



**Meeting of BIOMASS Working Party
on Bird Ecology**

*Hamburg, F.R.G.
September, 1981*

BIOMASS Report Series

21

SCAR/SCOR/IABO/ACMRR GROUP OF SPECIALISTS

on Southern Ocean Ecosystems and their Living Resources

Meeting of BIOMASS Working Party on Bird Ecology

Hamburg, F.R.G.

September 1981

REPORT OF MEETING OF BIOMASS WORKING PARTY
ON BIRD ECOLOGY

Hamburg, West Germany, 30 September 1981.

Present : J.P. Croxall (Secretary)
P. Jouventin
K.R. Kerry
W.R. Siegfried (Chairman)

Apologies: P.C. Harper
D.F. Parmelee
H. Remmert
R.F. Schlatter
W. Trivelpiece

Observers: K.H. Kock
T. Nemoto
D.B. Siniff

1. Six papers were tabled (Annex 1) and a set of these is lodged with the Secretary and with the SCAR Secretariat at the Scott Polar Research Institute, Cambridge.

2. Synthesis of penguin numbers and distribution.

The draft report (Document 1) was received from G.J. Wilson and circulated to members of the WPBE for comments. Responses from Dr. Mougín (Document 3) and Miss Horne had been received. It was agreed that Dr. Croxall should collate these responses and make any appropriate editorial amendments. The manuscript and maps should then be returned to Dr. Harper to arrange with Mr. Wilson the incorporation of necessary modifications and the production of a final version conforming to the format of the BIOMASS Report Series.

It was noted that this penguin synthesis was not entirely appropriate for the Report series and would also require a much more extensive print run to ensure adequate distribution. The content and format of the BIOMASS Handbooks make the synthesis inappropriate for that series and it was agreed that the Working Party

should suggest to the Group of Specialists that the initiation of a BIOMASS Data Series be investigated. If this could be started by June 1982, the penguin synthesis would be made available for this series.

If such a series was not initiated the Working Party recommended that the penguin synthesis be published as soon as possible in the BIOMASS Report or Research Series and that the Working Party should advise on the necessary print run.

3. BIOMASS Handbooks

The Handbooks on "Recording Observations of Birds at Sea" (ed. W.R. Siegfried) and "Monitoring Studies of Seabirds" (ed. J.P. Croxall), produced on behalf of the Working Party, were sent to Dr. Tranter on 18 May 1981. At this time Dr. Kerry was asked to correspond direct with Dr. Tranter concerning the Handbook on "Penguin Census Methods" to be edited by Miss Horne. Dr. Kerry agreed to forward the manuscript of this to Dr. Tranter as soon as possible and to enquire as to the progress of the other Handbooks.

4. Squid Workshop

The workshop on the identification of cephalopods in the diet of their predators was convened by Dr. M.R. Clarke at the Plymouth Laboratory of the Marine Biological Association, UK, 1-12 June 1981: Thirty participants attended representing ten countries - Australia, Canada, Chile, Denmark, France, Japan, New Zealand, South Africa, United Kingdom, USA.

A major part of the workshop was devoted to the preparation of keys for the identification of beaks to genus (and in some families to species), based principally on beaks extracted from identified cephalopods. Subsequently, beaks from the stomachs of predators of many kinds (e.g. whales, dolphins, seals, seabirds) were examined.

Stereo colour photographs were taken of representative specimens of a majority of the taxa present and these, with the keys, will form the foundation of a handbook on the identification of squid beaks which is being edited by Dr. Clarke.

5. Fish Remains Identification

Following the success of the Squid Workshop, it was recognised that an important complement is the need for a manual for the identification of fish remains, (especially otoliths but also vertebrae and scales where possible).

The Working Party recommended to the Group of Specialists that the Working Party on Fish Biology should be requested to undertake the production of such a manual.

It also suggested that they should be asked to investigate the availability of specialists prepared to undertake identification of otoliths from predator stomach contents and the possibility of establishing a reference collection of otoliths for the use of scientists working on analysis of stomach contents of fish predators.

