SCIENTIFIC COMMITTEE ON ANTARCTIC RESEARCH

WORKING GROUP ON BIOLOGY BIRD BIOLOGY SUBCOMMITTEE

MINUTES OF MEETINGS, 16-18 JULY 1990, SAO PAULO, BRAZIL

1. PARTICIPANTS AND AGENDA

Dr. J.P. Croxall, as Chairman, welcomed members and observers (Annex l) to the meeting. Apologies had been received from D.G. Ainley, J. Cooper, P.C. Harper, G.L. Hunt, P. Jouventin, P.A. Prince, M. Sallaberry and M. Sander.

The Chairman particularly regretted the absence of the Secretary (Mr Cooper), who had conducted the large amount of intersessional business with exemplary efficiency. Subcommittee members had generally been most helpful in promoting activities initiated at the last meeting; the intersessional period had been especially productive.

A modified agenda was adopted and various documents tabled. Copies of the minutes of the previous meeting (published in *Cormorant* 16:138-158) were distributed.

2. CENTRAL DATA BANK FOR ANTARCTIC BIRD BANDING

2.1 Primary banding data

Since the last meeting the report for 1985/86 has been published (*Cormorant* 17:35-40 and Annex 2), recording a minimum total of 19 948 birds of 42 species banded in the region by nine nations. In his report to the meeting the CDB Data Manager, Mr T.B. Oatley, noted that a complete report for 1986/87 could be published if data for Chile were forthcoming. Data for 1987/88 were outstanding from Australia, Chile, France and the German Democratic Republic (DDR). Data for 1988/89 had so far only been received from Brazil, New Zealand, South Africa and the United Kingdom.

Mr Oatley was thanked for his report. The Subcommittee noted that with the CDB prepared to receive either primary banding schedules or species summaries, the above delays in report submission were inexcusable. Once again, the Working Group on Biology was asked to remind all SCAR nations of the requirement to submit banding returns on an annual basis (SCAR XX, Rec. Biol. 6.l).

At the meeting Dr Valencia (Chile) tabled banding data for Wilson's Storm Petrel *Oceanites oceanicus* for 1986/87, 1988/98 and 1989/90 and for Adélie Penguin *Pygoscelis adeliae* for 1988/89. He agreed to contact Dr Sallaberry and arrange the forwarding of any remaining banding data. Dr Sanders (Brazil) had sent their 1989/90 data.

Dr Bannasch (DDR) stated that they had recently started computerization of banding data. This and the switch from 18-month to 6-month expeditions should make prompt submission of banding data much easier. Dr Sadleir noted that banding was being conducted at New Zealand sub-Antarctic islands and agreed to try to expedite submission of these data.

It was believed that some SCAR nations were no longer conducting bird-banding because of difficulties in obtaining bands. Several members offered to assist in this respect; the Secretary would forward any requests for help.

Prof. Siegfried informed the meeting that the CDB had now been transferred to a new base in the Department of Mathematical Statistics at the University of Cape Town. The Percy FitzPatrick

Institute was thanked for housing the CDB since its inception. It was agreed that the Chairman should write to Prof. L.G. Underhill, thanking him for accepting responsibility for the CDB and emphasizing its important role in coordinating the increasing volume of Antarctic bird-banding.

The Subcommittee agreed that the next report from the CDB should be expanded to include a restatement of the rationale for, and terms of reference of, the CDB. It should also contain a detailed analysis of the numbers of birds banded by each country in each year since the formation of the CDB (and indicating the years for which data are available but unsubmitted) and the total numbers of each species banded in each year (distinguishing between adults and fledglings).

Copies of this report should be sent to all agencies providing Antarctic bird-banding data, together with a letter of thanks from the Chairman for their help, indicating the value that the Antarctic community places on the service from the CDB.

2.2 Colour-banding inventory

The request from the CDB Manager (to 21 addresses in 13 countries) for updating this inventory had produced eight replies. Information from Chile was tabled at the meeting and data for DDR would be sent soon. Participants from Brazil indicated that they were not using colour bands. Argentinian information on colour bands used in Antarctica between 1987 and 1990 was received by the Secretary after the meeting. Thus, with the possible exception of data from individual U.S.A. researchers, the Subcommittee felt that knowledge of existing colour-banding operations was satisfactorily comprehensive. This enabled the CDB to provide a useful service in responding to enquiries regarding the origin of sightings of colour-banded birds and providing advice in avoiding duplication of colour combinations on the same species and/or in adjacent areas.

