REPORT OF THE SECOND MEETING OF THE SCIENTIFIC COMMITTEE

(HOBART, AUSTRALIA, 30 AUGUST - 8 SEPTEMBER 1983)

DR DIETRICH SAHRHAGE
Federal Republic of Germany
Chairman of the Scientific Committee

SC-CAMLR-II

HOBART, AUSTRALIA 1983

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Marine Living Resources
25 Old Wharf
HOBART TASMANIA 7000
AUSTRALIA

REPORT OF THE SECOND MEETING
OF THE SCIENTIFIC COMMITTEE

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1. The Scientific Committee met under the Chairmanship of Dr D. Sahrhage (Federal Republic of Germany) from 30 August to 8 September 1983.

2. Representatives from Argentina, Australia, Chile, the European Economic Community, the Federal Republic of Germany, France, the German Democratic Republic, Japan, New Zealand, South Africa, the Union of Soviet Socialist Republics (USSR), the United Kingdom of Great Britain and Northern Ireland (UK) and the United States of America (USA), attended the meeting. Representatives of Belgium and Norway attended by agreement of members.

3. The Food and Agriculture Organisation of the United Nations (FAO), the Intergovernmental Oceanographic Commission (IOC), the International Union for Conservation of Nature and Natural Resources (IUCN), the International Whaling Commission (IWC), the Scientific Committee on Antarctic Research (SCAR) and the Scientific Committee on Oceanic Research (SCOR) were represented as observers to the meeting.

4. A full list of participants is at Annex 1. A list of documents considered by the meeting is at Annex 2.

5. The provisional agenda was considered and it was agreed to defer consideration of the Report of the Chairman until the Rules of Procedure had been adopted. With this amendment, the agenda was adopted; it is contained at Annex 3.

6. Dr J.R. Beddington (UK) was appointed as rapporteur.

RULES OF PROCEDURE

7. Temporary Rules of Procedure were adopted and are at Annex 4.

8. The draft Rules of Procedure of the Scientific Committee were discussed in the light of the comments of the Commission and after a minor alteration to Rule 17 were adopted as presented. These Rules are at Annex 5. Following approval of these Rules by the Commission the main business of the Scientific Committee commenced.

CHAIRMAN'S REPORT

9. The Chairman reported that all discussion of inter-sessional activities at the time of the 1982 meeting was informal. During the year he had had a number of informal discussions with members of the Scientific Committee, but there had been no other activities.

MATTERS AND ACTIVITIES OF THE SCIENTIFIC COMMITTEE ARISING FROM ARTICLES IX, XV AND XX OF THE CONVENTION

10. The Committee had before it, two documents relevant to this agenda item: SC-CAMLR-II/INF.1 and SC-CAMLR-II/4.

11. During the discussions on SC-CAMLR-II/INF.1 the question of the status of the Report of the informal group that had been circulated with last year's Report of the Scientific Committee was raised. It was agreed that this was an informal document which had no official status. The Committee accepted that relevant parts of this document could serve as a useful starting point for developing ideas and discussions on this agenda item.

12. The Chairman outlined the structure of SC-CAMLR-II/4 indicating that there were four main areas of discussion:

(A) Information and data
(B) Research requirements
(C) Management goals
(D) Other matters.

13. Following some discussion on these four categories it was noted that although there were some points that had not been covered in SC-CAMLR-II/4, it was agreed that these categories could be used to structure discussions. In particular, it was agreed that data needs, the methodology of sampling and data processing should be the subject of discussion as a matter of priority.

(A) Information and Data

14. There were two main items of interest: (i) inventories of existing data and programs and (ii) future catch and effort statistics including the needs for design of logbooks and

reporting formats. It was agreed that an *ad hoc* group, to report its findings for consideration by the plenary, would be the best means for considering these matters in detail. However, it was felt appropriate that a general discussion should be held in the plenary session prior to forming *ad hoc* group(s).

15. It was suggested that data could be classified into four different types – that belonging to individual scientists, that which had been collected by national programs, internationally available data and data obtained from commercial catches. This distinction was accepted as a useful guide for the discussions of the *ad hoc* group.

(i) Inventories of Existing Data and Programs

16. The Committee set up an *ad hoc* group under the Chairmanship of Dr R. Hennemuth (USA). The group reported its discussions and recommendations to the Scientific Committee. There were two types of data considered: catch data and scientific data from commercial operations and from biological and other sampling programs.

17. The catch data were considered under two separate headings: those concerned with the STATLANT procedures of reporting to FAO, and other data collected during the course of commercial operations.

Past Data From Commercial Operations (Up to 1982/83 Season)

18. There was agreement on a list of information on data that existed from commercial operations. This form is contained at Annex 6. It was agreed that members that had engaged in fishing operations would present to the Secretariat an inventory of the existing data prepared in this way in time for the next meeting. It was noted that some additional explanation might be needed in order to assist the Scientific Committee in interpreting these inventories as the methods of data collection differed from country to country. The Secretariat was asked to co-ordinate collection of these inventories.

19. It was emphasised that the inventory was to act as a guide to the Scientific Committee on the sort of data that existed. It was not envisaged that all such data would be required for assessment purposes, but that particular pieces of information would be required only if the available data were believed to be insufficient to provide a reliable stock assessment.

STATLANT Forms

20. The most recent draft STATLANT A and B forms, as prepared and printed by FAO, were reviewed. It was noted that some confusion about the period covered by the B form had been removed by re-arranging the months with July in the first column.

21. In reviewing the species list, it was noted that *Merluccius hubbsi* does not occur in the Convention area and should be omitted in future versions of the form. It was also noted that the catch statistics extracted from the FAO Yearbook on Fisheries Statistics included a species referred to as Antarctic cod (*Trematomus trematomi*); doubts were expressed about the validity of this inclusion and it was suggested that the Secretariat clarify the matter in correspondence with FAO and the members concerned.

22. As concerned the areas and sub-areas, and the units of fishing effort used in the STATLANT forms, there were some views that these were rather broad, and that more details would be desirable in recording future fishing operations.

23. It was recognised that while all members could collect and report the data on the forms, some members would have difficulty in immediately reporting more detailed data.

24. It was clarified that the entry 'Percent estimated' under 'Fishing Effort' on the STATLANT B forms referred to the proportion of the total fishery for which fishing effort data was directly available. This clarification should be included in future 'Notes for Completion of Antarctic STATLANT Forms'.

25. With these comments the current STATLANT forms were endorsed. They should be distributed to members for use in the 1983/84 season, with the request that they be returned if possible to the Secretariat by 30 September 1984. It was agreed that as far as possible, preliminary data from the 1983/84 season would be brought to the next meeting. Members were to indicate to the Scientific Committee at its next meeting the dates by which it would be possible for them to return the STATLANT forms on a regular basis in future years.

26. For data up to, and including, the 1982/83 season, the Secretariat was asked to consult with FAO, and to assemble all the STATLANT data that had been received by one or other organisation. The Secretariat should also correspond with members concerning STATLANT-type data where the available records appear to be incomplete. On the basis of this information, and in consultation with the Chairman of the Scientific Committee, the

Secretariat should prepare a draft Statistical Bulletin for discussion at the next meeting of the Committee.

Scientific Data

27. A format was agreed as a guide for the presentation of an inventory of data collected in the course of relevant scientific investigations in the Southern Ocean; marine biology, physical oceanography, marine chemistry, ice conditions, meteorology, etc. in the case of cruises and mainly marine ecological and physiological work in the case of shore based activities. The format is contained at Annex 7 which includes an example of how it might be completed using information from a cruise of M.V. 'Nella Dan' during the First International BIOMASS* Experiment (FIBEX).

28. It was agreed that it would be desirable if these inventories could be completed and deposited with the Secretariat in time for the next meeting. It was further agreed that this inventory should start in 1970. The representative of the USSR indicated that because of the large number of expeditions involved (more than 150) it would be possible only to do this for the last two years, in time for the next meeting. For the preceding years a summary would be prepared. The Secretariat will co-ordinate the collection of these inventories during next year.

