DEPENDENT SPECIES

Species Monitored under the CCAMLR Ecosystem Monitoring Program (CEMP)

4.1 Dr Hewitt began the presentation of the WG-EMM report by noting that the Working Group had reviewed the summary report on CEMP indices (WG-EMM-00/26) and thanked the Secretariat for the significant progress made in organising and summarising the CEMP data.

4.2 In particular, the introduction of electronic data forms facilitated the rapid submission of data, reduced errors and improved the quality and utility of the data.

4.3 The Scientific Committee reiterated its wish to have updated CEMP data available at WG-EMM each year. It also endorsed the value of the summaries and pointed out that work was under way to develop new methods (e.g. composite indices) for examining the data and focusing on specific questions of interest to CCAMLR.

4.4 A number of papers reported on the reproductive performance of seabird and pinniped populations (Annex 4, paragraphs 3.11 to 3.15), and these were noted by the Scientific Committee, in particular:

(i) a report on chick provisioning and survival among Adélie penguins at Béchervaise Island (Division 58.4.2) summarised data from nine seasons and indicated the importance of distance of the sea-ice edge from the colony and the availability of food during the guard stage of the breeding cycle. It was suggested that competition with fisheries for food, if it occurs during the early chick-rearing period, is likely to have the greatest impact on the penguin population at Béchervaise Island (Annex 4, paragraph 3.11);

(ii) macaroni penguin populations at Bouvet Island (Subarea 48.6) increased and chinstrap populations decreased relative to counts in the 1996/97 season. The decrease in chinstrap population was attributed to a habitat change (Annex 4, paragraph 3.14); and

(iii) an overview of pinniped research at Cape Shirreff in the 1999/2000 season indicated that reproductive performance for adult females and for the growth of pups were above average. Additionally, dive data suggested that foraging fur seals were working well within their physiological limits for diving (Annex 4, paragraph 3.15(ii) and (iii)).

4.5 The Scientific Committee noted that the Subgroup on Designation and Protection of CEMP Sites, chaired by Dr P. Penhale (USA) and coordinated by Dr E. Sabourenkov (Secretariat), had undertaken ground work during the 1999/2000 intersessional period. Membership of this group included Drs A. Constable (Australia), E. Fanta (Brazil), K. Kerry (Australia) and M. Naganobu (Japan), Prof. D. Torres (Chile), Drs K. Shust (Russia) and P. Wilson (New Zealand), with Drs S. Kawaguchi (Japan) and Y. Lee (Republic of Korea) being added.

4.6 The Scientific Committee endorsed the Working Group recommendation to approve the revision of the Seal Islands Management Plan and the revision of the Cape Shirreff Management Plan.

4.7 The Scientific Committee also endorsed the Working Group recommendation that the conservation measures related to the CEMP sites (Conservation Measures 18/XIII, 62/XI and 82/XIII) be reorganised (Annex 4, paragraphs 5.21 to 5.24).

4.8 The intent of the reorganisation of these conservation measures was to separate the procedures for according protection of CEMP sites (including guidance to writing management plans and the Code of Conduct which apply to all plans) from the designation of individual sites with associated management plans.

4.9 The Working Group reviewed the CEMP site maps provided in response to a request by the Secretariat for improved site maps. Maps were requested from 11 Member countries and were received from five. The maps from New Zealand were viewed as meeting the criteria and should provide an excellent example for others to follow. The maps from Norway and the UK were also considered as meeting the criteria. The maps provided by Australia, which gave excellent information when viewed as the colour originals on the CCAMLR website, were difficult to assess when printed in black and white. The maps from Japan would benefit from minor technical improvements.

4.10 The Working Group recommended that the subgroup review the criteria provided in the Antarctic Treaty System for the production of maps of protected areas and in Conservation Measure 18/XIII, Part A, as a background to developing guidance for CCAMLR Members who plan to produce maps of CEMP sites.

4.11 The Working Group recommended that ancillary information, possibly in GIS format, that Member countries wished to provide could be posted on an individual country website with a direct linkage from the CEMP map section of the CCAMLR website.

