge of the subject, in the expectation that this will best help to provide reliable and unbiased reports.

It is indeed traditional for science to be international, to take the whole view rather than a national one, and nowhere has this been more appropriate - and, I think, helpful - than in marine and fisheries research, where the scientists (whether academic or applied) are faced by the adventure and common challenge of largely unknown and inimical environment, extending over the whole world. It is

perhaps not surprising that, faced with this common challenge, they found international contact and collaboration not only valuable and stimulating, as most scientists do, but that quite early they found it essential. As early as the turn of the 19th Century, a group representing several European countries, with governmental support, decided to collaborate, as the International Council for the Exploration of the Sea, to further the rational investigation and exploitation of the sea, with a view (and I quote) to "turning its resource to the best advantage in the present without prejudice to the future". That would be a worthy objective for any scientific body, but it is especially relevant to those concerned with the oceans, in any of their many aspects - for we must never forget that, in most respects and over most of their area, they are a common property and the providers of common facilities and resources. "The sea is indeed still our major highway; it is the very active natural boundary of all our lands, with all that signifies, and an almost incalculable natural source of power. With the atmosphere, it controls our weather and influences our climate; it is also a natural solution of almost all the chemical elements and an extraordinary variety of inorganic and organic compounds. As the envelope of a sea-bed covering 70 percent of the earth's surface, it must be as rich as or richer in minerals than the land. In addition, it is the source of our valuable marine fisheries, and it is with these that this talk will be principally concerned, but the other aspects of the sea's significance are very relevant!"

All these statements are truisms, yet I wonder whether we do not usually accept them too casually. It is some years now since I suggested that in many respects we knew more of the surface of the moon than we did of the sea-bed, and perhaps the best justification of that remark is that it is now being seriously debated! Whether true or nearly true, is it not a rather absurd situation? There is a very real sense in which we are still only touching the surface, both in our understanding of the seas and their processes and in our utilisation of their potential. When a research and development effort is available, which the area of nearly three-quarters of the earth's surface deserves, we may well come to wonder why for so long we were so slow, and this should prove to be as true of the living resources as of the others.

I have in view, then, fish and fishermen, and fisheries scientists and, of course, fisheries administrators - and I want to try to keep in mind two largely parallel themes, which are necessarily linked by the history and prospects of man and his economics. Fish in their many varieties are the products of a long evolution, very delicately and beautifully attuned to the ever-varying environment which is the sea; yet this is an environment which is foreign to the fishermen and within it the fish fluctuate greatly in time and space. The history of fishing has everywhere been broadly the same; despite the dangers, and the handicap of literally working in the dark, the fisherman has first established a chancy subsistence living and then, by increased knowledge and improved techniques, slowly extended his operations to provide a surplus for exchange or sale. Sooner or later his local source has proved inadequate and his increasing skill and daring has found another which is more productive. The history of fisheries around the west coasts of Europe illustrate this clearly, as they have spread over the centuries first from the shores and into local waters, then over the North sea, for example, and thence to Newfoundland and Iceland, the Barents Sea and Greenland, and now even further afield. The story has ever been one of an increasing take, as FAO world statistics still show, first in the immediate area of operation and then, as that proves inadequate, by seeking other areas further afield. By no means always have the nearer waters proved wholly unprofitable, as the North Sea well shows (it is now more "productive" than ever), but sooner or later they have for the larger-scale fishing units proved less profitable. Too often, however, they have proved less profitable than they might have been, certainly in terms of catch per unit of effort, and in too many sad cases in terms of total catch. This is "over-fishing" and we have seen it extend to or threaten a number of familiar fisheries, many of which can still be pursued under these sub-economic conditions, and especially to various whaling activities, since the whale is more vulnerable to excessive effort than are most fish.