(ii) Future Data, Catch and Effort Data and the Design of Logbooks

29. An *ad hoc* group convened by Dr Hureau (France) reported to the Scientific Committee on its work on an inventory of information contained in logbooks. This inventory is contained at Annex 8.

30. The Scientific Committee noted that some items in the inventory were not common to all logbooks. Certain scientific data for the USSR commercial operations were available only from scouting boats which operated with the commercial fleet. For Japanese operations, detailed information on the operation of the ship during different times of the day was currently unavailable.

* Footnote: BIOMASS – Biological Investigation of Marine Antarctic Systems and Stocks – an international research program sponsored by SCAR/SCOR, ACMRR and IABO.

31. The Scientific Committee agreed that it would be undesirable to attempt to produce uniform logbooks for operations in the Southern Ocean. They believed that it would be better to work towards a uniform reporting format which would contain a synthesis of information available in logbooks and other documents.

32. The Committee went on to discuss the general problem of the submission of catch and effort data to the Commission in the future. It became clear that it would not be easy to reach general agreement, during the time available, on the needs for the future collection and submission of fishing data. An informal group had met on an opportunistic basis during the meeting and had produced a draft paper for discussion by the Scientific Committee. This paper contains a number of suggestions modelled on similar practices in other fisheries organisations.

33. Although this paper offered a reasonable starting point for consideration of this problem, it was noted that there were a number of unresolved difficulties still to be discussed. It was agreed that submission of data in the first instance should be in two stages. Initially, some synthesis of the raw data should be presented to the Commission for the purposes of compiling statistical records, etc. As the scientific needs for assessment of the stocks became apparent, more detailed data would be needed by the Scientific Committee and should be submitted as and when these needs became apparent. However, it was agreed that it was essential that data being routinely collected should be capable of being used for assessment purposes.

34. A Working Group on Data Collection and Handling was formally established to consider a number of outstanding technical problems. The paper prepared by the informal group was referred to this Working Group.

35. The Working Group, convened by Dr R. Hennemuth (USA), commenced its activities during the meeting. It was envisaged, however, that it would also need to meet during the inter-sessional period. It was agreed that all members could nominate experts to this working group, and that such experts should have experience in fishery data handling and analysis. it was recommended that the Data Manager should attend the meetings of this group.

36. The terms of reference of the Working Group are contained at Annex 9.

37. The Working Group presented a preliminary report (SC-CAMLR-II/INF.10) to the Scientific Committee proposing either a further mid-term meeting about June or a meeting just prior to the next Scientific Committee Meeting in Hobart.

38. It was noted that while more information could be available for a later meeting of the working Group, an earlier meeting would permit more time for review and consideration of the report by members.

39. If a mid-term meeting were decided upon, then the USA offered to host it at Woods Hole.

40. Special expertise on fish and krill fisheries, and application of hydroaccoustics to krill studies is desirable at the Working Group meeting, and should be co-opted if not available among member representatives.

41. The Scientific Committee noted these comments and agreed that a decision on the timing of the intersessional meeting would need to be based upon the agenda for that meeting. It was agreed that the Chairman and Convener would consult with members on the agenda and, on the basis of their consultations, decide on the venue and timing.

Reporting of Future Scientific Research

42. It was agreed by the Scientific Committee that for an interim period, the reporting format that had been developed for use as an inventory for describing previous scientific work in the Antarctic (Annex 7), would also serve as a vehicle for transmitting information about future research. It was also agreed to review this at some time in the near future.

43. It was suggested that members should submit reports to the Scientific Committee each year, which contained information both on fishing activities and scientific investigations during the past year and plans for the forthcoming year. The Committee endorsed this proposal and recommended that it should be further considered by the informal Working Group on Publication Matters. (See Paragraph 90 of this Report.)

(B) Research Requirements

44. There was a general discussion of the research requirements by the Scientific Committee, in pursuing its function of providing advice to the Commission under the terms of the Convention. It was agreed that research requirements were rather different for species which are the subject of direct harvesting, notably fish and krill, and species dependent on the harvested species. The urgent need to provide timely scientific advice to the Commission

was emphasised by many members. This led to a proposal to consider the possibilities of setting up working groups to operate in the inter-sessional period and report to the Committee.

45. The composition and financial arrangements for such *ad hoc* groups were discussed. They could be composed of representatives nominated and paid for by their governments and invited experts whose costs would be paid by the Commission. It was suggested that working groups dealing with target species would need to have experts from members concerned with the harvest.

46. It was agreed that where a working group had been set up to meet during the inter-sessional period, all members could nominate experts to attend the meeting. Other experts would attend at the request of the Chairman of the Scientific Committee, after consultation with all members of the Committee, and would be paid for by the Commission. They would attend in their personal capacity and would take no part in any voting or decision making procedures.

47. The idea of *ad hoc* working groups was considered in principle to be a good idea that had worked well in other commissions. The importance of specifying terms of reference and composition when establishing such working groups was emphasised.

48. The Scientific Committee decided to consider proposals for the establishment of *ad hoc* working groups on:

(i) the assessment of Antarctic fish stocks
(ii) krill
(iii) dependent and related species
(iv) data collection and handling
(v) ecosystem management.

(i) Fish Stock Assessment

49. The most recent international assessment of Antarctic fish stocks was undertaken by the BIOMASS Working Group on Fish Biology (now Fish Ecology). The results of this Working Group are published as BIOMASS Report Series 12. These results indicate that fish stocks have been substantially affected by exploitation. The BIOMASS group argued that this result was to be expected as the fish species concerned had a low fecundity and grew

slowly, reaching sexual maturity at an advanced age. The BIOMASS group had used rather limited data, mainly provided by France, the Federal Republic of Germany, Poland and Japan. It was agreed, therefore, that the establishment of a working group on fish stock assessment for the inter-sessional period would be useful only if new data were available.

50. The representative of the German Democratic Republic indicated that scientific investigations on the fish stocks had been conducted by the German Democratic Republic from 1977 to March 1980. Data on commercial catches had been submitted to FAO on STATLANT A and B forms. There were, in addition, a number of age and length samples available and results of the investigations were available in eight publications.

51. The representative of the USSR said that there would be problems in producing data on commercial fish operations for the last twelve years. The STATLANT A and B forms had been sent to FAO, but deficiencies had been identified in the STATLANT B returns which needed to be rectified. It was not possible to indicate whether such data could be made available in time for an intersessional meeting of a working group.

52. In the light of these comments the Committee agreed on the following proposal.

53. A special item on fish stock assessment would be included on the agenda for next year's meeting. The starting point for discussion would be the BIOMASS Working Group Report. Members were invited to submit to the Secretariat in advance of the meeting their comments on the report.

54. All analyses and information relevant to the assessment of the fish stocks should also be submitted to the Secretariat. Where the assessment involved statistical or other analyses, the data on which this was based should be included in the document.

55. All members agreed that the deadline of three months preceding the next annual meeting should be adopted for the submission of these documents. The Secretariat will arrange for the collation, translation and circulation of documents before the meeting.

(ii) Krill

56. It was noted that BIOMASS was conducting a resource review of the Southern Ocean, concentrating mainly on fish and krill. It was agreed in the light of this that a working group in the inter-sessional period to discuss krill would be unnecessary. The Secretariat was asked

to make available to members, in advance of the next meeting, the report of the BIOMASS Resources Review.

(iii) Dependent and Related Species

57. The Scientific Committee had available SC-CAMLR-II/6. There was agreement on the need to discuss the matters involved in assessing the effect of krill and fish harvesting on dependent and related species.

58. It was noted that some aspects of this discussion were already being considered by other scientific bodies including the IWC, the BIOMASS Working Party on Bird Ecology and the SCAR Group of Specialists on Seals. It was agreed that there was a need to carefully formulate a list of questions that could be posed to such bodies.