Dr Fraser was asked to ensure that U.S. researchers engaged in seabird research are asked, at their orientation meetings, to advise the Secretary of the Subcommittee of their banding and/or colour-marking activities.

3. RECENT PUBLICATIONS ON ANTARCTIC AND SUBANTARCTIC BIRDS

Annual lists continue to be compiled for publication in *Marine Ornithology* (formerly *Cormorant*). Members and observers of the Subcommittee are requested to submit either reprints or publication citations to the Secretary, J. Cooper, FitzPatrick Institute, University of Cape Town, Rondebosch 7700, South Africa.

The present status of annual lists is:

1984-1986. Published: *Cormorant* 15:67-88 (1987).
1987. Published: *Cormorant* 16: 41-45 (1988).
1988. Published: *Cormorant* 17: 19-25 (1989).
1989. Published: *Marine Ornithology* 18: 19-25 (1990).
1990. In preparation, to be published in *Marine Ornithology* Vol. 19 (1991).

Participants reaffirmed the usefulness of this service and noted that it was especially valuable to recent and new members of SCAR.

4. SYNTHESIS OF DATA ON ANTARCTIC SEABIRD DISTRIBUTION AND ABUNDANCE

4.1 Penguins

Mr E. J. Woehler had made great progress with the revision of the Subcommittee's 1983 publication. The massive amount of data available since 1980 meant that the current version was essentially a completely new publication. The Subcommittee thanked Mr Woehler for his work and made the following recommendations to him to assist the process of final revision:

1) to ensure that the sources of all non-updated

information from the 1983 synthesis were clearly referenced, ensuring that the new volume was completely self-contained and comprehensive;
2) to reorganize the treatment of the Antarctic Peninsula area in accordance with the detailed suggestions made by Ms S. Poncet (*in litt.* to J.P. Croxall);
3) to incorporate such additional recent information (including unpublished data from 1989/90) as is supplied to Mr Woehler before September 1990.

On the basis of the existing tabled document, however, the Subcommittee had complete confidence in recommending to the Working Group on Biology that SCAR should arrange publication of this volume as soon as possible. The following proposals were made to help implement this:

1) Final copy of text and maps to reach the SCAR Secretariat by 31 December 1990.
2) Publication to high quality standards of layout and artwork by 31 December 1991.
3) If SCAR cannot meet the above commitments alone, that the Bird Biology Subcommittee be requested to seek additional outside support, including co-sponsorship from bodies such as the Japanese Penguin Foundation, subject to the final approval of SCAR.

4.2 Other seabirds

At the Hobart meeting, discussion was also held on the desirability of producing similiar syntheses of other species of sub-Antarctic and Antarctic birds. Participants were asked to provide the Secretary with additional relevant information by 1 September 1989 so that an initial review could be made at the next meeting. Although subcommittee members were reminded of this request only a few replies were received.

Despite this, the Subcommittee considered that the production of such syntheses is an important undertaking with additional significant implications for conservation in the Antarctic. However, this project should not proceed until suitable arrangements are made for a computerized inventory, of easy access and update.

Mr Cooper was asked to consult with appropriate specialists (see also below) to determine an optimum structure and format for such a database. He should report to the Subcommittee at its next meeting.

A meeting at the International Ornithological Congress (December 1990 in New Zealand) is reviewing the topic of "Computerized colony registries: their design and use in seabird research, management and conservation". The Chairman and Secretary were asked to report the conclusions of this meeting to the Subcommittee.

In the meantime, members were asked to bring together relevant information from their own published and unpublished sources in order to expedite progress once appropriate database structure and data entry formats have been developed.

5. INTERNATIONAL GIANT PETREL PROJECT

Dr S. Hunter (the co-ordinator) submitted a report on this project, which was carried out by eight nations in 1988/89, in order to study patterns of dispersal and mortality in young giant petrels *Macronectes* sp. to help understand why giant petrel populations are currently declining.