Yet, despite the unthinking and uneconomic way in which we have let our various fisheries develop (and despite other dangers with which you may be concerned, such as those of pollution, etc.) it is striking - and very fortunate in a world hungry for animal protein - that the world's fish catches continue to increase, and at a remarkable rate. This is largely due to improvements in fishing methods, ranging from modest improvements in local technical efficiency in countries which are still under-developed (and in which FAO has played a valuable role), to the massive increases in efficiency (both at sea and ashore) of the major fishing countries, which have at once permitted much more intensive exploitation of more or less local stocks and, above all, permitted (and even demanded) the rapid deployment of immense fleets as soon as any new resource has been discovered. In recent years, especially, a new factor has been the highly mobile, self-contained, factory ship which can rapidly be diverted from one fishery to another as circumstances dictate, and even from one species to another. The fortunate anomaly is that over-all world catches can still increase, while famous fisheries are threatened or overtaken by overfishing; the danger is that each new fishery will rapidly follow the same course as the others. Here are at once the main reasons for the increase and one of the main problems for the fisheries administrators to face. For the scientists - and the catches - are revealing that, even in several of the most successful of the fisheries developed in recent years, fishing has rapidly reached the level at which further effort on the stock in question will yield no greater, and perhaps even less, catch. As the pace increases the rate at which the maximum yield is reached, or exceeded, has increased - so much so that the remarkable fishery off Peru, increasing from less than two million tons to nearly nine million in five years, may already be threatened.

A few moments ago, I said that the new developments not only permitted but to some extent demanded the rapid progress we have seen, and this is because of the partial solution of others of the fishermen's earlier problems, those of transport and especially preservation. Indeed, solutions to these are essential, if the seas are ever to make their appropriate contribution to the problem of protein shortage among broad sections of an increasing population. Fish is essentially a perishable commodity, and even when fishermen were restricted to the shore, they could only take advantage of the excess above their immediate needs if they could preserve it for the future, or transport it where it was needed, which also demanded preservation. Many partial solutions were found, which have provided us with some tasty and some less tasty products. Two have been particularly successful. The first, by a deep cooling process, can preserve fish in their caught condition, at an added cost. The second, by a degradation process, has at different times produced meal for fertilisers and, above all, for animal food, at much lower prices. Unfortunately, despite the urgent need for more animal protein for human consumption, nearly half of the great increase in world fish production has gone the second way, as animal food; with inevitably a considerable loss in efficiency of conversion to human food, and ultimately a greater cost. This loss will not be overcome until we can use that great quantity of protein, either as fish or as palatable meal, for direct consumption in any part of the world. Meanwhile, the demand for animal feeding stuffs, created by capital invested ashore and afloat, increases!

Turning now to research, in a general way it has played its part in most of the developments which have taken place: partly in the production of more efficient units on shore and at sea, partly in creating new resources and perhaps especially in the development of important fishing accessories, such as radio, radar, echo-location, weather forecasting, etc. While the relatively few marine and fishery scientists in the world have played their part in some of these, they have necessarily concentrated their efforts on studying the fish and their habits, on their reproduction and growth and mortality (both natural and by fishing), as well as on their vast marine environment and their interrelationship with it. The prime objective of the fishery scientists has been to assess what is the most that can economically be obtained from the resources being exploited, together with experimental work (ranging from studies of basic production to exploratory fishing) to predict or identify what further resources may be available.

I would not wish to distinguish unduly between the values of these and other projects on which the scientists are engaged. It was, however, this process of assessment that was the most immediately important, and that has become increasingly important, as the various fishery commissions are appreciating. Even though there is a long way to go, considerable progress has been made, and this progress has nearly always been distinguished by one characteristic. This stems from the foresight of those pioneers of 1899-1902 who even then foresaw the possibilities and the dangers. It is illustrated by the fact that, more often than not, it was the scientists who stimulated governments to the need for action rather than the other way round. In other words, despite the scale of the problems, they were usually foreseen in time, and at least broadly assessed: as for instance the dangers of overfishing in the North Sea, and of whaling in the Antarctic Ocean. Unfortunately, not always has the advice been taken, or taken thoroughly enough; or, if taken, it has been taken too slowly.