Assessment of Incidental Mortality

4.12 The Scientific Committee reviewed the report of ad hoc WG-IMALF. It endorsed the report and its conclusions, subject to the comments set out below, and drew these to the attention of the Commission.

Research into the Status of Seabirds at Risk

4.13 The Scientific Committee encouraged the review and further acquisition of data on:

(i) size and trends of populations of albatross species and of *Macronectes* and *Procellaria* petrel species vulnerable to interactions with longline fisheries (Annex 5, paragraph 7.9);

(ii) the foraging ranges of populations of these species adequate to assess overlap with areas used by longline fisheries (Annex 5, paragraph 7.9); and

(iii) genetic research relevant to determining the provenance of birds killed in longline fisheries (Annex 5, paragraph 7.12).

4.14 The Scientific Committee noted that it would also be useful to collate and summarise available demographic data on relevant species and populations; it encouraged WG-IMALF to consider how this might be achieved. It is suggested that some preliminary summary (e.g. of relevant published literature) could be prepared in time for the next meeting of WG-EMM.

Incidental Mortality of Seabirds during Regulated
Longline Fishing in the Convention Area in 2000

4.15 The Scientific Committee noted the results and conclusions of the comprehensive analysis of this year's data (Annex 5, paragraphs 7.24 to 7.50 and Tables 48 to 52):

(i) For Subarea 48.3 the total estimated seabird by-catch was 21 birds, at a rate of 0.0004 birds/thousand hooks (Annex 5, paragraphs 7.32 and 7.33) (compared with 210 birds at a rate of 0.01 birds/thousand hooks last year). Fishing season restrictions and improved compliance with Conservation Measure 29/XVI have reduced by-catch in the regulated fishery in this subarea to negligible levels (Annex 5, paragraph 7.49).

(ii) For Subareas 58.6 and 58.7 the total estimated seabird by-catch was 516 birds (a three-fold increase over last year) at a rate of 0.02 birds/thousand hooks (compared with 0.03 birds/thousand hooks last year) (Annex 5, paragraphs 7.34 and 7.35). Increased by-catch this year was mainly due to greater fishing effort, but poorer compliance with Conservation Measure 29/XVI also contributed (Annex 5, paragraph 7.50).

(iii) Differences in by-catch rates between Subarea 48.3 and Subareas 58.6 and 58.7 were clearly attributable to:

(a) vessels in the latter subareas fishing in close proximity to major breeding sites of albatrosses and petrels during their breeding season; and

(b) poor compliance with night-time setting requirements (Annex 5, paragraph 7.43).

The Scientific Committee endorsed the recommendation of the Working Group that fishing within 200 n miles of the Prince Edward Islands should be prohibited from January to March inclusive (Annex 5, paragraph 7.44).

(iv) For Subarea 88.1 there had been no seabird by-catch for the third successive year, due to strict compliance with Conservation Measure 29/XVI (including the exemption from night setting) and Conservation Measure 190/XVIII (Annex 5, paragraph 7.47). In addition to continuing to use streamer lines that met all specifications in Conservation Measure 29/XVI, no offal discharge was made at any time during the cruise, in full compliance with Conservation Measure 190/XVIII. No seabird by-catch was reported for fishing in Division 58.4.4 (Annex 5, paragraph 7.31).

4.16 The Scientific Committee commended the achievement of the progressive reduction of seabird by-catch in Subarea 48.3 to a level now regarded as negligible (Annex 5, paragraph 7.49 and Table 52). It noted that some improvement was still possible for Subareas 58.6 and 58.7.

4.17 Mr Watkins commented that 68% of the seabird by-catch in Subareas 58.6 and 58.7 had been taken on just 49 (2.8%) of 1 748 sets, indicating that the problem was, in fact, a very restricted one.

4.18 The Scientific Committee noted concerns over issues relating to the proportion of hooks being observed to derive estimates of seabird by-catch. It encouraged intersessional work to estimate the proportions of hooks which needed to be observed in order to derive reliable estimates of seabird by-catch. It recognised, however, that complementary to this work was a reinvestigation of the appropriate regime for sampling of the fish catch by the scientific

observer. Both sampling strategies also need to be reviewed in the light of the subdivision and prioritisation of the tasks of observers, particularly on vessels where it is only possible to accommodate one observer (see also paragraph 3.18).