Totals of 1 759 Northern Giant Petrel *M. halli* and 5 851 Southern Giant Petrel *M. giganteus* nestlings were banded at eight localities in the sub-Antarctic and Antarctic, although these totals may be increased by returns still to be received from DDR. New Zealand regretted that cessation of banding activities at the Chatham Islands precluded its participation. This total probably represents about 40% of the annual world chick production for *M. halli* and about 30% for *M. giganteus*. This could

yield about 100 recoveries during the two or three years after banding. These recovery data can then be combined with those from birds banded in previous years in order to investigate species and geographical differences in post-fledging dispersal and mortality.

The successful conclusion of this project requires detailed analysis of all recoveries, most of which can be expected within two to three years of banding. The Working Group on Biology was requested to ask SCAR National Committees to ensure that participants submit copies of all recoveries of giant petrels to the Secretary of the Subcommittee by 31 December 1991. At this time the Secretary is requested to consult with Dr Hunter and to arrange the analysis of the data and the production of an interim report to be tabled at the 1992 meeting of the Subcommittee.

6. CCAMLR-RELATED ACTIVITIES

6.1 CCAMLR Ecosystem Monitoring Programme (CEMP)

At its last meeting the Subcommittee reviewed the inception of the CEMP, the selection of six species (Adélie Penguin, Chinstrap Penguin *P. antarctica*, Macaroni Penguin *Eudyptes chrysolophus*, Blackbrowed Albatross *Diomedea melanophris*, Pintado Petrel *Daption capense* and Antarctic Petrel *Thalassoica antarctica*) for monitoring in respect of interactions with Antarctic Krill *Euphausia superba*, and the development of standard methods for monitoring selected parameters of Adélie, Chinstrap and Macaroni Penguins and Blackbrowed Albatross.

The original methods for these species had been prepared chiefly by Drs D.G. Ainley and J.P. Croxall. During subsequent major revisions, there had not been the opportunity to solicit adequate critical input from appropriate seabird specialists. The new revised version, however, had now been circulated to all members of the Subcommittee. Members were asked to send detailed comments direct to the CCAMLR Secretariat before 31 August 1990, in time for the next CEMP meeting in early September 1990 in Stockholm. The extensive review of the document in progress by Dr W.Z. Trivelpiece assisted by Drs Ainley and Fraser was welcomed.

The Subcommittee noted that most of its suggestions on species and sites, made at the last meeting, had been accepted by CCAMLR. Dr Bannasch suggested that the Gentoo Penguin *Pygoscelis papua* was an entirely suitable monitoring species in respect of krill. There was general agreement and Dr Croxall indicated that he has already prepared a paper for CEMP making a formal suggestion to this effect. Dr Ferreira was pleased to report that Esperanza would now became a CEMP network monitoring site (as recommended by the Subcommittee) because expected construction work was not now to take place.

Participants expressed great concern that Admiralty Bay, King George Island, South Shetland Islands, is no longer listed by the USA as a CEMP site. The penguin research at this locality (within the priority Antarctic Peninsula Integrated Study Region), funded by NSF and led by Dr Trivelpiece, is the leading current longterm study of penguin biology and ecology in the Antarctic. CCAMLR has already drawn heavily on this research in drafting its standard methods and many, if not most, types of data being collected there are of direct relevance to CCAMLR. In particular the availability of multiyear data sets on Adélie and Chinstrap Penguins represent a unique source of data on the nature and patterns of intra- and inter-annual variation in several CEMP parameters. Such data are vital in testing many assumptions of the CEMP.

Dr Fraser informed the Subcommittee that it would be straight-forward to undertake monitoring of all existing CEMP parameters for all three (including Gentoo) penguin species at this site, providing some additional support was provided from the CCAMLR programme. Current support from NSF

is sufficient only to undertake the detailed ecological and demographic research approved through the peer review of the current research proposal.

The Subcommittee recommended that SCAR request the U.S. National Committee to investigate the most effective way of rapidly ensuring that the CEMP benefit from the results of the unique penguin research being undertaken at Admiralty Bay by incorporating the site in the CEMP and extending the research to cover monitoring the parameters approved by the CEMP.

6.2 Status and trends of Antarctic seabirds

Because the CEMP does not include all species of seabirds, there was a request from CCAMLR in 1987 to review the available information on the population status and trends of all Antarctic seabirds. This review was completed at the last Subcommittee meeting, and transmitted to the 1988 CCAMLR meeting. The Subcommittee was thanked for its detailed and comprehensive review and asked to prepare an update prior to the 1992 CCAMLR meeting. To help achieve this, members and other interested parties will receive from the Secretary new summary forms requesting relevant information. A new summary based on these data will be prepared at the Subcommittee 1992 meeting and made available to CCAMLR for its meeting in 1992.

