

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

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The Informal Group on the Long-Term Program of Work for the Scientific Committee met on 25 October 1987 in association with the Sixth Meeting of the CCAMLR Scientific Committee in Hobart, Australia.

2. At its first meeting the Convener of the Group, Dr K. Sherman (USA), presented a draft agenda which had been circulated in advance and outlined two major tasks to be addressed by the Group: improving the level of co-ordination of various national scientific programs and updating the long-term program of work for the Scientific Committee.

3. Two papers prepared by the Convener were available for discussion at the meeting: 'Proposed Activities for the Long-Term Program of the Work of the Scientific Committee of the Commission for the Conservation of Antarctic Marine Living Resources' (WG-LTP-87/4) and 'Framework for the Co-ordination of the Long-Term Program of Work for the Scientific Committee' (WG-LTP-87/5).

4. It was proposed that the level of co-ordination of various national scientific programs might be improved if, in addition to plans for the forthcoming season, plans for future seasons would also be reported by members.

5. Proposed formats for reporting pertinent program activities were considered. The merit of using reporting systems of other relevant international organisations and SCAR in particular, were suggested. However, the Group concluded that the SCAR reporting system does not provide the necessary level of detail and that a format designed for the unique ecosystem approach of CCAMLR would be preferable.

6. It was decided to draft a request form for information on planned national research programs. The form, kindly drafted by Dr John Heap (UK) includes the following major topics for each program: (1) scientific objectives, (2) study area, (3) period of study, (4) facilities to be used, and (5) other details.

7. Members were asked to complete the prepared research program inventory form regarding 1987/1988 programs and provide an indication of planned programs over the next two Antarctic seasons (1988/89 and 1989/90). A summary of this information for 1987/88 is found in Appendix A. Information such as this would be used as the basis for improving overall co-ordination and integration of national programs in support of the scientific program

of CCAMLR. A draft set of the research program inventory forms was compiled during the meeting; Members were invited to provide additions or revisions to these forms to the Secretariat by 7 December 1987. The revised set of forms will be placed as an annex to the Members' Activities Reports (CCAMLR-MA/4-1986/87).

8. It was agreed that the Long-Term Program of Work approved by the Scientific Committee during the Fifth Meeting of the Scientific Committee provided a useful framework for focusing activities of the Scientific Committee. The Committee requested that this Program of Work should be updated annually, following the conclusion of the Scientific Committee deliberations so as to include pertinent activities endorsed by the Scientific Committee. The updated plan will appear as an annex to the report of the Scientific Committee.

9. At present, information which is being collected by the Group indicates only the level and scope of Members' activities for the forthcoming season. It is impossible at such short notice to co-ordinate them or to introduce changes to program designs in spite of some spacial and temporal coincidence between national research programs.

10. A suggestion was made that some level of co-ordination might be achieved if information on national research programs were known at least 2 or 3 years in advance. In this case the timing and survey areas of national programs could be adjusted to gain the maximum benefit from effective use of ship-time, compatible methods of sampling, possibility of obtaining larger samples over a wider area, exchange of field information etc.

11. During the past two years, the Group has made several attempts to collect information regarding future research plans. However, the level of details in replies was not adequate for co-ordination purposes. It became evident that any further request for information should cover future research (at least for 3 years) and contain a list of specific questions.

12. To assist Members, the Group decided that such a list, the same as used this year, should be included into next year's Guidelines for preparation of Member's Activities Reports. The Secretariat should collate information on the research program inventory form before the next meeting of the Group. Such information should be requested and updated annually.

13. The process of gathering and integrating information on future research plans is complex. A first step is a simple compilation of research plans to obtain an idea of the topics,

timing, and location of planned investigations. This is being done now by the Group through the forms submitted by Members.

14. The next step involves the assistance of the various Working Groups of the Scientific Committee. They should come forward with suggestions for specific integrated studies. Such suggestions should be accompanied by sampling procedures, proposed areas and timings of multinational studies. The last step is for the Informal Group on the Long-Term Program of Work to co-ordinate implementation of actual programs.

15. In connection with this a question was raised on the status of the Group. It is not clear whether the Group should take over duties of other working Groups in the co-ordination of integrated research or if it should return to its initial task of simple compilation of information on current and planned Members' research activities.