The present problems of the Arctic fisheries from Novaya Zemlya to Greenland, of the historic Newfoundland fisheries and also of the whaling industry, are typical of the problems of over-exploitation which have been met over the years, since the earlier phases of whaling collapsed as the result of the prospect of huge profits drawing a greater fishing pressure than the growth and reproduction of the stocks could stand. And typically, as with whaling, this disease of the fishery has had to become very serious before those most concerned began to consider the steps to be taken to bring about recovery, much less take them speedily. Thus, the scientists were reporting on the North Sea problems in the late twenties and early thirties, although it was not until 1954 that all too modest regulations began to be implemented under the Convention of 1946. To take a more recent example, the scientists were reporting in the late fifties on the danger to the arctic cod and haddock stocks, and more positively in 1964 that their present state was such that rather more fish could be taken in all with about one-half of the fishing effort and, of course, at about one-half of the cost per unit of catch. But despite the crystal-clear evidence, which in this instance none are inclined to debate, it has not yet proved possible to take the obviously necessary action. There are, admittedly, social and economic problems to be faced and resolved. These and related problems are being considered most earnestly by the Northeast Atlantic Fisheries Commission, which is advised by ICES through its Liaison Committee. Unfortunately, the problems are not eased by the fact that the Research and Statistics Committee of the International Commission for the Northwest Atlantic Fisheries is advising that the corresponding stocks from Greenland to Newfoundland may be approaching their optimum yields; so that to suggest a simple diversion of effort from the east to the west provides no satisfactory solution. There are, of course, other fish on some of the grounds and other possible grounds in the Atlantic, and already several countries are looking at them. Undoubtedly, major developments will follow. The new and powerful mobile fishing units I mentioned earlier will make this easier, in one sense, but at the same time they are intensifying the problem by the power and rapidity with which they can attack and reduce a stock. The later phases of the blue and fin whale fisheries showed this clearly, as the recent rapid development of tuna fishing is also showing in many parts of the world, where serious inroads were made into new stocks before even the collection of international statistics of the fishery had been organised.

These are examples of the almost traditional problems, for which solutions are now available, if only they can be adopted in time. But they are being characterised more and more by an increasing rapidity of development, which is going to be one of the key problems of the future. On the one hand, governments and industries find it difficult enough to agree to legislate adequately for the earlier problems, whilst others are overtaking them. On the other, the scientists may find it more difficult to predict the dangers in advance as specifically as they used to do - except in the general way of knowing perfectly well what must happen in a given set of circumstances, i.e., that history will repeat itself. Indeed, as in some other of the world's problems, there is no denying that the very progress of science itself - from echo-location to the prediction or discovery of new productive areas and far more productive resources -

accelerates the rate of development and intensifies the problem. The answer is to make more sensible use of our discoveries! Undoubtedly, we are still very far from a rational exploitation of the sea. Our present course is a most irrational one! Somehow, through the actions of nations, regional bodies and the world-wide authority of FAO, we have to find a surer way to manage the presently-used resources to the best advantage, while searching with the aid of science for new ones which are urgently needed to help solve the world nutrition problem - but new ones which shall, from the beginning, be studied and developed at a speed which will be rewarding and not defeating.

This, I feel, is your biggest problem. For here we are not merely concerned with the conventional fisheries, those producing more or less familiar food (whether as fish or meal), and which may well grow to more than twice the size of the present total, but also with the far greater quantities of the other life in the sea, from unconventional molluscs and shellfish to the animal plankton at least, to which research is directing our attention. And, lest this be thought any exaggeration, scientists are already looking, for example, at the great stocks of planktonic "krill", "whale food", in the Antarctic and elsewhere, as a source of human food, direct or indirect. But, and I can say this with certainty, the same risks, and more, face the industries which will tackle these far greater resources: that a too eager cropping of what is there to be taken at the moment will rapidly lead to over-investment and over-cropping, so that the resource is not utilised rationally - a very appropriate word - quite apart from dangers of disturbing sooner or later the natural balance of production in anything like the form to which the world has been accustomed. The potential rewards are so great that the penalties of "greed" must be resisted!

