

**REPORT OF THE INFORMAL GROUP ON THE
LONG-TERM PROGRAM OF WORK FOR THE
SCIENTIFIC COMMITTEE**

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INTRODUCTION

During the Fourth Meeting to the Scientific Committee, it was agreed that the Committee's ability to successfully achieve its goals would be enhanced by outlining and annually updating a long-term program of work. This establishment of such a long-term agenda would permit the orderly and sequential development of the appropriate data bases and analyses required to meet obligations specified in the Convention.

2. At its Fourth Meeting, the Scientific Committee developed a provisional matrix including anticipated activities for the next 5 years (Appendix I). In keeping with the agreement that this matrix should be updated regularly, a number of Members met informally just prior to the Fifth Meeting of the Scientific Committee (Appendix 3). The following paragraphs and the updated activity matrix (Appendix 2) reflect these informal discussions.

ADVICE TO THE COMMISSION

3. Purpose: The Scientific Committee has the responsibility to provide the best scientific advice on the status of living resources and the marine ecosystem to the Commission, to ensure the wise conservation and management of resources according to Article II of the Convention.

4. Strategy:

- (a) Review results of stock assessment and ecosystem monitoring activities, including research methods and their ability to help achieve priority objectives of the Commission, and report the results of these analyses to the Commission with regard to the status of living resources and the ecosystem.
- (b) Establish criteria for conservation measures.
- (c) Review the effectiveness of conservation measures.

5. In formulating advice to the Commission, there was general support for using the approach outlined in the paper circulated by D. Miller entitled, 'Modelling and Decision Making as Part of the CCAMLR Management Regime'. In this context, it was also noted that without data on the historical responses of stocks, it will be difficult to use such models to predict possible effects of different management strategies.

6. The Scientific Committee must define in more detail the process by which it formulates advice to the Commission (procedural mechanisms). Furthermore, the Committee needs to annually review the actual steps that can be taken to meet its responsibility to provide advice and management options to the Commission.

7. The activity on the long-term plan dealing with protocols for management advice is an essential component of other work. A clear idea of the objectives for formulating scientific advice to the Commission is necessary for designing research and analysis programs in order to ensure that the data collected and methods used are necessary and sufficient for achieving conservation objectives.

FISHERY STOCK ASSESSMENTS

8. Purpose: To evaluate the status of target species such as krill and finfish in order to provide a background for the development of conservation and management strategies. To collect, analyse, and interpret data both through commercial fishing and scientific research activities.

9. Strategy:

- (a) Monitor catch and fishing effort of commercial fishing activity in the Convention area.
- (b) Evaluate interannual variation and monitor distribution of krill, fish, and other prey.
- (c) Evaluate sampling biases.
- (d) Initiate time-series surveys to assess spatial and temporal variability of fish and krill stocks, independent of commercial fishing operations.

MAMMAL AND BIRD POPULATION ASSESSMENTS

10. Purpose: Review and, in consultation with SCAR, IWC, and other expert groups, assess the status and population trends of Antarctic whales, seals, and seabirds, with special attention given to the recovery of depleted or declining stocks.

11. Strategy:

- (a) Identify priority data requirements and determine optimal sources of data to assess population status and trends.
- (b) Recommend steps to improve the accuracy of stock assessments and to facilitate the recovery of depleted or declining populations.
- (c) Co-ordinate and encourage close interactions with groups outside of the Scientific Committee with expertise in Antarctic marine mammals and birds such as the International Whaling Commission, the SCAR Group of Specialists on Seals, and the SCAR Subcommittee on Bird Ecology.

12. The Scientific Committee should take care not to duplicate the efforts of existing expert mammal and bird groups outside of CCAMLR. Instead, the Committee should identify the types of data that it requires, and determine through consultation the extent to which other expert groups can fulfil these needs. The Scientific Committee will then be in a position to decide whether it will undertake selected priority assessments on its own.

ECOSYSTEM MONITORING

13. Purpose: To detect and record significant changes in key components of the ecosystem, to serve as the basis for the conservation of Antarctic marine living resources.

14. Strategy:

- (a) Design and implement a system that monitors key predator and prey components of the ecosystem.
- (b) Recommend research protocols and methodologies for the monitoring program.

- (c) Initiate and/or continue time-series of measurements on selected parameters of krill and its predators.
- (d) Co-ordinate the collection, handling, analysis, and interpretation of monitoring data.