16. In light of the discussions at the 3 November 1987 meeting of the Informal Group on the Long-Term Program of Work for the Scientific Committee, it was agreed that those countries indicating planned survey activities for the 1987/88 and 1988/89 seasons should proceed with bilateral and multilateral planning to advance the work of the Scientific Committee.

17. For example, for the 1987/88 field season, planning includes the co-ordination of the following joint surveys and studies in support of fish stock assessment, krill ecology, and predator studies. Assessments of demersal fish are planned for the Kerguelen shelf area by France/USSR; a US/Polish bottom trawl and experimental fish recruitment index survey will be conducted in the South Georgia shelf area. Based on needs identified during the Scientific Committee discussions, the USSR is exploring the possibility of redirecting a fish stock assessment survey to the South Georgia area during the mid to late portion of the 1987/88 season. Preliminary plans for the 1987/88 season have been developed for complementary studies on krill ecology (age and growth/stock separation), oceanography, and acoustic/net biomass assessments in the Antarctic Peninsula integrated study area by US/Poland/USSR/Japan. Further joint studies on krill target strength are planned by the UK and Norway for the South Georgia area. Joint investigations of predators will be conducted by the US, Chile and Sweden. In addition, a collaborative study on the analysis of specimen material from recent crabeater seal collections will be carried out by the USSR and us within the framework of the Ecosystem Monitoring Program.

18. Consistent with the long-term plan, multinational studies on fish stock assessment, krill ecology, and predators will also be conducted during the 1988/89 field season. A joint

US/Polish bottom trawl survey and fish recruitment index survey around South Georgia is scheduled for the December–January period. Also, the GDR is planning a bottom trawl survey on the shelf of South Georgia. Krill assessment surveys including oceanographic net sampling and hydroacoustic methodologies are planned by US/Poland within the Scotia Sea/Antarctic Peninsula area. Studies of ecosystem structure, including krill, water column productivity, and environmental conditions, within the areas of the Antarctic Peninsula, South Orkney Islands, and Weddell Sea will be conducted during the European Polarstern Study (EPOS) by Belgium, Federal Republic of Germany, France, Norway, Spain, Sweden and United Kingdom. Efforts are underway to link the EPOS activities with other CCAMLR surveys. Joint studies on the ecology, behaviour, and population structure of pinnipeds and seabirds will be conducted by the US, Chile, and Sweden. Plans for co-ordinated studies of pinniped ecology among other CCAMLR members, including the USSR, will be developed during the intersessional period.

19. A matrix outlining the long-term program of work for the Scientific Committee is shown in Appendix B. The long-term plan of work will be reviewed, evaluated, and updated at the 1988 meeting of the Scientific Committee (SC-CAMLR-VI, paragraph 11.8).

**SUMMARY OF NATIONAL RESEARCH PROGRAMS FOR 1987/88**

Table A.1: Fish stock assessment surveys and related studies to be conducted during the 1987/88 Antarctic field season.

Area	Country	Dates	Sampling strategy
South Georgia	US/Poland	Dec–Jan	Stratified random with commercial bottom trawls (120 stations), recruitment index/ichthyoplankton survey.
Scotia Sea Ant. Peninsula South Shetlands Commonwealth Bay	USSR	Dec–Apr	Commercial bottom trawl, including fish selectivity.
Elephant Island	FRG	Oct–Dec	Stratified random with commercial bottom trawls, ichthyoplankton.
Gerlache Strait	Chile	Jan–Feb	Small boat, fish ecology
Kerguelen EEZ	France/USSR	Feb–Apr	Stratified random with commercial bottom trawl.
	France/USSR	Jul–Aug	Ichthyoplankton survey.
	France	Oct–Sep	Observer program on board commercial trawlers, nearshore ichthyoplankton
Crozet	France	Oct–Nov	Exploratory survey

Table A.2: Krill relative abundance and related studies to be conducted during the 1987/88 Antarctic field season.