What, then, is the solution? I will not attempt to suggest that I can give you all of the answers, to a type of problem which has faced man for centuries on land and in the sea, from too rapid cropping of grass-lands and forests to the slaughter of the buffalo herds and whale stocks. But some essentials are obvious, and perhaps the first of these, as we have found for all fisheries, is that we shall at least know, and measure, what is happening around us. In other words, there must be international agreement to provide for the scientists working with the appropriate regional or world authority the necessary catch and biological statistics of every fishery from the moment it develops, including the period of survey and exploration. That is to say, full details of the quantities and composition of all catches, and satisfactory measures of the fishing effort used in taking them. While as much more as possible of what we usually call biological statistics, of sex, size, age, etc., is also necessary if the scientists are to be able to make and analyse a running census of the population concerned. These are essential if any understanding of the population processes and prediction of their trends is to be provided.

There are, of course, those who will say that the necessary collection of statistics of various kinds will cost too much, that research costs too much, that research in any event moves too slowly while fishery events move too quickly for effective action, and that research has not so far solved any of the problems. As a scientist, perhaps it is not surprising that I disagree. But this is not just professional loyalty; it is, I hope, sound common sense. I think such views are based on an incorrect appreciation of the situation. It is not merely that here we are talking of the living resources of nearly three-quarters of the earth's surface (and an area which acre for acre is at least as productive as the land), while the staffs of marine and fisheries research are but a fraction of those engaged in agriculture. It is that research in this field has already demonstrated its worth (and that worth could have been far greater), just a those few fisheries commissions have demonstrated their worth which have, however cautiously, taken small steps in the direction of conservation. For example, we think of the whaling situation as nearly disastrous, as in some respects it is. Yet a simple calculation shows that we are in fact much better placed than if no research had been done, and if the Whaling Commission had not taken the hesitant steps it did during the last few years. Although a fishery worth some £50 million a year has been reduced to a small fraction of that, it remains true that

the steps taken have prevented the total yield over the last 20 years from being some £50 million less than it was! Again, disappointment is justified that the result of 50 years of research in the North Atlantic and nearly 20 years of Commission activity have been associated with continued and still developing overfishing. Yet there is no doubt that over-all catches would have been significantly poorer if the knowledge had not been available and the various small steps in conservation taken; and similarly with some other Commissions. However roughly assessed, these relatively modest savings or benefits, by way of preventing further depletion or by positive conservation, would more than pay for all the cost of our fisheries commissions and related research. Meanwhile we know, and this is certain, how much greater those benefits or savings could have been - or could henceforth be! So we must endeavour to base our actions and let them be deliberate actions - on the best scientific understanding, and so we must continue to expand, and extend, the statistics and research behind that understanding until it is equal to the scale of the situation and thus of the problems.

There still remains this question of the increasing tempo of modern development through which the population balance of a vast natural stock may be swung past, and well past, the optimal level incredibly quickly. Even given some form of international control, can even a strengthened body of able scientists keep pace? Above all, can they continue to provide predictions which are reasonably certain, or will their assessments in these circumstances become more and more hesitant, thus adding to the uncertainties which industries and administrators already have to face. Here we must recognise that scientific assessments are never certain, in the sense of being absolutely correct; indeed, little if anything is certain in this sense. But this should not be taken as an excuse for inaction! Science deals in probabilities, and some of its assessments are very probable, while others are less probable, or even uncertain in the scientist's sense of the word. As formulated, the assessment of the prospects of the north-east arctic cod stock under recent fishing intensities is as probable as any prediction can be, as also are the whaling assessments. I think it is fair to say that those concerning the northwest Atlantic are probable but rather less certain in detail, while the assessment made of the Southern North Sea herring problem, and the contingent advice, is necessarily uncertain, as the scientists concerned made abundantly clear.