4.19 Mr I. West (New Zealand) expressed concern that some observers incorrectly report the proportions of hooks observed. He noted that it is a simple operational task to get this right. The Scientific Committee requested technical coordinators to take particular care in briefing scientific observers on this matter.

4.20 The Scientific Committee endorsed the desirability of obtaining data on incidental mortality of seabirds in the French EEZs in Subarea 58.6 and Division 58.5.1 so that a fully comprehensive evaluation, covering the whole of the Convention Area, could be conducted.

4.21 Prof. Duhamel indicated that full data were collected by observers on each vessel fishing in the French EEZs but that the time required to process these data had delayed submitting reports to CCAMLR; he indicated that appropriate reports would be submitted to CCAMLR next year.

4.22 The Scientific Committee welcomed this and noted that, in addition to reports, it was important to receive the data themselves in a form comparable to those reported for all other parts of the Convention Area.

Compliance with Conservation Measure 29/XVI

4.23 The Scientific Committee noted the detailed review of this topic (Annex 5, paragraphs 7.51 to 7.60 and Tables 53 to 55) and the conclusions that overall compliance with this conservation measure this year, compared to last year, was slightly improved in Subarea 48.3, slightly poorer in Subareas 58.6 and 58.7, poor in Division 58.4.4 and complete in Subarea 88.1 (Annex 5, paragraph 7.192(i)). It recognised that, apart from the continuing failure of all vessels to comply with the line-weighting regime, the problems seemed mainly to relate to the inability or unwillingness of particular vessels to comply with the provisions relating to streamer lines, offal discharge and night setting. The Scientific Committee was additionally concerned at the compliance failure of vessels entering the longline fishery in the Convention Area for the first time (Annex 5, paragraph 7.60).

4.24 The Scientific Committee welcomed the analysis of vessel performance by region and year (Annex 5, Table 55), recognising that this highlighted those vessels most in need of action and assistance to rectify their continuing failure to comply with this conservation measure.

4.25 Prof. C. Moreno (Chile) observed that he had some initial reservations concerning highlighting vessels in this way but recognised that not only would it help improve their performance in CCAMLR waters but that such improvement – particularly where involving structural reconfiguration – would also ensure improved performance when they operated outside the Convention Area. The Scientific Committee endorsed these views.

Fishing Seasons

4.26 The Scientific Committee noted a brief retrospective analysis (Annex 4, paragraph 7.63) indicating that the Commission decision last year to delay the start of longline fishing probably contributed significantly to the reduction in seabird by-catch in Subarea 48.3.

Assessment of Incidental Mortality of Seabirds during
Unregulated Longline Fishing in the Convention Area

4.27 The Scientific Committee noted that:

(i) Estimates of potential seabird by-catch have been made using two alternative catch rates; the average catch rate for all cruises in the regulated fishery (lower level) and the highest catch rate for any cruise in the regulated fishery for that period (higher level) (Annex 5, paragraph 7.64).

The estimates for 2000 (Annex 5, paragraphs 7.70 to 7.74, Tables 56 and 57) were:

Subarea 48.3:	1 800–2 400 to 6 500–8 800 seabirds;
Subareas 58.6 and 58.7:	15 400–20 600 to 27 900–37 800 seabirds;
Divisions 58.5.1 and 58.5.2:	7 000–10 300 to 14 100–18 900 seabirds; and
Division 58.4.4:	1 700–3 000 to 2 200–4 100 seabirds.

(ii) The overall estimated totals for the whole Convention Area (Annex 5, paragraph 7.75 and Table 57) indicated a potential seabird by-catch in the unregulated fishery of 26 400–35 300 (lower level) to 50 900–68 300 birds (higher level) in 1999/2000. At the higher level, this compares with totals of 66 000–107 000 in 1996/97, 76 000–101 000 in 1997/98 and 44 000–59 000 in 1998/99.