6. Antarctic and SubAntarctic seabird weight data compilation

The compilation for the Procellariidae, Hydrobatidae and Pelecanoididae (Document 4) is now on computer file and a summary listing of mean weights for each component species has been produced. Professor Siegfried undertook to send copies of Document 4 to Drs. Kerry and Jouventin.

To complete the weight compilation the data for the penguins, albatrosses and Charadriiformes are required. Dr. Jouventin agreed to correspond with Prof. Prevost to determine what progress had been made with the penguin compilation and undertook to complete this task if necessary. The Secretary would write to Prof. Parmelee requesting a final summary of all charadriiform data and also agreed to produce a similar summary for the albatrosses. Prof. Siegfried would send coding forms to Prof. Parmelee, Dr. Jouventin and Dr. Croxall to facilitate data entry.

All completed forms should be sent to Dr. Croxall by 1st June 1982 and he will collate them and forward them to Prof. Siegfried for data entry.

The Secretary agreed to supply Dr. Jouventin with a copy of the original specifications for the compilation, as in the record of the Pretoria

meeting.

It was recommended that the final weight data base in its entirety and the summary listings of mean weights for all species should be published as soon as possible, preferably in a BIOMASS Data Series but failing this in the BIOMASS Report Series.

7. Central databank (CDB) for co-ordination of Antarctic bird banding. Mr. Oatley's report on progress with the CDB (Document 5) was tabled and discussed. He was thanked for his work in seeking to establish the CDB and it was noted that of all those who had responded to the second circular of February 1981 were in favour of the scheme but that 60% of banding organizations contacted had failed to respond yet.

To overcome some apprehensions concerning work load Mr. Oatley had suggested that tape copies of the primary ringing data be submitted to be CDB. The CDB would arrange subroutines to convert each contributors data to the standard CDB format.

The Working Party approved Mr. Oatley's suggestion that he should explain these developments and supply details of the tape requirements to all banding schemes together with a summary of final proposals and a deadline for reply. It was understood and agreed that unless a majority of banding schemes respond favourably to these proposals it will be impracticable to proceed further with plans to establish a CDB.

8. ISAS activities

Dr Parmelee's letter of 17 September 1981 (Document 6) gives details of American ornithological work in 1981-82 that may produce data of relevance to ISAS and of proposals for work of greater significance in 1982-83.

Little further information was available at the meeting and it was agreed that the Secretary should write to ISAS National Project Supervisors enquiring whether the ISAS operations set out in BIOMASS Report Series 18, pp 2-4 are still current and requesting information on any revised plans.

9. Handbook on census and monitoring techniques for Antarctic and Sub-Antarctic seabirds.

It was agreed that there is a need for more details on the methods appropriate to the conduct of Antarctic seabird surveys and to the analysis and interpretation of the resulting data.

Preliminary attempts to provide guidance had been made in the forthcoming BIOMASS Handbooks on "Monitoring Studies of Seabirds" and "Penguin Census Methods" but it would be ideal to have critical amplification of all aspects of these, based on current experience both in the field and with analytical methodology.

As a first step towards this it was agreed that the Secretary should write to all Working Party members and other scientists concerned with active monitoring programmes (as defined in BIOMASS Report Series 18, Table 2) requesting details of the techniques and methods employed at all stages of their operations. A summary of responses should be made available for the next meeting of the Working Party.

10. Seabird bibliographies.

At the Percy Fitzpatrick Institute, Cape Town, Dr. A.J. Williams was co-ordinating the compilation of bibliographies for penguins and Antarctic and subAntarctic Procellariiformes.

The penguin bibliography was reported to be well-advanced and the general model being followed was that of the recent owl bibliography (Clark, R.J. et al. (1978) Working bibliography of the owls of the world). Although time consuming to produce, the retention of a cross-reference by topic section had been strongly recommended by the BAS librarian. This was endorsed by the meeting and Prof. Siegfried agreed to distribute copies of the bibliography as it is at present to all members of the Working Party and to discuss assistance with cross-referencing with Dr. Croxall.