6.3 Krill consumption of predators in CEMP Integrated Study Regions

A request was received from Dr J.L. Bengtson, Convenor, WG-CEMP, requesting assistance from the Subcommittee in evaluating the possibility of synthesizing data on seabird population size, diet and energy budgets in order to provide estimates of krill consumption by predators during their breeding seasons. This request was motivated by the recognition that the commercial krill fishery in the South Atlantic sector was occurring primarily within the foraging ranges of breeding seabird populations being monitored by CCAMLR in the South Georgia and Antarctic Peninsula Integrated Study Regions (ISR).

The Subcommittee acknowledged the importance, magnitude and complexity of this task, and in particular the sensivity of such assessments to inaccuracies in estimates of population size, energy (food) consumption rates and foraging ranges. However, it recognized that major improvements in the empirical data available for Antarctic seabirds had occurred since earlier preliminary assessments of this kind. Accordingly, it was felt timely and important for CCAMLR to undertake this work and, moreover, that the weaknesses of the seabird data were unlikely to be greater than uncertainties attending the information on krill biomass, production rates and throughput and in the commercial harvest.

The Subcommittee suggested to CCAMLR that a sensible approach might be the development of submodels for the best-studied parts of each ISR and then to expand such treatments to the wider region. A useful approach would be for members who have developed such models in the past to update these and to make their methods and conclusions available to CCAMLR. At the same time members with information on the distribution and abundance of seabird populations in the ISRs should synthesize these in preparation for the region-wide assessments.

To ensure the use of the most appropriate model(s) and agreement on the correct parameter values, CCAMLR was strongly recommended to convene a workshop. This should be held at a venue where models can be mounted and run on computers and participants can interactively refine these and examine the effects of using different parameter values and assumptions. Such a meeting was unlikely to be feasible before 1992. One possible venue might be the BIOMASS Data Centre (Cambridge, UK), and the Chairman was asked to investigate this (and whether any BIOMASS funds might remain which could help participants attend).

6.4 Plastic pollution

Following discussions at its last meeting, the Subcommittee was asked by CCAMLR to review information on the nature and effects of plastic pollution in Antarctic and sub-Antarctic seabirds and to propose methods by which the incidence of this might be monitored. A report (Annex 4) had been prepared by J. Cooper and P.G. Ryan (Percy FitzPatrick Institute, University of Cape Town). The Subcommittee thanked them for doing this and endorsed its conclusions, especially the need for experimental work on the actual effects of plastic pollution on seabirds. Such research has been undertaken in South Africa. New Zealand is starting a standard scheme to monitor the incidence of plastic pollution in beach-cast seabirds. The Netherlands is starting a programme at Arctowski Station, King George Island on plastics in the diet of Wilson's Storm Petrel.

Recent oil pollution incidents have provided dramatic reminders of the vulnerability of seabirds, especially penguins, to this form of pollution.

6.5 Incidental mortality

The subject of the effects of the long-line fishery on seabirds within and outside the Southern Ocean was brought to the attention of the Subcommittee by several participants. It was noted that incidental seabird mortality due to the long-line fishery for *Dissostichus* at South Georgia has the potential to become a serious problem. There is now substantial evidence that migratory Antarctic seabirds are subjected to significant incidental mortality by long-line fishing, and possibly by drift nets, outside the Southern Ocean.

It was recommended that CCAMLR should place observers on the ships of nations engaged in Antarctic long-line fisheries as soon as possible. Furthermore, the Subcommittee recommended that SCAR request National Committees to inform their respective fishery agencies of concern about the magnitude of this problem in fisheries outside the Southern Ocean involving Antarctic seabirds. Data on methodologies that diminish incidental seabird mortality at long-lining vessels should be made available to all relevant nations via SCAR (and CCAMLR). The Chairman undertook to obtain such information from the Australian scientists who had conducted these studies.