(iii) The species composition of the estimated potential higher level seabird by-catch (Annex 5, Table 58) indicates a potential by-catch of 21 900–68 000 albatrosses, 5 000–11 000 giant petrels and 79 000–178 000 white-chinned petrels in the unregulated fishery in Convention Area over the last four years (Annex 5, paragraph 7.81).

4.28 The Scientific Committee, while noting the large, and possibly increasing, uncertainties pertaining to these estimates, endorsed its conclusion of last year that such levels of mortality are entirely unsustainable for the populations of albatrosses, giant petrels and white-chinned petrels breeding in the Convention Area (Annex 5, paragraph 7.80).

4.29 The Scientific Committee requested WG-IMALF to consider the extent to which the potential levels of seabird by-catch in IUU fisheries in the Convention Area can be related to the population levels (and population trends if possible) of the principal target species and species groups and what additional monitoring of local populations may be required to ensure that these populations are not threatened.

4.30 The Scientific Committee recommended that the Commission continue to take the most stringent measures possible to combat unregulated fishing in the Convention Area (Annex 5, paragraph 7.82).

Incidental Mortality of Seabirds in relation
to New and Exploratory Fisheries

4.31 The Scientific Committee noted that:

(i) of the 22 new and exploratory fisheries approved for 1999, only four were operational in 1999/2000; no seabird by-catch was reported for any of these fisheries (in Subareas 58.6 and 88.1, and Division 58.4.4) (Annex 5, paragraphs 7.90 and 7.91);

(ii) the assessment of potential risk of interactions between seabirds and longline fisheries for all statistical areas in the Convention Area was reviewed, revised for Subareas 88.1 and 88.2, and provided as advice to the Scientific Committee and Commission in SC-CAMLR-XVIII/BG/23 and Annex 5, paragraph 7.88, noting particularly the correction in Annex 5, paragraph 7.89. The codes for potential risk of interaction with seabirds for Subareas 48.1 and 48.4 should be 1 and 3 respectively (not 2 as depicted);

(iii) the 33 proposals by six Members for new and exploratory longline fisheries in 14 subareas/divisions of the Convention Area in 2000/01 were addressed, in relation to advice in SC-CAMLR-XVIII/BG/23 and Annex 5, Table 59; and

(iv) the potential problems identified, from the perspective of WG-IMALF, were:

(a) in proposals by Argentina for Subareas 48.1 and 48.2 and Divisions 58.4.2, 58.5.1 and 58.5.2. The desired year-round fishing season has substantial overlap with the recommended season closures to protect seabirds (Annex 5, paragraph 7.195(a));

(b) in proposals by France (for Divisions 58.4.3, 58.4.4, 58.5.1, 58.5.2 and Subareas 58.6 and 58.7), which do not specify a fishing season so cannot be assessed in this important regard (Annex 5, paragraph 7.195(iv)(b); and

(c) in Subarea 88.1, where there are important issues relating to exemptions from the night-setting requirements of Conservation Measure 29/XVI (Annex 5, paragraphs 7.94 to 7.103).

4.32 The Scientific Committee supported the New Zealand proposal to continue the line-weighting experiment in Subarea 88.1, and endorsed the Working Group recommendations as set out in Annex 5, paragraphs 7.95 to 7.103.

4.33 In summary, these recommendations were that all vessels in Subarea 88.1 and requiring the exemption from the night-setting requirements of Conservation Measure 29/XVI must undergo sink rate line certification (Annex 5, paragraph 7.98) prior to entering the subarea and comply with all the experimental protocols of the existing sink-rate experiment. Any vessel catching a total of three (3) seabirds must immediately revert to night setting as required in Conservation Measure 29/XVI.

4.34 However, it recognised that potential difficulties might exist (depending on the number and nature of vessels operating in the fishery in Subarea 88.1) in implementing this advice in respect of:

(i) a specified level of seabird by-catch triggering in real time the potential closure of the fishery (by reversion to the night-setting provisions of Conservation Measure 29/XVI); and

(ii) the ability of vessels other than autoliners to undertake line-weighting experiments of the kind specified in Annex 5, paragraph 7.96.