Area	Country	Dates	Research Objectives and Sampling Strategy
Prydz Bay	Australia	Jan–Feb	Acoustic estimation of krill.
Admiralty Bay, Bransfield Strait and Elephant Island	Brazil	Dec–April	Krill distribution population structure.
Bransfield Strait	Chile	Feb	Identification of krill stocks.
Elephant Island to Adelaide Island	FRG	Oct–Dec	Abundance estimates of krill, RMT 1+8.
Elephant Island or South Orkneys	Japan	Dec	Acoustic and net estimates of krill, patch studies with commercial vessel, intercalibration with US/Polish acoustic systems.
Antarctic Pen. area, South Shetland Island	Poland/US	Jan–Feb	Acoustic and net estimates of krill abundance, patch study in co-operation with Japan.
South Georgia	UK/Norway	Jan–Mar	Krill target strength.
Scotia Sea	Korea, Republic of	Dec–Feb	Environmental effects on krill distribution and abundance.
Scotia Sea (45°–60°S)	USSR	Jan–Mar	oceanographic research of krill ecology, trawl survey on krill concentrations using commercial trawl and Issacs-Kidd trawl under control of hydroacoustic devices.
Atlantic Sector 52–62°S between 20–55°W	USSR	Dec–April	Integrated studies on Antarctic krill resources

Table A.3: Marine mammal and bird studies to be conducted during the 1987/88 Antarctic field season.

Area	Country	Dates	Research objectives and Sampling Strategy
King George Island S. Orkney Island	Argentina	Oct–Apr	Ecology of fur seals, elephant seals, and Adelie penguins.
Prydz Bay, Mawson, Davis, and Heard and Macquarie Is.	Australia	Oct–Mar	Census, behaviour, diet, metabolism of crabeater and elephant seals, Adelie and emperor penguins.
South Shetlands	Brazil	Dec–Apr	Census, ecology, and physiology of seabirds.
King George Is., Livingston Island	Chile	Dec–Feb	Monitoring and ecology of penguins and fur seals.
Elephant Island	Chile/US	Feb	Penguin and fur seal foraging areas.
Ross Sea	New Zealand	Nov–Feb	Census, feeding ecology, and physiology of Adelie penguins.
South Georgia	UK	all year	Bird and seal ecology.
Scotia Sea	Sweden/US	Jun	Contaminants in ice-dwelling seals.
South Shetlands, Anvers Island, and Antarctic Pen.	US	Dec–Feb	monitoring and directed ecological research on fur seals and penguins.
Scotia Sea	US	Jun	Feeding ecology and movements of crabeater seals.
Lützow-Holm Bay	Japan	Oct–Feb	Penguin and seal ecology.

Table A.4: Environmental measurements and related studies to be conducted during the 1987/88 Antarctic field season.

Area	Country	Dates	Research Objectives and Sampling Strategy
Prydz Bay Hobart/Commonwealth Bay	Australia	Nov–Feb	Current meters, CTD transects.
Kerguelen	France/USSR	Feb–Apr Jul–Aug	XBTs
Elephant Island to Adelaide Island	FRG	Oct–Dec	Long-term variability of water masses, time series since 1983, CTD transects.
Elephant Island to S. Orkney Island	Japan	Dec	Temperature, salinity, chlorophyll, chemistry.
E. Drake Passage Elephant Island area	Japan	Jan	Temperature, salinity, chlorophyll, chemistry.
Bransfield Strait and Scotia Sea	UK	Jan–Feb	Frontal systems and Antarctic Circumpolar Current.
South Georgia and Bransfield Strait	UK	Jan–Feb	Nutrient flux and net primary production.
Scotia Sea, Ant. Peninsula, South Shetland Is., Commonwealth Bay	USSR	Dec–Apr	oceanographic research.
South Georgia	US/Poland	Dec-Jan	Hydrography, XBTs.
South Shetland Is., Bransfield Strait	US/Poland	Jan-Feb	Primary productivity, effects of ozone depletion. XBTs, CTD, C <sup>14</sup>

## LONG-TERM PROGRAM OF WORK FOR ME SCIENTIFIC COMMITTEE

B/1

	1987/88	1988/89	1989/90	1990/91	1991/92
1. <u>ADVICE TO THE COMMISSION</u>	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				
2. <u>FISHERY STOCK ASSESSMENTS</u>					
2.1 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				