7. BIOMASS - RELATED ACTIVITIES

7.1 Computerization of penguin distributional data

The BIOMASS Data Centre (BDC) had been unable to offer advice on this topic during the absence of a BDC Manager; subsequently the work load on new staff had precluded a response. Action on this topic will now proceed in conjunction with that under item 6.2.

7.2 SIBEX seabird data

Following SCAR Rec XX-Biol-6.5, South African data have now been received at the BDC; Australian data have now been processed and are believed to be ready for submission soon.

At its last meeting the Subcommittee established an *ad hoc* group (Prof. G.L. Hunt (Chairman), Dr J.P. Croxall, Prof. A. Myrcha) to investigate the utility and means of analysing seabird-at-sea data collected during SIBEX. This group addressed a detailed set of questions to the BDC. Some initial responses to these are being prepared. On receipt of these the *ad hoc* group will advise the Subcommittee on appropriate courses of action. The Subcommittee thanked the group for its efforts. It indicated that in order to recommend that a Workshop be held, it needed convincing that the coordinated analysis of seabird, krill and oceanographic data would produce significant advances beyond results already published (and incorporating SIBEX data) by various research groups. In the event of no Workshop being held, the Subcommittee suggested that the SIBEX data

in the BDC should be used to generate suites of distribution maps, which might subsequently contribute to seabird-at-sea atlases.

7.3 BIOMASS Colloquium

The Subcommittee suggested that the forthcoming meeting of the BIOMASS Executive be made aware of the many contributions that SCAR seabird groups have made in terms of meeting and supporting BIOMASS objectives. A review of the progress and achievements of Antarctic seabird research during the existence of the BIOMASS programme would be a valuable contribution to the BIOMASS Colloquium.

8. RELATIONS WITH THE BIOTAS PROGRAMME

The BIOTAS programme is attempting to integrate Antarctic/sub-Antarctic terrestrial biology along a common theme; namely, colonization of Antarctic terrestrial ecosystems. The Subcommittee learned from Dr R.I.L. Smith, the programme convenor, that seabirds may play an important role as active agents in the transfer of propagules both within Antarctica and between Antarctica and adjacent land masses, as well as in successional events related to site alteration and nutrient deposition. The Subcommittee noted that many of its members are already engaged in research that may be pertinent to BIOTAS objectives and interests. Dr P. Jouventin, a Subcommittee member, will be assisting in the preparation of a manual that will deal with methods to be used by researchers studying seabirds in BIOTAS or BIOTAS-related work. The Subcommittee welcomed these developments and hoped for increasing contact with the BIOTAS programme in the future.

9. COORDINATION OF ANTARCTIC SEABIRD RESEARCH

9.1 Seabirds-at-sea atlas

The Subcommittee recognized the value of E.J. Woehler and J. Cooper's proposal to ask SCAR nations about the nature and availability of their data regarding the pelagic distribution of Southern Ocean seabirds with a view to producing a distributional atlas. Being aware that potential problems may exist in the compatibility of the various data sets, however, the Subcommittee recommended that the initial objective should be to examine how the various existing data sets (and especially those already computerized) are organized. The Secretary will request information on the nature of members' seabirds-at-sea databases and report to the next meeting of the Subcommittee.

9.2 Potential ornithological contribution to the Antarctic element of the IGBP

The nature of the contribution of Antarctic marine ecological programmes to the International Geosphere-Biosphere Programme (IGBP) was a major topic addressed by the SCAR Group of Specialists on Southern Ocean Ecology. This group had convened a Workshop on the Ecology of the Antarctic Sea Ice Zone (ASIZ) (Trondheim, May 1990), whose terms of reference included, but were not confined to, the IGBP initiative. The report of this Group emphasised the importance of coordinated international study of the processes of key importance in the ASIZ, focusing particularly on:

a) factors controlling life cycles and survival of biota,

b) importance of sea ice and ice biota in ocean-atmosphere exchanges,

c) nature of biogeochemical cycles in the water column and benthos.

Key questions relating to high trophic level predators were:

What is the biomass, diversity, turnover and organization of the pelagic community?

What are the components of the food web that support the top predators, and how do these vary seasonally?

What is the importance of sea-ice, and polynyas

within sea-ice, as a habitat for birds and marine mammals?
How does the ice modify the availability of prey to seabirds and marine mammals?
How do seasonal changes in sea-ice cover affect the demography and trophodynamics of key organisms within the pelagic (krill-dependent) food web?