59. The Committee considered lists of questions that had been prepared by a small working group for transmission to the BIOMASS Working Party on Bird Ecology and the SCAR Group of Specialists on Seals. The Committee agreed that the questions be transmitted to the appropriate groups for their consideration. The lists of questions are contained at Annex 10. In addition, it was agreed to send to these groups for information the two information papers SC-CAMLR-II/INF.2 and SC-CAMLR-II/INF.3, together with a paper that had been prepared by a member of the informal group. The Secretariat was asked to circulate the replies to these questions to all members.

(iv) Data Collection and Handling

60. The Scientific Committee had available a paper submitted by the Secretariat, SC-CAMLR-II/INF.7, containing discussion of the development of computing services in the Secretariat. The paper proposed that the Secretariat initially use the services of the Commonwealth Scientific and Industrial Research Organisation Network. This would provide the services of a highly sophisticated computer system at low initial cost, with the capability for data transfer via an international network, software availability and with the option to evolve.

61. The Scientific Committee endorsed these proposals and believed that it would be necessary for the Data Manager of the Secretariat to travel to a number of centres where relevant data bases were currently in existence or under consideration. Such centres could

include the IWC, BIOMASS, the International Council for the Exploration of the Sea (ICES), the Northwest Atlantic Fisheries Organisation (NAFO), as well as other national or international facilities.

62. It was noted that the convener of the BIOMASS Technical Group on Data and Statistics (Dr G. Newman) is resident in Australia and it was suggested that some initial liaison between the Secretariat and Dr Newman would be a convenient way of initially exploring the BIOMASS experience on this problem.

63. It was agreed that the establishment of a Working Group on Data Collection and Handling was best considered with the problem of future catch and effort and other data. A discussion of this is contained in paragraphs 34 to 41 of this report. The terms of reference of the Group are contained at Annex 9.

(v) Ecosystem Management

64. There were a number of proposals under this general subject area including a proposal for the setting up of a working group, as well as a seminar to be held during the next meeting involving both the Commission and the Scientific Committee. The Scientific Committee had available for its consideration a number of papers: SC-CAMLR-II/6, SC-CAMLR-II/INF.2, SC-CAMLR-II/INF.3 and SC-CAMLR-II/INF.4. In addition, there was a paper by Dr G. Chittleborough (Australia) which was submitted for information.

65. The Scientific Committee agreed that the setting up of a working group and the convening of a seminar would be premature at this stage. There was still a considerable lack of knowledge on the Southern Ocean ecosystem(s). BIOMASS groups were reviewing the state of the ecosystem and such information should be obtained before the Scientific Committee considers the matter in detail.

66. The Committee agreed that a formal request for the Report of the BIOMASS review should be made.

67. In view of the importance of this matter to the primary function of the Scientific Committee, it was agreed to have an item on Ecosystem Management included on the agendas of a series of meetings of the Scientific Committee, starting next year. Members were requested to send papers commenting and raising questions on this matter to the Secretariat which would collate and circulate the accumulated papers to members. It was

further agreed that contributions on these matters from the various observer organisations would be welcomed.

68. It was noted that in some situations it would be appropriate for the representatives to co-ordinate differing views that may be held on these matters within the scientific community of their country or countries before transmitting them to the Secretariat.

69. It was further agreed that it would be desirable to send papers on this matter to reach the Secretariat at least three months preceding the next Scientific Committee meeting.

Species Identification Sheets

70. SC-CAMLR-II/4 (Section 10) described the Species Identification Sheets for the Southern Ocean under preparation by FAO (FAO Fishing Areas 48, 58 and 88). The purpose of these sheets is twofold: firstly, as field guides to assist in the identification of marine food species within the area; secondly, as a coded, illustrated and annotated species inventory that could be used as a basis for standardisation of Antarctic species names and codes. The work covers seaweeds, euphausids, bivalves, gastropods, cephalopods, fishes and marine mammals.

71. It was noted that an atlas of fish larvae of the Southern Ocean by V.N. Efremenko was published (*Cybium* 7 (2) 1–74) and is available as a BIOMASS Handbook from the SCAR Secretariat in Cambridge.

72. Taken together these two works provide a comprehensive guide to the marine food resources of the Southern Ocean. This matter is further considered under the budget.

(C) Management Goals

73. Such limited discussion of this matter that had been possible was taken under the proposals for a working group on ecosystem management.

(D) Other Matters

Remote Sensing

74. The Scientific Committee had, as information papers on this matter, SC-CAMLR-II/INF.5 and SC-CAMLR-II/INF.6, which described remote sensing information available from a variety of sources within the USA. It was indicated that such data could be made available to CCAMLR if required and the papers described the protocol for obtaining these data.

75. The representatives of the USSR and France indicated that similar information might be made available from their own satellite programs. The Scientific Committee believed that there were considerable opportunities for using remote sensing for answering a number of relevant questions. However, those members of the Committee who had had experience in this area emphasised strongly that it would be necessary to formulate questions in considerable detail before approaching experts in remote sensing for their help. It was recognised that this might involve a small group, composed of members of the Scientific Committee and experts in remote sensing, who might consider these matters. More detailed formulations of such plans were deferred until the next meeting.

Exchanges of Information Between the Secretariat
and Members of the Scientific Committee

76. During discussions on other matters, a number of representatives had indicated problems that they had had in receiving information from the Secretariat. To facilitate communication, the following proposal was endorsed. Communication from the Secretariat on purely scientific matters, including consideration of provisional statistics, should be sent to both the official representatives on CCAMLR and the Scientific Committee representatives. Unless informed otherwise by members, for practical purposes the Secretariat could define the scientific representatives as those who had served in that capacity at the previous meeting of the Scientific Committee.

CO-OPERATION WITH OTHER ORGANISATIONS ACCORDING TO ARTICLE XXIII OF THE CONVENTION

77. The Scientific Committee had before it for information, SC-CAMLR-II/7 and a paper circulated by the IUCN observer.

Food and Agriculture Organisation of the United Nations

78. It was clear from the work of the Scientific Committee this year that there would be a need for a continued close relationship with FAO. The FAO observer indicated his organisation's willingness and interest in continuing to co-operate with CCAMLR in the future. It was agreed that any relevant matters of procedure that arose between the two organisations should be dealt with by direct communication between the Secretariats, including CCAMLR participation in the Co-ordinating Working Party on Atlantic Fishery Statistics (CWP). The Scientific Committee felt that it would be essential that the Data Manager attend meetings of the CWP.

Scientific Committee on Antarctic Research and Scientific Committee on Oceanic Research

79. The main co-operation envisaged between CCAMLR and SCAR and SCOR is through the BIOMASS program. Professor G. Knox, who represented both organisations as an observer at the meeting, indicated that his organisations did not see the need for any formal agreements between the Commission and themselves. Good relationships would be ensured by overlapping membership of relevant committees.

International Whaling Commission

80. The observer from the IWC reported that at the meeting of its Scientific Committee earlier in the year, it had been proposed that the CCAMLR observer be given the status of adviser to the IWC Scientific Committee. In effect, this means that the observer would take part in all discussions of the Scientific Committee as a participating member, but would take no part in voting. It was further indicated that the IWC was keen to continue collaborating with CCAMLR and looked forward to such co-operation in the future.

81. Dr J.R. Beddington had been the CCAMLR observer to the IWC Scientific Committee at its annual meeting in June 1983. A report of this meeting is given in CCAMLR-II/8.

82. It was noted that the data base of the IWC contained data of two classes: data which were freely available and would be available to CCAMLR, and data which were available only with the permission of the depositing governments. In the latter case, it was believed to be more appropriate for CCAMLR to take up the problem of access to such data directly with the member governments concerned. In all these matters it was agreed that discussions should take place between the two Secretariats.