I think that two things are relevant here. First, that competent scientists will always provide an indication of the degree of probability in their estimates. The other is that marine science and fishery research is steadily acquiring a corpus of knowledge which will in fact enable its own development to proceed faster and more surely, as we see in other branches of science. This is clearly seen in the rapid rate at which the ability to assess a population situation has increased in recent years, from the slow and uncertain steps of the process in the twenties and thirties to the relatively rapid rate at which a first assessment has been made of the Anchoveta fishery. In this development, too, fisheries research has the great advantage of the international tradition of collaboration and comradeship to which I referred earlier, which has enabled scientists from various parts of the world to join together, without prejudice or misunderstanding, in elucidating situations in which none have any personal interest, other than that of a desire to unfathom the processes involved, and to make the best use of the resources available to us.

Statistics are therefore essential and a steadily developing body of first-class research is essential. But neither will be sufficient without sensible control of the rate of development. It can, of course, be said that rational control is impossible without the statistics and research on which to base it but, while this is true, it is only a partial truth. Just one facet of the real truth is that, even given adequate statistics and scientific understanding, adequate control has seldom been exerted - and without relevant control the research itself is almost useless. There are, of course, individual and national interests at stake, and these must be recognised. But they must not irrationally be rated as the chief or even the only consideration, and sometimes I wonder whether the scientific exposition has been clear enough for general comprehension. To revert for a moment to the example of arctic cod stocks, presumably the reason why it has not been decided that the local fishing intensity must in common sense be reduced

immediately is that such a reduction would have very different individual and national impacts. This is undoubtedly so, but has the common penalty of failing to do this, and the common benefit of doing it, been fully appreciated?

The situation is typical of others which have existed or may yet arise. Despite overfishing, until recently at least it has remained profitable enough to fish in the Arctic, but it would have been more than twice as profitable to have reduced the over-all intensity by half. There could be more than twice as such fish caught per unit of effort - and for all concerned. Again, while an effort reduction of the order of one-half would be justified, any reduction, however slight, would be beneficial; so that there need be no lengthy arguments as to whether such a great reduction is too much to make at once: or even as to the precise degree of certainty implied in the assessments! Such facts, amply supported in the instance of whaling, indicate the kinds of rewards to be won, just as they indicate the penalties which are being and will be incurred with uncontrolled fishing. These, surely, are large enough, not only to induce us to take rational measures when the facts are available and reasonably certain, but to persuade us for ever of the dangers and penalties of irrational development - and to recognise internationally that, even if we are not yet sure of all the answers, unrestricted development is always dangerous. It seems to me that, quite apart from the history which we know, and the more recent scientific demonstrations we have been given, on reflection we all know within ourselves that our natural urge to exploit must be kept in rein; that otherwise we will suffer as much as those we destroy; that even the most mercenary of us would ultimately benefit from more rational action. Can any of us fail to recognise that here we have great responsibilities to our fellows, and to our children.

In all this we should not forget the guidance given in the fisheries Articles, of the UN Law of the Sea. In recognising the common nature of the High Seas and their resources, and the need for international action in safeguarding the latter, the Articles record that each and all of us have rights in these, but that we have corresponding duties. These duties include so conducting our operations that together we shall reap the optimum catches sustainable and that, in the first place, these shall be for human consumption. The Articles further require that decisions, and measures to be adopted internationally, shall be based on scientific findings. In conclusion, a special resolution draws attention to the value of international conservation organisations and recommends that states concerned with conservation problems should act through the medium of such organisations.

I submit to you that the evidence available to us shows that we urgently need further action from those organisations already in existence, and that we urgently need further organisations, for areas or fisheries not already covered: and all of them empowered by the wording of their agreed articles, and especially by the spirit of those subscribing, to take speedy and adequate conservation action as soon as it is required.

Somehow, fishing must be controlled and, while the actual form of control will doubtless be national, in the circumstances any sensible control must be based on international agreement, doubtless region by region, either through existing regional bodies or, where they have not been set up, probably by new ones sponsored by FAO. The essential thing is that international agreement, based on understanding of the processes, be reached speedily - not only because of our keen interest in the resources already being exploited but even more for those to come - and not only in the desirable light of precise knowledge of just what can be expected in particular circumstances, but in the realistic appreciation of, first, the fact that no large-scale development should sensibly proceed faster than our ability to understand the processes governing it, and second, in appreciation of the need to act urgently upon that understanding.