Given the broad nature of these questions and that programme implementation proposals will be developed over the next year or so, the Subcommittee felt that it was probably premature to assemble a coordinated international seabird programme to address IGBP objectives. The Subcommittee thus recommends that members should continue current developments in technology and programmes which have potential for contribution to IGBP objectives. It noted that seabird research during the U.S. AMERIEZ programme (Antarctic Marine Ecosystem Research at the Ice Edge Zone), had made valuable contributions to the whole programme and been influential in developing new views of processes in the Antarctic Sea Ice Zone. Another programme of importance, scheduled to start in October 1990, is the U.S. Long Term Ecological Research (LTER) programme at Palmer Station. Using seabirds to sample the marine environment, this programme focuses on ecological processes which link the extent of annual pack-ice to the biological dynamics of different trophic levels within the Antarctic marine environment. Emphasis in this programme is placed on Adélie Penguins and South Polar Skuas *Catharacta maccormicki*, krill and Antarctic silverfish *Pleurogramma antarcticum*, primary production and the bio-optical and hydrographic characteristics of the water column. The Subcommittee strongly endorsed the U.S. LTER programme and recommended that similar initiatives be started elsewhere.

9.3 Other matters

a. New molecular biology techniques

Being aware that 1) a number of Antarctic bird investigations are using techniques of molecular biology to study taxonomy, population biology and physiology; and 2) there may be value in collaborative research and/or standardization of techniques in this research field, the Subcommittee requests the Secretary to 1) gather summary information from all members as to current, or immediately proposed, research in these fields (i.e. projects by members involving molecular biology, including, but not limited to, DNA "fingerprinting" and enzyme loci polymorphism); and 2) report back to the Subcommittee as to the present and future status of this field of research as applied to Antarctic birds. In undertaking this it may be advantageous to liaise with the Working Group on Biology *ad hoc* Subcommittee on Evolutionary Genetics.

b. Pollutants

Because the issue of pollutants in Antarctica is becoming an increasingly important topic, the Subcommittee requests that the Secretary contact the U.S. National Science Foundation, Office of Health, Safety and Environment, to obtain information on its current attempts to define pollutants in Antarctica and address issues of detection and monitoring in order to present this information to Subcommittee members at the next meeting

c. New remote aquisition of data technology

In view of the increasing sophistication of this technology, and the rapidity with which new advances are occurring, the Subcommittee considered the suggestion that a workshop on the subject be convened. The Chairman indicated that a relevant workshop was being held at the International Ornithological Congress (IOC) in New Zealand, and thus it may be premature for the Subcommittee to propose a workshop of its own at this time. To address this issue, however, the Subcommittee made the following proposals:

1. Since the Chairman is attending the IOC,

that he obtain relevant materials and distribute them to members and participants.

2. There is an obvious need to begin standardizing techniques and equipment to make the analysis and interpretation of data more compatible. There are proposals in train that CCAMLR consider sponsoring a workshop addressing the use of dive recorders, currently the instruments most widely utilized in remote sensing within the context of ecophysiological studies. Members will be kept informed of progress.

9.4 Seabird research at King George Island

Noting the continuing increase in seabird research activity on King George Island and mindful of concerns expressed at the last meeting, the Subcommittee felt that an item should be placed on the agenda of its next meeting to allow discussion of the best ways to coordinate and integrate seabird research at this site.

9.5 Research reports

To improve the Subcommittee's ability to promote coordinated seabird research, it recommended to the Working Group on Biology that each member of SCAR should produce a brief (no more than three or four pages) report on its ornithological research. These reports should be available at each meeting of the Subcommittee and should cover research conducted since the previous meeting and that projected for the next few years.

10. ANY OTHER BUSINESS

10.1 SCAR Antarctic Science Conference

Given the declared goals of this conference (to be held in Bremerhaven, FRG, 23-27 September 1991) and recognizing that birds, especially penguins, have great popular appeal, the Subcommittee suggested that the scope of the proposed conference should include a significant segment allocated to a presentation aimed at highlighting the results of modern scientific research on Antarctic seabirds, with particular emphasis on applications to environmental conservation.