The Procellariiformes bibliography is less well advanced and the feeling of the meeting was that every attempt should be made to produce a comprehensive bibliography and not just one restricted to Antarctic and subAntarctic species. It was recognised that this would be a

substantial undertaking and Dr. Croxall suggested that it might be possible to make some assistance available from the BAS library. He agreed to investigate this on his return and to correspond with Prof. Siegfried. Prof. Siegfried agreed to circulate the existing Procellariiformes bibliography material to all members of the Working Party.

The penguin bibliography might well be suitable for publication in a BIOMASS Data Series.

11. Inventory of current colour banding and marking projects.

Concern was expressed at the rapid increase in colour banding and marking projects involving Antarctic and subAntarctic seabirds. It was noted that Antarctic seal researchers had agreed on regional and national coding of seal colour tags in order to eliminate duplication of numbers and to reduce the possibility of confusion.

It was agreed that something similar might need to be proposed for seabirds and that the first requirement was to establish what colour banding and marking projects were operating.

It was felt that this was best initiated through a request for information to National Banding Schemes and Prof. Siegfried agreed to ask Mr. T.B. Oatley of SAFRING to write to all schemes involved in Antarctic bird banding requesting details of current projects involving colour banding or colour marking (use of dyes, patagial tags, wing streamers etc) and soliciting advance notice of intended future projects.

A summary of replies would be required by July 1982 in advance of the next meeting of the Working Party.

12. Developments from post-FIBEX Data Interpretation Workshop.

12.1 A number of problems had been noted during the encodement and manipulation of seabird data for the Workshop:

a) The nomenclature used was not standardised and this created problems in compatibility. The Working Party recommended that for encodement purposes the scientific names as used in Watson, G. E. (1975) Birds of the Antarctic and sub-Antarctic. American Geo-

physical Union: Washington DC, should be adopted. In addition, a numerical code would facilitate detection of errors and might simplify matters, and the Working Party agreed to investigate the production of a suitable listing.

- b) Ship position should be recorded on the cards to the nearest minute.
- c) Ship speed should always be recorded on the cards and not be left to be interpolated later from navigation or satellite-fix information.
- d) If possible, wind speeds should be recorded in knots and not on the Beaufort Scale, as is presently provided for on the cards.
- e) The crucial importance of completing cards for ten-minute periods when no birds were seen was re-emphasised.
- f) At present only three bytes are allocated for the number of birds of a particular species recorded in a ten-minute period. As dense aggregations of some species may exceed 1,000 individuals, it was recommended that for future encodements an additional byte space be allocated to this category.

12.2 Seabird Data Analysis Workshop.

The problems inherent in the organisation and conduct of the post-FIBEX Workshop meant that none of the projected analyses of the seabird data could be implemented as planned (see Workshop Report). Nevertheless, the seabird data themselves were substantial and offered good prospects for some interesting analyses both of these data on their own and especially in conjunction with the oceanographic and krill data.

Recognising this and also that at least several nations would be continuing to collect seabird data in an identical (or compatible) format for the same main areas in the Indian Ocean and South-West Atlantic, the Working Party recommended that a separate workshop should be organised to analyse in detail data on the pelagic distribution and ecology of Antarctic and sub-Antarctic seabirds. The

principal objectives of such a Workshop would remain as stated in BIOMASS Report Series 18, viz:

- a) To obtain detailed information on the spatial and temporal distribution of avian species, their species' diversity, biomass and density.
- b) To investigate what correlations exist between the distribution of birds at sea and features of the physical and biological environment.
- c) To determine whether seabirds can be used as indicators of the distribution and abundance of selected prey stocks, especially krill and cephalopods.

Date

Because of the considerable time needed to organise properly a really effective workshop and the desirability of having additional good data for seasons in which there are likely to be concurrent oceanographic and krill acoustic work, it was felt that late 1983 was the earliest possible time.

Venue

If this timing is accepted, it would be sensible to try to hold the Workshop either immediately before or after the SCAR IV Biology Symposium in South Africa (September 1983).

It was emphasised that crucial to the success of such a workshop was the provision of fully adequate computing facilities, especially access to comprehensive statistics and graphics packages. Professor Siegfried agreed to investigate facilities at the University of Cape Town, as this would be a logical venue, and to report back to the Working Party.

