

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.

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.

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

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 hydroacoustics 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, euphausiids, 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.