APPENDIX F

RESOLUTION No. COFI/1/1

Sub-Committee on the Development of Co-operation with
International Organizations concerned with
Fisheries

THE COMMITTEE

Implementing

its conclusion that the establishment of a Sub-Committee on the development of co-operation with International Organizations concerned with fisheries was the best way of approaching its tasks in the field of international co-operation in fisheries,

Hereby establishes

in accordance with Rule XXX-10 of the General Rules of the Organization and Rule VII of the Committee's Rules of Procedure, a Sub-Committee to be known as the "Sub-Committee on the Development of Co-operation with International Organizations concerned with Fisheries", the statutes of which shall be as follows:

1. Purpose

The purpose (and terms of reference) of the Sub-Committee shall be to assist the Committee on Fisheries in dealing with the various complex problems resulting from the great number and variety of existing international bodies concerned with fisheries, and the need to improve their co-operation for the sake of better efficiency, and the desirability to make the best use of existing bodies for the benefit of member countries and to foster fisheries development.

2. Terms of Reference

The activities of the Sub-Committee shall in particular include the following:

- (a) to establish with the assistance of the FAO Secretariat a descriptive and analytical compendium of the various international fishery bodies concerned with research and conservation, as well as of other international organizations concerned with fishery matters which the Sub-Committee may decide to include;
- (b) to identify, in the light of the above mentioned compendium and other available information, including that resulting from any survey which the Sub-Committee may deem appropriate to conduct, those gaps which may exist in geographical, species, scientific, administrative and other fields, and to recommend appropriate measures to fill such gaps;

(c) To suggest steps likely to ensure better co-ordination with a view to increasing the efficiency of existing bodies and to submit proposals for establishing or strengthening co-operation between these bodies themselves, on one hand, and with FAO, on the other.

3. Membership

Membership in the Sub-Committee shall consist of the following Member Nations of FAO:

Brazil	India	Poland
Germany, Federal Republic of	Japan	Rumania
Ghana	Pakistan	Spain
Iceland	Peru	U.S.A.

and who shall continue as members until the Committee on Fisheries decides otherwise.

Any Member Nation of FAO that is not a member of the Sub-Committee or any Associate Member, after having notified the Director-General of its intention, may attend sessions of the Sub-Committee in an Observer capacity and participate in the work of the Sub-Committee at the discretion of the Chairman.

APPENDIX G

RESOLUTION No. COFI/1/2

Working Party on the Rational Utilization
of the Fishery Resources of the Indian Ocean

THE COMMITTEE

Implementing

its conclusion that there should be established a subsidiary body of selected countries to study in detail the need for the development of an effective international body for the promotion and co-ordination of investigations into the fishery resources of the Indian Ocean and their utilization with a view to an assessment of their potential as a basis for rational exploitation,

Hereby establishes

in accordance with Rule XXX-10 of the General Rules of the Organization and Rule VII of the Committee's Rules of Procedure, a Working Party to be known as "Working Party on the Rational Utilization of the Fishery Resources of the Indian Ocean".

The Working Party shall study the need for action to promote the rational utilization of the fishery resources of the Indian Ocean and report and make recommendations in this respect to the the Committee on Fisheries as soon as possible. These recommendations shall cover particularly.

- (a) The area and resources requiring attention and the information to be assembled to this effect;
- (b) The nature and scope of investigations to be carried out;
- (c) The kind of international body (existing or new) needed to carry out such investigations and to promote the rational utilization of the fishery resources;
- (d) The financing of the body and of related activities;
- (e) The relationship of the body with FAO; and
- (f) Further action to be taken by the Committe on Fisheries in connection with the foregoing.

The membership of the Working Party shall consist of the following Member Nations of FAO:

Australia	Kenya
Brazil	Kuwait
France	Madagascar
India	Pakistan
Iran	U.A.R.
Japan	U.S.A.

and, subject to the approval of the FAO Council, the Union of Soviet Socialist Republics shall be invited to membership. These Nations shall continue as members until the Committee on Fisheries decides otherwise.