**ACTIVITIES TO BE COMPLETED PRIOR TO THE SCIENTIFIC COMMITTEE'S MEETING
HELD DURING THE YEAR INDICATED**

AREAS TO BE ADDRESSED BY THE SCIENTIFIC COMMITTEE	1985	1986	1987	1988	1989	1990
ADVICE TO THE COMMISSION	Formulate operational objectives and promulgate scientific advice protocols					
	Review effectiveness of conservation measures	----->	----->	----->	----->	----->
FISHERY STOCK ASSESSMENT	Establish data collection and reporting requirements for finfish	Implement routine reporting of commercial fish data and establish CCAMLR data base	----->	----->	----->	----->
		Update stock assessments	----->	----->	----->	----->
		Define spatial distribution and mesh selectivity for management advice				
		Obtain available historic fish data for data base				
		Define recruitment index surveys	Implement recruitment index surveys	----->	----->	----->
	Evaluate results of krill CPUE workshop	Consider interim report of krill CPUE simulation study	Consider final report of krill CPUE simulation study	Implement routine reporting of commercial krill data and establish CCAMLR data base as necessary	----->	----->
			Establish krill fishery data collection and reporting requirements as appropriate	Obtain available historic krill fishery data		
MAMMAL/BIRD ASSESSMENT		Encourage directed stock assessment research				
		Review current status of whale and seal stocks	Evaluate potential methods for monitoring population trends			
ECOSYSTEM MONITORING	Evaluate feasibility and desirability of ecosystem monitoring program	Design and plan ecosystem monitoring program	Begin to establish baselines for priority indicators	Review results of previous years	----->	Initial 5 year program review
		Define remote sensing archive needs for physical environment data	Establish remote sensing archive	Continue to develop data base	----->	----->
			Establish historic relational data base			

**GENERIC ACTIVITIES FOR CONSIDERATION OF INCLUSION IN
THE LONG-TERM PLAN OF THE SCIENTIFIC COMMITTEE**

Areas to be addressed by the Scientific Committee	1986	1987	1988	1989	1990	
ADVICE TO THE COMMISSION	Formulate immediate and practical objectives	----->	----->	----->	----->	
	Provide best scientific information available on changes in the status of the living resources and the ecosystem	----->	----->	----->	----->	
	Provide management advice	----->	----->	----->	----->	
	Review effectiveness of conservation measures	----->	----->	----->	----->	
FISHERY STOCK ASSESSMENTS						
FINFISH:	Implement routine reporting of commercial fish data and establish CCAMLR data base by establishing formal requirements for reporting age and length data from commercial fisheries	----->	----->	----->	----->	
	Update stock assessments	----->	----->	----->	----->	
	Define spatial distribution of stocks	----->	----->	----->	----->	
	Determine mesh selectivity for management advice					
	Obtain available historic fish data for data base					
	Develop requirements for future data from research vessel fish surveys, means of coordinating program among countries, and specific objectives		Conduct scientific research surveys for stock assessment and mesh selectivity studies	----->	----->	----->
	Define recruitment index surveys		Implement recruitment index surveys	Review results of fish surveys	----->	----->
	Determine extent & status of ichthyoplankton collections and establish species list and reference collection		Conduct ichthyoplankton and larval fish surveys	Refine estimates of abundance and evaluate year to year variations and trends	----->	----->
			Establish long-term sampling protocol	Refine estimates of recruitment year to year	----->	----->

Areas to be addressed by the Scientific Committee	1986	1987	1988	1989	1990
KRILL:	Review status of krill CPUE simulation study	Consider interim report of krill CPUE simulation study Initiate stock assessment surveys and baseline studies Conduct acoustic target strength measurements on krill and other prey Evaluate statistical bias in year types	Consider final report of krill CPUE simulation study Continue stock assessment surveys and baseline studies Conduct small-scale studies on krill patch and swarm structure and its effects on population dynamics Establish krill fishery data collection and reporting requirements as appropriate Obtain available historic krill fishery data Refine estimates of abundance and evaluate year to year variations and trends Evaluate effectiveness of photographic or video methods of size and acoustic target observations	Implement routine reporting of commercial krill data & establish CCAMLR data base as necessary	

Areas to be addressed by the Scientific Committee	1986	1987	1988	1989	1990	
MAMMAL AND BIRD POPULATION ASSESSMENTS	WHALES: Re-analyse historical whaling data for distribution and abundance trends	----->				
		Evaluate potential utility of sightings data for investigating stock recovery, abundance and distribution	----->	----->	----->	
		Assess feasibility of using photogrammetry and satellite telemetry to assess distribution, movements, and behaviour	----->			
		Develop experimental protocol for deploying satellite-linked telemetry		----->		
	SEALS:	Refine population estimates for pack ice seals	----->	----->	----->	----->
		Review the status of population of southern elephant seals, especially in areas where declining	----->	----->	----->	----->
		Review the status of recovering populations of Antarctic fur seals and initiate surveys where needed	Assess the recovery of Antarctic fur seals at selected sites	----->	----->	----->
	SEABIRDS:	Review the current status of seabird populations	----->	----->	----->	----->
	ECOSYSTEM MONITORING	Design and plan the ecosystem monitoring		Review results of previous years and modify plans as required	----->	Program review ----->
		Define remote sensing archive needs for physical environment data	Establish remote sensing archive			
Evaluate technological needs to achieve predator monitoring goals		Develop appropriate technological instruments to aid monitoring activities	----->	----->	----->	
Begin to collect data on recommended parameters to form baseline		Establish historic relational data base	Continue to develop and analyse data base	----->	----->	

**INFORMAL GROUP ON THE LONG-TERM PROGRAM OF WORK
FOR THE SCIENTIFIC COMMITTEE**

7 September 1986, Hobart

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