Intergovernmental Oceanographic Commission

83. The Committee considered the Memorandum of Understanding which had been sent to the Secretariat by the IOC. The Committee did not feel that at this stage in the development of the CCAMLR Scientific Committee it was appropriate to sign a formal memorandum of understanding, particularly in the light of the fact that all other organisations with which CCAMLR was involved had indicated their preference to operate in an informal manner.

84. Dr J.C. Hureau reported on the meeting of the IOC Programme Group for the Southern Oceans held in Paris in March 1983 where he acted as CCAMLR observer.

85. The Committee emphasised its interest in continuing to work with the IOC and looked forward to a continuing good relationship.

International Union for Conservation
of Nature and Natural Resources

86. The IUCN observer referred to the statement circulated to the Commission by the IUCN. It indicated that the IUCN consists of approximately fifty national governments and two hundred non-governmental organisations. The IUCN was grateful for the opportunity to act as an observer to the Commission and looked forward to co-operating in the future. The IUCN would ensure that the Commission had direct access to its data base at the Conservation Monitoring Centre in Cambridge and various analyses conducted by its specialist groups and Commissions. It was not felt necessary for there to be any formal

agreement between the two organisations, but that co-operation would be best facilitated by communication between the two Secretariats.

PROPOSALS FOR THE ESTABLISHMENT OF SUBSIDIARY BODIES

87. The Scientific Committee had two proposals before it for the setting up of subsidiary bodies. They are contained in SC-CAMLR-II/5/REV.1 submitted by the USSR and SC-CAMLR-II/7 submitted by Australia.

88. It was felt by some members that the proposed permanent sub-committee for the analysis of the state of the Antarctic ecosystems duplicated the responsibilities of the Scientific Committee and might therefore be unnecessary. In addition, some members felt that the proposed permanent executive sub-committee might duplicate the responsibilities of the Chairman of the Scientific Committee and the Executive Secretary.

89. The overall view of the Scientific Committee was that at this stage it would be premature to set up subsidiary bodies of a permanent nature. The Committee recognised that in the future almost certainly some sub-committees would be necessary, but that it would be better to operate for some time in an *ad hoc* way and to allow its needs to become clear before deciding which bodies to set up permanently.

90. All members were agreed, however, that the problem of documentation and publications required some immediate action. It was recognised that formally, under the Convention, publication of the Scientific Committee report and statistical and other data lay within the domain of responsibility of the Commission. Nevertheless, the Scientific Committee believed that it would be necessary for a number of decisions to be made on a policy for scientific papers, which would need to be communicated to the Commission for its consideration. It was agreed to set up an informal working group, to discuss such matters. The group convened by Dr G. Stander (South Africa) met during the meeting on an opportunistic basis and will continue by correspondence in the intersessional period. It was agreed that this subject should be an item on next year's agenda. The group would consider *inter alia* the following:

(i) Classes or categories of papers (e.g. working papers, information papers) to be submitted for consideration by the Scientific Committee.

(ii) Arrangements for duplication and distribution of working papers for the Scientific Committee, including translation of abstracts.

(iii) Contents and format for possible statistical bulletins, data records, etc.

(iv) Arrangements for publication of the Committee's report and the possible inclusion of some or all of the papers.

(v) The possibilities of other publications that might arise from the Committee's work.

(vi) All other matters relating to documentation and Scientific Committee publications.

91. The Group reported on its preliminary discussions and a paper describing the discussions to date (SC-CAMLR-II/INF.11/REV.1) was circulated to all the members of the Scientific Committee.

BUDGET FOR 1984

92. The Scientific Committee had available for information on this item CCAMLR-II/5, the draft budget for the Commission for 1984.

93. The Scientific Committee decided that the most appropriate way to consider its budget proposals for 1984 was to assess, with the aid of the Secretariat, the financial implications of decisions that had been made under other items of the agenda.

94. A proposed budget containing certain alternatives for decision by the Commission, was then endorsed by the Scientific Committee. The proposed budget is at Annex 11.

95. In endorsing the budget, the Scientific Committee agreed that the proposal for the publication of Species Identification Sheets was of lower priority than the other items of the budget.

DATE OF NEXT MEETING

96. The Scientific Committee considered that its next meeting should be held during the same period as that of the Commission. It was understood from the Secretariat that there were two possible periods – 21 May to 1 June and 3 to 14 September. It was generally agreed that the September meeting would be preferable. The Scientific Committee indicated that the principal constraint on dates for a meeting would mainly come from the need for many representatives to visit the Antarctic during the southern summer. Effectively, this implied that a meeting after the end of September would not be feasible. It was noted that in any year there were a number of scientific activities involving organisations such as IWC, FAO, SCAR and IUCN, which could clash with the meeting of the Commission and Scientific Committee. The Secretariat was asked to provide a list of invitations to meetings that had been received this year. This list is contained at Annex 12.

OTHER BUSINESS

97. There were two items of other business:

(i) A proposal for a newsletter to be distributed by the Secretariat to members of the Scientific Committee and the Commission irregularly when the need arose; and

(ii) A press release to be made on the activities of the Scientific Committee at this year's meeting.

Both proposals were endorsed.

CLOSE OF THE MEETING

98. The Chairman thanked members for their co-operation in the meeting and extended the thanks of the Scientific Committee to the Secretariat and the Interpreters. The Scientific Committee extended its thanks to the Chairman and Rapporteur. The meeting was closed.

ANNEX 1

LIST OF PARTICIPANTS

Second Meeting of the Scientific Committee

ARGENTINA

Representative:

His Excellency Mr Carlos Lucas BLANCO
Embajador, Director General de Antartida y Malvinas
Relaciones Exteriores

Alternate Representatives:

Dr Aldo TOMO
Jefe Programas Biologicos Antarticos

Mr Hector A. MARTINEZ CASTRO
Counsellor
Argentine Embassy, Canberra

AUSTRALIA

Representative:

Dr R.G. CHITTLEBOROUGH
Chief
Division of Resources Management
Department of Environment and Conservation
Government of Western Australia

Alternate Representatives:

Dr K. KERRY
Antarctic Division
Department of Science and Technology

Mr G. GURR
Antarctic Division
Department of Science and Technology

Advisers:

Mr A.J. HARRISON
Fisheries Development Authority
Government of Tasmania

Mr W. DE LA MARE
Representative of Non-Government Organisations

CHILE

Representative:

His Excellency, Ambassador Jorge VALDOVINOS
Ambassador to Australia
Embassy of Chile, Canberra

Alternate Representatives:

Sr Alfonso FILIPPI
Adviser
Undersecretariat for Fisheries

Sr Antonio MAZZEI
Subdirector Cientifico
Instituto Antartico Chileno

EUROPEAN ECONOMIC COMMUNITY

Representative:

Mr Guy DUHAMEL
Centre National de la Recherche Scientifique
Muséum National d'Histoire Naturelle, Paris

Advisers:

Professor Bruno BATTAGLIA
University of Padua
Padua, Italy

Mr Frans VAN BEEK
Fishery Biologist
Netherlands

FEDERAL REPUBLIC OF GERMANY

Representative (and Chairman of the Scientific Committee):

Dr Dietrich SAHRHAGE
Federal Fisheries Research Centre

FRANCE

Representative:

M. Jean-Claude HUREAU
Professeur
Muséum National d'Histoire Naturelle, Paris

M. Christian CONNAN
Secrétaire des Affaires Etrangères
Ministère des Relations Extérieures

GERMAN DEMOCRATIC REPUBLIC

Representative:

Dr Walter RANKE
Deputy Director for International Relations in Fisheries

JAPAN

Representative:

Mr Kazuo SHIMA
Counsellor
Oceanic Fisheries Department
Fisheries Agency

Advisers:

Dr Takao HOSHIAI
National Institute of Polar Research

Dr Keiji NASU
Research Department
Fisheries Agency

Mr Toshiyuki IWADO
Fishery Division
Ministry of Foreign Affairs

Mr Joji MORISHITA
Oceanic Fisheries Department
Fisheries Agency

NEW ZEALAND

Representative:

Dr Don ROBERTSON
Fisheries Research Division
Ministry of Agriculture and Fisheries

Adviser:

Mr Don MACKAY
Assistant Head
Legal Division
Ministry of Foreign Affairs

SOUTH AFRICA

Representative:

Mr George STANDER
Director
Sea Fisheries Research Institute

Alternate Representative:

Mr Andre VAN DER WESTHUYSEN
Manager
Antarctic and Oceanographic Research Programmes
Council for Scientific and Industrial Research

Advisers:

Mr Pieter OELOFSEN
Chief Law Adviser
Department of Foreign Affairs and Information

Mr F.G. MOLL
International Organisations Section
Department of Foreign Affairs and Information

UNION OF SOVIET SOCIALIST REPUBLICS

Representative:

Dr Tatjana LUBIMOVA
Chief
Laboratory of Antarctic Resources
VNIRO Research Institute

Alternate Representative:

Dr Eugene SABOURENKOV
Coordinator, Fisheries Research
Ministry of Fisheries

Adviser:

Mrs Olga PANKRATOVA
Foreign Relations Department
Ministry of Fisheries

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Representative:

Dr John BEDDINGTON
Director of Marine Programmes
International Institute for the Environment and Development

Adviser:

Dr John HEAP
Polar Regions Section
South America Department
Foreign and Commonwealth Office

UNITED STATES OF AMERICA

Representative:

Dr Robert HOFMAN
Scientific Program Director
Marine Mammal Commission

Advisers:

Mr R. Tucker SCULLY
Director
Office of Oceans and Polar Affairs
Department of State

Dr Francis S.L. WILLIAMSON
Chief Scientist
Division of Polar Programs
National Science Foundation

Mr Alan RYAN
Foreign Affairs Officer
National Marine Fisheries Service
NOAA

Dr Kenneth SHERMAN
Director
National Marine Fisheries Service Laboratory
NOAA

Dr Richard HENNEMUTH
Acting Director, Northeast Fisheries Center
National Marine Fisheries Service
NOAA

Dr William BROWN
Senior Scientist
Environmental Defense Fund

OBSERVERS

BELGIUM

M. Andreas VANERMEN
Conseiller Service Affaires Générales
Direction Générale de la Politique
Ministère des Affaires Etrangères

NORWAY

Mr Ole J. ØSTVEDT
Deputy Director
Institute of Marine Research

FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS

Dr John GULLAND
Chief
Marine Resources Service
Department of Fisheries

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION

Dr Dietrich SAHRHAGE
c/- Intergovernmental Oceanographic Commission
Unesco
Paris, France

INTERNATIONAL UNION FOR THE CONSERVATION OF NATURE AND NATURAL RESOURCES

Dr Graeme CAUGHLEY
c/- International Union for the Conservation of Nature
and Natural Resources
Gland, Switzerland

INTERNATIONAL WHALING COMMISSION

Mr W. DE LA MARE
c/- International Whaling Commission
Cambridge, U.K.

SCIENTIFIC COMMITTEE FOR ANTARCTIC RESEARCH AND
SCIENTIFIC COMMITTEE FOR OCEANIC RESEARCH

Prof. G. KNOX
Zoology Department
University of Canterbury
New Zealand

ANNEX 2

DOCUMENT LIST
SC-CAMLR-II

Document Number	Title
(A) Working Papers	
SC-CAMLR-II/1	Provisional Agenda
SC-CAMLR-II/2	Temporary Rules of Procedure
SC-CAMLR-II/3	Draft Rules of Procedure
SC-CAMLR-II/3/REV.1	Rules of Procedure
SC-CAMLR-II/4	Activities of the Scientific Committee Arising From Articles IX, XV and XX of the Convention
SC-CAMLR-II/5	Establishment of Subsidiary Bodies of the Scientific Committee
SC-CAMLR-II/5/REV.1	Establishment of Subsidiary Bodies of the Scientific Committee
SC-CAMLR-II/6	Detection of Possible Indirect Effects of Harvesting and Associated Activities on the Antarctic Marine Ecosystem
SC-CAMLR-II/7	Proposals for the Establishment of Subsidiary Bodies of the Scientific Committee
SC-CAMLR-II/8	Draft Report of the Scientific Committee

(B) Information/Background Papers

SC-CAMLR-II/INF.1	Annotated Agenda
SC-CAMLR-II/INF.2	Selection Criteria and Monitoring Requirements for Indirect Indications of Changes in the Availability of Antarctic Krill Applied to Some Pinniped and Seabird Information
SC-CAMLR-II/INF.3	Trends in Crabeater Seal's Age at Maturity: an Insight into Antarctic Marine Interaction?
SC-CAMLR-II/INF.4	Modelling: The Application of a Research Tool to Antarctic Marine Living Resources
SC-CAMLR-II/INF.5	Use of the Nimbus-7 Coastal Zone Color Scanner (CZC5) for Remote Sensing of Antarctic Waters
SC-CAMLR-II/INF.6	Satellite Data and Imagery for Antarctic Investigations
SC-CAMLR-II/INF.7	CCAMLR Data Management Discussion Paper
SC-CAMLR-II/INF.8	SYSTEMA DE BUSQUEDA Y RECOPILACION DE DATOS BIOLOGICO – PESQUEROS DE LAS PESQUERIAS NACIONALES
SC-CAMLR-II/INF.9	Proposed Activities of Japanese Antarctic Research Vessels 1983–1984
SC-CAMLR-II/INF.10	Report of *Ad Hoc* Group on Data Collection and Handling
SC-CAMLR-II/INF.11	Preliminary Report of the *Ad Hoc* Working Group on Publication Matters
SC-CAMLR-II/INF.11/REV.1	Preliminary Report of the *Ad Hoc* Working Group on Publication Matters

(C) Commission Documents Referred to Scientific Committee

CCAMLR-II/7	Cooperation with Organisations Listed in Article XXIII of the Convention
CCAMLR-II/8	CCAMLR Representation at Meetings of other organisations in 1983

ANNEX 3

AGENDA
FOR THE SECOND MEETING OF THE
SCIENTIFIC COMMITTEE

1. Opening of the Meeting

2. Adoption of the Agenda

3. Adoption of Temporary Rules of Procedure

4. Consideration of the Draft Rules of Procedure

5. Adoption of the Rules of Procedure

6. Report by the Chairman

7. Matters and Activities of the Scientific Committee Arising From Articles IX, XV and XX of the Convention

8. Cooperation With Other Organisations According to Article XXIII of the Convention

9. Proposals for the Establishment of Subsidiary Bodies of the Scientific Committee

10. Budget for 1984

11. Next Meeting of the Scientific Committee

12. Other Business

13. Adoption of the Scientific Committee's Report to the Commission

14. Close of the Meeting

ANNEX 4

TEMPORARY RULES OF PROCEDURE

I. Representation

Rule 1

Each participant shall be represented by a delegation composed of a Representative and such Alternate Representatives, Advisers and other persons as it may deem necessary. Their names shall be communicated to the host government prior to the opening of the Meeting.

Rule 2

The order of precedence of the delegation shall be in accordance with the alphabet in the language of the host government.

II. Committees and Working Groups

Rule 3

The Meeting, to facilitate its work, may establish such committees as it may deem necessary for the performance of its functions, defining their terms of reference.

Rule 4

The committees shall operate under the Rules of Procedure of the Meeting, except where they are inapplicable.

Rule 5

Working groups may be established by the Meeting or its committees.

III. Conduct of Business

Rule 6

A quorum shall be constituted by two-thirds of the Representatives participating in the Meeting.

Rule 7

The Chairman shall exercise the powers of his office in accordance with customary practice. He shall see to the observance of the Rules of Procedure and the maintenance of proper order. The Chairman, in the exercise of his functions remains under the authority of the Meeting.