	1987/88	1988/89	1989/90	1990/91	1991/92
FINFISH (Continued)	Define spatial distribution of stocks	Review results of stock identity studies	_____>		
	Obtain available historic fish data for data base	_____>			
	Develop requirements for future data from research vessel fish surveys, mans of coordinating program among countries, and specific objectives	Conduct co-ordinated research vessel fish surveys	Review the results from co-ordinated research vessel fish surveys	_____>	
	Conduct scientific research surveys for stock assessment and mesh selectivity studies	Conduct experimental studies on mesh selectivity	Review and evaluate results of experimental mesh selectivity studies	_____>	
	Implement preliminary recruitment index surveys	Review results of recruitment index surveys	Implement routine recruitment index surveys	_____>	
	Conduct ichthyoplankton surveys	Review and evaluate results of ichthyoplankton surveys	Implement routine ichthyoplankton surveys	_____>	
			Refine estimates of abundance and evaluate year to year variations and trends	_____>	
	Develop long-term sampling protocol	Refine estimates of recruitment year to year	_____>		

	1987/88	1988/89	1989/90	1990/91	1991/92	
2.2 KRILL:	Consider interim report of krill CPUE simulation study	Consider final report of krill CPUE simulation study	—————>			
		Review potential of stock assessment surveys and baseline studies	Initiate stock assessment surveys and baseline studies	—————>		
	Conduct acoustic target strength measurements on krill				—————>	
	Evaluate statistical bias in gear types				—————>	
			Review results and improve co-ordinated small-scale studies on patch and swarm structure and their effects on population dynamics			—————>
			Review krill fishery data collection and reporting requirements as appropriate			
	Initiate exploratory krill surveys	Review results and applicability of exploratory krill surveys	Implement routine reporting of commercial krill data and establish CCAMLR data base as necessary		—————>	

	1987/88	1988/89	1989/90	1990/91	1991/92
KRILL (Continued)		Initiate procedure to procure available historic krill fishery data	—————>		
		Review estimates of abundance and evaluate year to year trends	—————>		
		Review and evaluate techniques of size and acoustic target observations	—————>		
3. <u>ECOSYSTEM MONITORING:</u>	Initiate monitoring program for predators	Further develop predator monitoring	—————>		
		Develop monitoring program for prey	Initiate monitoring program for prey	—————>	
	Develop methods for additional predator parameters	Review predator parameters and update additional methods	—————>		
	Develop predator data reporting formats	Develop and review data reporting and archiving formats	—————>		
	Develop proposals for registration of land-based monitoring sites	Review status of land-based monitoring sites	—————>		

	1987/88	1988/89	1989/90	1990/91	1991/92
ECOSYSTEM MONITORING (Continued)	Initiate preliminary sensitivity analyses of existing data				
	Identify requirements for appropriate data	Recommend methods for acquiring environmental data	→		
	Evaluate possible sampling and survey designs for prey monitoring	Recommend standard methods including development of data formats			
	Analyse CZCS* remote sensing data	→			
4. <u>MARINE MAMMAL AND BIRD POPULATION ASSESSMENTS</u>					
4.1 WHALES	Review the current status of cetacean populations			Update evaluation of the status of whale populations	
			Review the results of the IWC Comprehensive Assessment		
	Evaluate potential utility of sightings data for investigating stock recovery, abundance and distribution	→			

\* CZCS = Coastal Zone Color Scanner

	1987/88	1988/89	1989/90	1990/91	1991/92
WHALES (Continued)	Assess feasibility of using photogrammetry and satellite telemetry to assess distribution, movements, and behaviour	→	Develop experimental protocol for deploying satellite-linked telemetry	→	→
4.2 SEALS:	Review the current status of pinniped populations			Update evaluation of the status of seal populations	
	Refine population estimates for pack ice seals	→			→
	Investigate the cause of the populations decline of southern elephant seals	→			→
	Assess the recovery of Antarctic fur seals at selected sites	→			→
4.3 SEABIRDS:	Review the current status of seabird populations			Update evaluation of the status of seabird populations	
	Review the status of wandering albatross populations	→			→