Scope

The broad objectives of the Workshop have already been detailed. It would be open to any scientists wishing to share in a reciprocal analysis of Southern Ocean seabird data that are encoded in the form specified for the post-FIBEX Workshop or in a form completely compatible with this.

Priorities are likely to be as follows:

1. Seabird data which was collected concurrently with comprehensive oceanographic and krill data, as it is hoped that it will be possible to conduct integrated analyses with some such data.
2. Seabird data, collected on ten-minute cards for which full weather and oceanographic information were filled in.
3. Other seabird data, collected on ten-minute cards.
4. Any other data on the pelagic distribution of seabirds.

All data will have to be encoded and submitted for checking in advance of the Workshop. The analysis of these data will be co-ordinated by the Working Party on behalf of all those who provided data. Full safeguards for all data will be arranged. Although a joint report on the Workshop is envisaged, all participants will be entirely free to arrange publication of analyses pertaining to their own data as they wish.

Further information concerning the Workshop will be communicated to members of the Working Party as soon as possible.

Finance

If the meeting is held in conjunction with the SCAR IV Biology Symposium, many potential workshop participants would be able to attend without additional travel costs. It is estimated that 2-3 people, whose participation would be important to the success of the Workshop, would be unable to attend without assistance with travel costs.

In the development of the analytical packages and programmes for the Workshop, it is crucial that specialist advice and participation be sought from someone with an appropriate combination of knowledge of the biological problems involved and great familiarity with the statistical and computing techniques and operations. Such a participating consultant will need to make one visit to the Workshop about one year in advance of its commencement, in order to finalise all operational plans and techniques with the computer managers of the host institution.

To cover these costs and other workshop contingencies, the sum of \$10,000 is requested.

13. SCAR IV Biology Symposium.

Professor Siegfried tabled a draft programme for this meeting, to be held at The Wilderness, George, South Africa, in September 1983. It was felt that the scope for contributions on seabird ecology was entirely adequate and appropriate.

14. Any Other Business.

14.1 Liaison.

The Secretary would reply to the circular from Dr Tomo, Chairman of the Liaison Group between the SCAR Working Group on Biology and the SCAR/SCOR/IABO/ACMRR Group of Specialists on Ecosystems of the Southern Ocean and their Living Resources, requesting information on current activities. He would refer Dr Tomo to the article in BIOMASS Newsletter No 3 and send him copies of the report of this meeting and also of that on the Post-FIBEX Data Interpretation Workshop.

14.2 Satellite Telemetry.

Since the last meeting Dr Parmelee had reported to the Working Party on this topic. Professor Prevost had requested information from CNRS, but had received no reply.

The Working Party reaffirmed the need to maintain enquiries into the feasibility of tracking seabirds with satellites in view of its potential great importance to seabird studies.

14.3 The ICBP 1982 World Conference will be held at Cambridge, England, 6-12 August just before the XVIII International Ornithological Congress in Moscow (16-25 August). Discussion workshops are planned for 2-5 August on three themes:

Rain forests, Islands and Seabirds. Nothing is yet known about the proposed content of the last workshop, but the Secretary would try to ensure that members of the Working Party were placed on the ICBP mailing list.

15. Date of Next Meeting.

It was agreed that a meeting in 1982, especially to review the

progress of ISAS, was highly desirable. It was suggested that it should be held at a time convenient for members who might also be attending the Moscow International Ornithological Conference and/or the ICBP meeting at Cambridge. The Secretary was asked to enquire whether it would be possible to hold a one-day meeting at the British Antarctic Survey, Cambridge, at this time.

Summary of Recommendations.

1. BIOMASS Publications.

The Working Party is currently producing three major data compilations. These are:

- a) Distribution and abundance of Antarctic and sub-Antarctic penguins; synthesis of current knowledge
- b) Inventory of weight data for Antarctic and sub-Antarctic seabirds
- c) Bibliography of literature on penguins

Such reports do not seem conveniently to fall within the scope of the BIOMASS Report Series, which is presently principally concerned with the ephemeral reports of meetings, nor within that of the BIOMASS Handbooks, which are primarily manuals of techniques and methodology.