Rule 8

No Representative may address the Meeting without having previously obtained the permission of the Chairman. The Chairman shall call upon speakers in the order in which they signify their desire to speak. The Chairman may call a speaker to order if his remarks are not relevant to the subject under discussion.

Rule 9

A Representative may at any time make a point of order and the point of order shall be decided immediately by the Chairman in accordance with the Rules of Procedure. A Representative may appeal against the ruling of the Chairman. The appeal shall be put to a vote immediately and the Chairman's ruling shall stand unless over-ruled by a majority of the Representatives present and voting. A representative making a point of order shall not speak on the substance of the matter under discussion. A point of order made during voting may concern only the conduct of the vote.

Rule 10

The Meeting may limit the time to be allotted to each speaker and the number of times he may speak on any subject. When debate is thus limited and a Representative has spoken his allotted time, the Chairman shall call him to order without delay.

Rule 11

A Representative may at any time move the adjournment of the debate on the item under discussion. In addition to the proposer of the motion, two Representatives may speak in favour of, and two against, the motion, after which the motion shall be put to the vote immediately. The Chairman may limit the time to be allowed to speakers under this rule.

Rule 12

A Representative may at any time move the closure of the debate on the item under discussion. In addition to the proposer of the motion, two Representatives may speak in favour of, and two against, the motion, after which the motion shall be put to the vote immediately. If the Meeting is in favour of the closure, the Chairman shall declare the closure of the debate. The Chairman may limit the time to be allowed to speakers under this rule.

Rule 13

A Representative may at any time move the suspension or the adjournment of the Meeting. Such motions shall not be debated, but shall be put to the vote immediately. The Chairman may limit the time to be allowed to the speaker moving the suspension or adjournment of the Meeting.

Rule 14

Subject to Rule 11, the following motions shall have precedence in the following order over all other proposals or motions before the Meeting:

(a) to suspend the Meeting;
(b) to adjourn the Meeting;
(c) to adjourn the debate on the item under discussion;
(d) for the closure of the debate on the item under discussion.

Rule 15

Decisions should be taken according to the Convention on the Conservation of Antarctic Marine Living Resources.

IV. Languages

Rule 16

English, French, Russian and Spanish shall be the official languages of the Meeting.

Rule 17

Any Representative may speak in a language other than the official languages. However, in such cases, he shall provide for interpretation into one of the official languages.

V. Amendments

Rule 18

Amendments to these Rules of Procedure shall be adopted only with the agreement of all the Representatives taking part in the Meeting.

ANNEX 5

SCIENTIFIC COMMITTEE
RULES OF PROCEDURE

I. REPRESENTATIVES AND INVITED SCIENTISTS AND EXPERTS

Rule 1

Each member of the Commission shall be a member of the Scientific Committee and shall appoint a representative with suitable scientific qualifications, who may be accompanied by other experts and advisers.

Each member of the Commission shall notify the Executive Secretary as early as possible before each meeting of the Scientific Committee of the name of his representative and before or at the beginning of the meeting the names of his experts and advisers.

Rule 2

The Scientific Committee may seek the advice of other scientists and experts as may be required on an ad hoc basis.

Such scientists and experts may submit documents and participate in discussions on the question for which they were invited, but do not participate in the taking of decisions.

In cases when an invitation to such scientists and experts has financial implications for the Commission not provided for in its budget, such an invitation should require the approval of the Commission.

II. CONDUCT OF BUSINESS

Rule 3

Scientific recommendations and advice to be provided by the Scientific Committee pursuant to the Convention shall normally be determined by consensus.

Where consensus cannot be achieved the Committee shall set out in its report all views advanced on the matter under consideration.

Reports of the Scientific Committee to the Commission shall reflect all the views expressed at the Committee on the matters discussed.

If a member or group of members in the Committee so wishes, additional views of that member or group of members on any particular questions may be submitted directly to the Commission.

Where the Committee takes decisions, it will do so in accordance with Article XII of the Convention.

III. MEETINGS

Rule 4

The Committee shall meet as often as may be necessary to fulfil its functions.

Regular meetings of the Committee normally shall be held once a year at the Headquarters of the Commission, unless it decides otherwise.

Rule 5

The Chairman shall prepare in consultation with the Executive Secretary a preliminary agenda for each meeting of the Committee. The Executive Secretary shall distribute the preliminary agenda to all members of the Committee no later than 100 days prior to the beginning of the meeting.

The Executive Secretary, in consultation with the Chairman of both the Scientific Committee and of the subsidiary body, shall prepare and distribute a preliminary agenda before each meeting of that body.

Rule 6

Members of the Committee proposing supplementary items for the preliminary agenda shall inform the Executive Secretary thereof no later than 65 days before the beginning of the meeting and accompanying their proposal with an explanatory memorandum.

Rule 7

The Executive Secretary shall prepare, in consultation with the Chairman, a provisional agenda for each meeting of the Committee. The provisional agenda shall include:

(a) all items which the Committee has previously decided to include in the provisional agenda;

(b) all items the inclusion of which is requested by any Member of the Committee;

(c) proposed dates for the next regular annual meeting following the one to which the provisional agenda relates.

The Executive Secretary shall transmit to all Members of the Committee, at least 45 days in advance of the Committee's meeting, the provisional agenda and explanatory memoranda or reports related thereto.

IV. CHAIRMAN AND VICE-CHAIRMEN

Rule 8

The Committee shall elect a Chairman and two or more Vice-Chairmen on the basis of procedures referred to in Rule 3 above. The Chairman and Vice-Chairmen shall be elected for a term of two years except in the case of the first Chairman who shall be elected for a term of three years.

The Chairman and Vice-Chairmen shall not be re-elected to their post for more than one term. The Chairman and Vice-Chairmen shall not be representatives of the same contracting party.

Rule 9

Amongst other duties, the Chairman shall have the following powers and responsibilities:

(a) convene, open, preside at, and close each meeting of the Committee;

(b) make rulings on points of order raised at meetings of the Committee, provided that each representative retains the right to request that any such decision be submitted to the Committee for approval;

(c) put questions and notify the Committee of the results of votes;

(d) approve a provisional agenda for the meeting after consultation with representatives and the Executive Secretary;

(e) sign, on behalf of the Committee, the reports of each meeting for transmission to its members, representatives and other interested persons as official documents of the proceedings;

(f) present the report of the Scientific Committee to the Commission;

and

(g) exercise other powers and responsibilities as provided in these Rules and make such decisions and give such directions to the Executive Secretary as will ensure that the business of the Committee is carried out effectively and in accordance with its decisions.

Rule 10

Whenever the Chairman is unable to act, the Vice-Chairmen shall assume the powers and responsibilities of the Chairman.

Rule 11

In the event of the office of the Chairman falling vacant between meetings, the Vice-Chairmen shall exercise the powers and perform the duties of the Chairman until a new Chairman is elected.

Rule 12

The Chairman and Vice-Chairmen shall commence the fulfilment of their obligations at the conclusion of the meeting of the Committee at which they have been elected, with the exception of the first Chairman and Vice-Chairmen who shall take office immediately upon their election.

V. SUBSIDIARY BODIES

Rule 13

The Committee shall establish, with the approval of the Commission, such subsidiary bodies as it deems necessary for the performance of its functions and determine their composition and terms of reference.

Where applicable, subsidiary bodies shall operate on the basis of the Rules of Procedure of the Committee.

VI. PROGRAM OF WORK

Rule 14

At each annual meeting the Scientific Committee shall submit to the Commission an estimate of the budget required for the work of the Scientific Committee for the forthcoming year with a forecast for the subsequent year.

VII. SECRETARIAT

Rule 15

As a general rule, the Committee and its subsidiary bodies shall make use of the facilities of the Secretariat for the fulfilment of their functions.