10.2 International Council for Bird Preservation World Conference

This meeting, at Hamilton, New Zealand, includes a special Workshop (on 19-20 November 1990), on "Seabirds on islands: threats, case studies and action plans". It will include reviews of threats to seabirds from pollution, commercial fisheries, predation and human disturbance.

Case studies of relevance to Southern Ocean seabirds are the Chatham Islands and Amsterdam Island. The Chairman will ensure circulation to members of relevant documents during 1991.

10.3 International Ornithological Congress

This Congress, at Christchurch, New Zealand, 2-9 December 1990, has a number of meetings of interest to Antarctic seabird researchers:

a) Symposium on "Seabirds as monitors of changing marine environments",

b) Workshop on "Seabird researches and future needs",

c) Workshop on "Technological innovations for examining activity budgets of seabirds". This includes radioisotope techniques, depth and activity recorders, heart telemetry, satellite telemetry, and instrument effects. Several Antarctic researchers are involved.

The Chairman will ensure circulation to all members of relevant documents during 1991.

10.4 Antarctic protected areas

a) The Secretary of the Working Group on Biology had solicited the Subcommittee's comments on the management plans for the proposed SSSIs at Lion's Rump and Ardley Island. The Subcommittee approved these plans from an ornithological perspective.

b) Correspondence had been received and circulated concerning the desirability of the protected area at Avian Island being converted from a SSSI to a SPA. There was unanimous agreement for this action and it was pleasing to note that GOSEAC had now made a similar recommendation.

c) Both within SCAR (in management plans for protected areas) and CCAMLR (in the registration of sites for monitoring), there exists the provision for establishing colonies of birds, especially penguins, to act as "controls" against the effects of monitoring and related research. The Subcommittee recommended that members take advantage of these provisions.

11. MEMBERSHIP

Dr P.C. Harper had written indicating his resignation from the Subcommittee. The Chairman will write to express the Subcommittee's thanks for his services over the last eight years. The Subcommittee requested the Working Group on Biology to add Dr L.S. Davis (University of Otago, New Zealand) to the membership of the group.

12. NEXT MEETING

The Subcommittee requested permission of the Working Group on Biology to meet in association with XXII SCAR in Argentina in July 1992.

The Chairman expressed his concern that so few members of the Subcommittee had been able to attend this meeting and in particular the extent to which the absence of the Secretary had restricted the efficient conduct of business.

The Subcommittee noted that it distributed and exchanged a considerable volume of material between meetings and was one of SCAR's most active groups intersessionally. It usually published annually two or three papers and produced several documents for CCAMLR, all at no cost to SCAR. The Subcommittee therefore felt it was timely to request the Working Group on Biology to include in its budgets the sum of $7 500 for each meeting of the Subcommittee, in order to assist members who have no, or limited, other sources of funds, to attend meetings. The Secretary should have priority call on these funds.

13. RECOMMENDATIONS

13.1 To SCAR via the Working Group on Biology

1. Notes that the evidence which led to SCAR Rec. XX Biol. 1 (concerning incidental mortality of seabirds due to long-line fishing) has been substantially augmented and that this Recommendation should be reiterated to National Committees.

2. Notes that of the other Recommendations made at XX SCAR, XX Biol. 6.1, 6.2 and 6.3 concerning prompt and timely submission of banding data remain in force and should be reaffirmed.

3. Requests that SCAR undertake the production and publication of the volume on the "Distribution and abundance of Antarctic penguins".

4. Requests National Committees to submit recoveries of giant petrels from recent ringing activities, especially the International Giant Petrel Project, to the Secretary of the Bird Biology Subcommitte by 31 December 1991.

5. Requests SCAR to ask the U.S. National Committee to investigate the most effective way of rapidly ensuring that the CEMP benefit from the results of the unique penguin research being undertaken at Admiralty Bay by incorporating the site into the CCAMLR Ecosystem Monitoring Programme (CEMP) and extending the research to cover monitoring the parameters approved by the CEMP.

6. Requests CCAMLR to place observers on the ships of nations engaged in Southern Ocean long-line fisheries as soon as possible.

13.2 To the Working Group on Biology

1. Requests that Dr L.S. Davis be added to the membership of the Subcommittee.

2. Requests the sum of $ 7 500 to enable members (and especially the Secretary) to attend the meeting of the Subcommittee in 1992.

ANNEX I: NAMES AND ADDRESSES OF PARTICIPANTS

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