The Working Party recommended that the Group of Specialists should consider initiating a BIOMASS Data Series to accommodate data reports such as those above and analogous productions of other Working Parties. The penguin synthesis (a) above) will be available at the end of 1981, but if a data series was instituted it would be possible to delay its appearance until not later than mid-1982. If a data series is not instituted, we recommend that the penguin synthesis should be produced in the BIOMASS Report or Research Series as soon as possible, but that an enlarged print run should be requested in order to ensure an appropriately wide distribution.

2. Computerisation of Penguin Colony Data Base.

To facilitate the production and analysis of revised data on penguin numbers and distribution - a major element of the results of ISAS - the Working Party recommended that the existing penguin colony data

base (i.e. all original data referred to in the penguin synthesis) should be accessed onto computer file.

The Working Party can arrange for these data to be stored and managed free of charge, but funds will be necessary for encoding the original data. The Group of Specialists are asked to support a request for \$5,000 to cover the costs of this operation.

3. Identification of Fish Remains.

Information is required on methods of identification of fish remains found in the stomach contents of their predators, to improve understanding of the role of Antarctic and sub-Antarctic seabirds, marine mammals and fish as predators on fish in these regions.

The Working Party recommended that the Group of Specialists approve a request that the BIOMASS Working Party on Fish Biology be asked to arrange the production of a Handbook for the identification of remains of Antarctic and sub-Antarctic fish. In particular this should include a guide to the identification of otoliths.

4. Seabird Weight Compilation.

When this is ready (penguins, albatrosses and Charadiiformes need completing) it is recommended that the complete data base and the summary of mean weights for all species should be published either in a BIOMASS Data or Report Series.

5. Colour Marking of Seabirds.

An increasing number of colour marking schemes are being implemented with Antarctic and sub-Antarctic seabirds. The Working Party reaffirmed the need for careful planning of such schemes in order to avoid duplication of colour codes, marks and combinations, and recommended that Mr T Oatley, on behalf of the Central Data Bank, should be asked to investigate the extent and nature of current colour-marking operations.

It is requested that national committees should assist wherever possible in ensuring that replies to this request for information are received as soon as possible. An earlier request for similar information (XV SCAR-REC-BIOL 2) only produced a response from the United Kingdom.

6. Seabird Data Analysis Workshop 1983.

The Post-FIBEX Data Interpretation Workshop showed that there existed considerable scope for analysis of data on seabirds at sea. The Working Party recommended that an international workshop to analyse Southern Ocean seabird data be held in late 1983, preferably near the time of the SCAR IV Biology Symposium.

Summary of Budget Requests

1. Encodement of penguin colony data: \$5,000.
2. Production of publications: compilation of Antarctic and sub-Antarctic seabird weight data and the bibliography of the penguins: appropriate provision in 1982-3 & budget.
3. Travel to 1982 meeting of the Working Party: \$1,000.
4. Travel to Seabird Data Analysis Workshop 1983 for technical adviser/coordinator and 2-3 additional air fares: \$10,000.

BIOMASS WORKING PARTY ON BIRD ECOLOGY

Tabled Papers

- 1 Wilson, G.J. (ed) Distribution and abundance of Antarctic and subAntarctic penguins : a synthesis of current knowledge.
- 2 Taylor, R.H. 1981 The distribution and numbers of penguins in the Ross dependency, Antarctica. New Zealand D.S.I.R. Ecology division file report 4/15/11.
- 3 Mouglin, J-L Letter of 2 September 1981 concerning the penguin synthesis (Document 1).
- 4 Percy Fitzpatrick Institute, Cape Town, S. Africa. Seabird weight data for the southern oceans. (Seabirdlit file).
- 5 Oatley, T.B. Report on progress of SCAR CDB; memorandum dated 15.9.1981.
- 6 Parmelee, D.F. Letter of 17th September 1981 concerning U.S. plans for bird research and ISAS activities in 1981 - 1982 field season.