VIII. LANGUAGES

Rule 16

The official and working languages of the Committee shall be Russian, English, French and Spanish.

IX. RECORDS AND REPORTS

Rule 17

At each meeting the Committee shall prepare, and immediately thereafter transmit, a report to the Commission in accordance with Rule 3. Such report shall summarise the discussions of the Committee. The report shall include and provide the rationale for all findings and recommendations and shall include any minority reports provided to the Chairman. A copy of the report shall be transmitted to members of the Committee.

Rule 18

The Executive Secretary shall present as soon as possible to the members of the Scientific Committee brief records of each plenary session, of every meeting of all subsidiary bodies, and of reports, resolutions, recommendations and other decisions taken.

X. OBSERVERS

Rule 19

The Scientific Committee may extend an invitation to any organisation referred to in paragraphs 2 and 3 of Article XXIII of the Convention or to any of those with which the Commission has entered into agreements in accordance with paragraph 4 of the same Article, to attend the meetings of the Scientific Committee and its subsidiary bodies as observers.

Rule 20

(1) Observers may submit documents to the Secretariat for distribution to members of the Committee as information documents. Such documents shall be relevant to matters under consideration in the Committee.

(2) Unless a member or members of the Committee request otherwise, such documents shall be available only in the language or languages and in the quantities in which they were submitted.

(3) Such documents shall only be considered as Committee documents if so decided by the Committee.

ANNEX 6

COMMERCIAL FISHERY DATA BEFORE SEPT. 1983

For both finfish and krill, indicate whether the following data exist.

	FINFISH Indicate years for which data exist.	KRILL Indicate years for which data exist.
Number of vessels fishing		
Characteristics of vessels		
Length		
Displacement		
Horse power		
Hold capacity		
Processing rate (per day)		
Characteristics of gear		
Pelagic Trawls		
Bottom Trawls		
Cod end mesh size		
Catch (amount)		
Species Identification		
Location, by FAO subarea		
Location, by 10° square		
Location, by 5° square		
Location, by 1° square		
Location, by actual position		
Date of catch		
Catch per tow		
Catch per hour		
Catch per month		
Catch per season		
Effort (activity)		
Number and duration of tows		

	FINFISH	KRILL
Number days fished		
Number hours fished		
Time spent searching		
Time spent other activities		
Biological		
Length samples		
Age samples		
Sex, maturity		
Samples from landings		
Sampled on commercial vessels (sci.crew)		
Sampled on harvesting – research vessels		
Sampled monthly		
Sampled daily		
Location, by FAO subarea		
Location, by 10° square		
Location, by 5° square		
Location, by 1° square		
Location, by catch position		
Environmental conditions (related to fishing activity)		
Sea ice		
Sea state		
Wind speed		
Surface temperature		
Bottom temperature		
Other		
Data description		
data are source documents (e.g. logbooks)		
data are records of individual activities		
data are daily summaries		
data are trip summaries		
data are fleet summaries		
data are national summaries		

ANNEX 7

SCIENTIFIC DATA INVENTORY

TOPICS

1. Shipboard research

SHIP'S NAME
CRUISE IDENTIFICATION
AGENCY
DATES AND CRUISE DETAILS
STUDY AREA
CRUISE OBJECTIVE
SCIENTIFIC OBJECTIVES
SAMPLING PROGRAM
DATA REDUCTION AND ANALYSIS
AVAILABILITY OF DATA
REQUESTS FOR DATA
CRUISE TRACK

2. Shorebased and other research

PROJECT TITLE
AGENCY
DATES
STUDY AREA
SCIENTIFIC OBJECTIVES
SAMPLING PROGRAM
DATA REDUCTION AND ANALYSIS
AVAILABILITY OF DATA
REQUESTS FOR DATA

EXAMPLE

M.V. Nella Dan	#1 FIBEX (First International BIOMASS Experiment)		
Agency	Antarctic Division, Department of Science & Technology		
Dates and Cruise Details	Departed Melbourne	9	January 1981
	Arrived study area	18	January
	Departed study area	13	March
	Arrived Melbourne	28	March
	Marine research undertaken over 28 days between 18 January and 13 March.		
Study Area	South of 60°S to the Antarctic continent between 60°E and 90°E.		
Cruise objectives	Participate in First International BIOMASS Experiment. Deliver cargo and passenger to Davis and Mawson.		
Scientific objectives	- Accoustic survey for quantitative estimation of krill and other zooplankton. - Trawling for target identification and assessment. - Oceanography, circulation patterns, geostropic flow. - Survey of phytoplankton. - Seabird distribution and abundance.		
Sampling Program	- Midwater trawls for zooplankton. Rectangular Midwater Trawl ($8m^2$) blind (36) and aimed (23) hauls. Bongo net and conical nets (61 oblique tows). - Hydrographic stations (52 CTD stations to 2000m or bottom). Conductivity, temperature, depth. Expendable bathy thermographs (86 probes to 450m). - Phytoplankton – Rosette water sampling at 52 CTD + 6 other stations. - Seabirds – observed 10 mins/hour for all daylight hours. - Accoustic survey 9000 n miles. Quantitative echosounding 0–250 m at 120 KHz and 38 KHz.		

	Trawling and hydrographic stations taken at approximately same position and time and as close as possible to solar noon and solar midnight.
Data Reduction and Analysis	Zooplankton. Catch weighed then sorted into major groups and then to species wherever possible. *E. superba* was sub-sampled and sorted for sex and maturity. Length frequency determined on separate sub-samples. Phytoplankton. Light microscopy on material for enumeration and identification. Preservation of material for later analysis and taxonomic studies by electron microscopy. Quantitative chemical analysis for pigments including chlorophyll. Oceanography. Full set salinity and temperature data at standard depths for each station. Continuous CTD data available. XBT data for each drop available for standard depths. Seawater analysis. Sea birds. Distribution and abundance of all species observed.
Availability of Data	Published data – Full zooplankton data available, Williams et al. (1983). Oceanographic data available on request for each station and standard depths. Magnetic tape – Full FIBEX data set including accoustic, trawling and oceanographic data recorded on magnetic tape in the formats required for the Post-FIBEX data workshop in Hamburg. Partial data set on phytoplankton. These data as a general principle are available to scientific organisations on an exchange basis.

Requests for Data	Published data, data reports etc. are available on request. Data stored on magnetic tape will in general be made available on request providing proprietorial rights of the Antarctic Division and the appropriate scientists are respected. Requests for data should be made to the – Director Antarctic Division Channel Highway KINGSTON TAS. 7150
Cruise Track	To be attached.

ANNEX 8

INVENTORY OF EXISTING LOGBOOKS AND PROPOSALS FOR BASIC INFORMATION

1. Logbooks for Fish Statistics

The desirable information is as follows:

(a) Description of Vessel

- name of ship
- registration number and port of registration
- ship nationality
- gross register tonnage
- length overall (m)
- maximum shaft power (kW at … rev/min) or horse power

(b) Description of Gear

- trawl type (according to FAO nomenclature)
- code number for trawl type
- mouth opening or length of bottom rope and length of upper rope (m)
- effective area of mouth (m^2)
- mesh size at mouth (mm stretched)
- mesh size at codend (mm stretched)
- liner mesh size

(c) Tow Information

- date
- position at start of fishing (in degrees and minutes)
- time at start of fishing (in hour and minutes GMT; if local time, indicate the variation from GMT)
- time at end of fishing (before hauling)
- bottom depth (m)
- fishing depth (only if midwater trawl)

- direction of trawling (if the track changed during trawling, give the direction of the longest part of the track)
- towing speed

(d) Environment

- speed of wind (knots) or wind force (Beaufort Scale)
- surface temperature
- temperature at the net depth

(e) Catch Records for Each Tow

- estimated total catch (kg)
- approximate species composition (percent of total)
- amount and composition of discards
- number of boxes of each size of fish per species if any

(f) General Information

- explain why the ship was not fishing (searching, adverse weather conditions, steaming to/from port, inability to process catch, etc.)

2. Logbooks for Krill Statistics

The desirable information is as follows:

(a) Description of Vessel

Same information as under 1(a).

(b) Description of Gear

Same information as under 1(b); in addition:

- underwater accoustic equipment echosounders (types and frequencies), sonar (types and frequencies), netsounds (yes/no).

(c) Tow Information

Same information as under 1(c) ; in addition

accoustic targets: apparent/not apparent
at one level/more than one level
moving up/moving down/stationary.

(d) Environment

Same information as under 1(d); in addition:

- sea state
- presence or not of ice in water
- cloud coverage or type of weather.

(e) Catch

- estimated total catch (kg)
- approximate species composition (percent of total)
- weight (kg) of krill
- proportion of other edible species (specify) if any
- proportion of inedible (specify)
- average size of krill (mm) or commercial size categories.

(f) General information

- number of ships searching or fishing together
- approximate distance between swarms (nautical miles)
- activity of ship: for each hour (01 to 24) of each day, give the following information: fishing/searching/adverse weather conditions/steaming/ processing limitations/other.

ANNEX 9

AD HOC WORKING GROUP ON DATA COLLECTION AND HANDLING

Terms of Reference

1. To consider the kinds and amount of data required for assessing the state of fish and krill resources.

2. To take into account the experience and programs of already existing international and national data base operations (e.g. ICES, IWC, NAFO) or those developing (BIOMASS) in order to develop the required data base most efficiently and compatibly.

3. To consider as the first priority the data needed from the fishing operations, including associated scouting and exploratory operations. The scientific cruise data which provide the biological information necessary for assessment of state of the resources should also be considered.

4. To consider the need for 1983/84 fishery data and advise on the most appropriate format and timing for reporting such data to the Secretariat.

5. To consider the longer term routine data needs to allow assessment of stocks that are of particular concern; consider the means of obtaining the required data from member countries, and advise on the steps to develop the format of the data base which CCAMLR maintains.

6. To advise on actions and work programmes, including processing requirements, necessary for the effective operation of the data base and assessment activities.

7. To identify gaps in key data, drawing attention [of the Scientific Committee] to needs for planning to gather data on such aspects.

ANNEX 10

QUESTIONS FOR SCAR GROUP OF SPECIALISTS ON SEALS

1. What if any species or populations of Antarctic seals might function as useful indicators of local, regional, or area-wide changes in the Antarctic marine ecosystem caused by harvest of krill or other populations of Antarctic marine living resources?

2. What are the factors that should be considered, including the possible use of controlled experiments, in order to determine whether, what, and how selected seal populations might function as indirect indicators of harvest-caused changes in krill or other harvested populations of Antarctic marine living resources?

3. What is the nature and adequacy of existing population data and what are the types of studies that would be required to establish a suitable basis (baseline) for detecting and monitoring changes and trends in potential indicator species and populations?

4. What are the types of long-term monitoring studies, including possible study locations and sampling frequencies (periods), that likely would be most useful for detecting and assessing the possible significance of changes and trends in selected indicator species on populations?

5. What is the possible utility of sighting data or other data that could be collected opportunistically from vessels engaged in fishing or other activities in the Convention Area and, if potentially useful, what are the types of data that should be collected and how should they be recorded and reported to be optimally useful?

6. What is the time that would be required to develop meaningful baselines and to detect different levels of change in selected indicators?

QUESTIONS FOR BIOMASS WORKING PARTY ON BIRD ECOLOGY

1. What if any species or populations of Antarctic birds might function as useful indicators of local, regional, or area-wide changes in the Antarctic marine ecosystem caused by harvest of krill or other populations of Antarctic marine living resources?

2. What are the factors that should be considered by way of ornithological and controlled experiments, in order to determine whether, what, and how selected bird populations might function as indirect indicators of harvest-caused changes in krill or other harvested populations of Antarctic marine living resources?

3. What is the nature and adequacy of existing population data and what are the types of studies that would be required to establish a suitable basis (baseline) for detecting and monitoring changes and trends in potential indicator species and populations?

4. What are the types of long-term monitoring studies, including possible study locations and sampling frequencies, that likely would be most useful for detecting and assessing the possible significance of changes and trends in selected indicator species on populations?

5. What is the possible utility of sighting data or other data that has been and could be collected opportunistically from vessels engaged in fishing or other activities in the Convention Area and, if potentially useful, what are the types of data that should be collected and how should it be recorded and reported to be optimally useful?

6. What is the time that would be required to develop meaningful baselines and to detect different levels of change in selected indicators?

ANNEX 11

1984 BUDGET FOR SCIENTIFIC COMMITTEE

1.	Meetings	$
	Possible provision for the cost of a meeting of the *ad hoc* Working Group on Data Collection and Handling.	
	Secretarial and other services estimated for one week's operation.	2,000
	Possible provision for Invited Experts.	6,000
		8,000

2. Services From Other Organisations

(a) BIOMASS Resources Review

The Committee agreed to request a review of the marine living resources of the Southern Ocean from the Group of specialists on Southern Ocean Ecosystems and their Living Resources.

100 copies of 200 pages at $40 each	4,000

(b) Species Identification Sheets

It has been proposed that CCAMLR negotiate with FAO the joint publication of Species Identification Sheets for the Southern Ocean. These manuscripts are being prepared free of charge by scientists in various countries; editorial work, typing, drawing, and some translations are being arranged by FAO.

CCAMLR commitment involves only the cost of publication and translation into working languages of the Convention.

		$
Alternative A:		
English version 2,000 copies		25,000
French, Russian, Spanish versions 500 copies each		21,000
		46,000*

*Note: The provision for this item is likely to be required over two financial years as translations become available. The FAO observer suggested an equal split between the 1984–1985 financial years.

Alternative B:

Spreading out over three years	1984:	20,000
the cost of printing in four	1985:	14,000
languages	1986:	12,000
		46,000

3. Travel Implications for the Secretariat

It was agreed that certain travel would be necessary for the Data Manager to visit various national and international centres, to attend the CWP and to attend a meeting of the Working Group on Data Collection and Handling (if away from Hobart).

Estimated provision 14,000

4. Preparation and Distribution of Reports, Papers Publications

(a) Preparation and distribution of reports from members on:
   (i) ecosystem and resource management
   (ii) fish stock assessment
   (40 papers in total are envisaged).

		$
	Translation (it is envisaged that papers of five pages and less will be translated in full and for papers in excess of five pages, only the abstracts and the titles of figures and tables will be translated).	
	Estimated cost of translation	20,000
	Estimated printing cost (100 copies of each report)	2,000
	Distribution	300
		22,300
(b)	Translation, printing and distribution of reports on past and future fisheries and scientific activities.	
	(Assuming 16 members report: approximately four pages each) Translation	6,000
	Printing	300
		6,300
(c)	Report of the *ad hoc* Working Group on Data Collection and Handling.	
	(Assuming a 40-page report in four languages)	
	Translation	4,000
	Printing (100 copies)	200
	Distribution	300
		4,500
(d)	Scientific papers to the next meeting.	
	(Assuming 25 papers of approximately 20 pages each)	
	Translation	12,500
	Printing	625
		13,125
TOTAL BUDGET for 1984:		
	Alternative A:	95,225
	Alternative B:	88,225

ANNEX 12

INVITATIONS RECEIVED BY CCAMLR TO ATTEND MEETINGS OF OTHER INTERNATIONAL ORGANISATIONS

FAO	COFI Technical Committee 'Fisheries management'	October 1983 Rome
ICCAT		3 – 18 November 1983 Madrid
IUCN Council Meeting		November 1983 Gland, Switzerland
IWC Scientific Committee		26 May – 6 June 1984 Eastbourne
IWC		25 – 30 June 1984 Buenos Aires
SCAR		24 September – 5 October 1984 Bremerhaven