Incidental Mortality of Seabirds during Longline Fishing outside the Convention Area

4.35 The Scientific Committee noted that the only formal report received related to by-catch of black-browed albatrosses (probably from South Georgia) in the Japanese autoliner longline

fishery around Tristan da Cunha and Gough Islands (Annex 5, paragraphs 7.104 and 7.105). It sought clarification as to the current obligations of Japanese longline fishing vessels relating to use of mitigating measures in respect of seabird by-catch.

4.36 The Scientific Committee endorsed the Working Group request to Members for reports from regions adjacent to the Convention Area, on longline fishing effort, on incidental mortality of seabirds and on implementation of mitigating measures (Annex 5, paragraphs 7.111 and 7.112). It also regretted the absence of any feedback to the WG-IMALF meeting from CCAMLR observers at meetings of the various tuna commissions (Annex 5, paragraphs 7.182 and 7.183).

Research into and Experience with Mitigating Measures

4.37 The Scientific Committee noted the promising results obtained from trials, in waters within or adjacent to the Convention Area, of underwater setting devices:

(i) by South Africa, of the Mustad funnel in Subareas 58.6 and 58.7 where, on night-time and daytime sets in summer, seabird by-catch was reduced from 0.013–0.009 and 0.03–0.02 birds/thousand hooks respectively; and

(ii) by Australia, using a funnel setting at 6 m depth, in its domestic tuna longline fishery, eventually resulting in zero seabird by-catch (Annex 5, paragraph 7.119).

It strongly encouraged further trials of these and similar devices, as they are likely to represent an effective solution to the seabird by-catch problem in the medium to long term.

4.38 Similarly, the Scientific Committee strongly encouraged trials with and reports on the use of streamer-line configurations and line-weighting regimes that might permit improvements to these elements of Conservation Measure 29/XVI to be achieved (Annex 5, paragraphs 7.123 to 7.125 and 7.150).

4.39 The Scientific Committee noted that:

(i) New Zealand vessels operating in Subarea 88.1 successfully achieved the required line-sink rates in their line-weighting experiments (Annex 5, paragraph 7.128);

(ii) the advice that some further trials are required before a weighting regime for autoliners could be incorporated into Conservation Measure 29/XVI (Annex 5, paragraph 7.148); and

(iii) no seabird by-catch had been reported in association with the experimental use of pots to catch *D. eleginoides* in Subarea 48.3 (Annex 5, paragraph 7.129).

Policy Considerations in relation to Mitigating Measures and Conservation Measure 29/XVI

4.40 The Scientific Committee noted and endorsed the advice that:

(i) Conservation Measure 29/XVI is the key element in minimisation of incidental mortality of seabirds during longlining in the Convention Area. Compliance is still substantially deficient, particularly in some key elements. Improving the current situation requires:

(a) further development of underwater setting, which offers the most likely medium- to long-term solution to the problem;

(b) work to develop line-weighting regimes to ensure sink rates that will preclude seabirds accessing bait. This offers the best short-term solution, as well as the likelihood of permitting exemption from several other mitigating measures currently in use in the Convention Area; and

(c) in the meantime, better compliance with the existing suite of mitigation measures in Conservation Measure 29/XVI is essential (Annex 5, paragraphs 7.134 and 7.135);

(ii) the main issues relating to compliance with Conservation Measure 29/XVI are:

(a) how to get fishers to comply with the straightforward elements of the conservation measure, in respect of offal discharge, streamer lines and night setting;

(b) how to tackle the consistent inability of vessels to comply with the element of the conservation measure that specifies the line-weighting regime for Spanish system longliners; and

(c) how to develop the requirements for an appropriate line-weighting regime for autoliners (Annex 5, paragraph 7.136).

4.41 The Scientific Committee endorsed the suggested means of addressing these problems (Annex 5, paragraphs 7.138 to 7.150), and drew the particular attention of the Commission to the advice that:

(i) given the simplicity of complying with the elements of Conservation Measure 29/XVI relating to offal discharge, night setting and streamer lines, vessels unable, or failing, to comply with these elements should be prohibited from fishing in the Convention Area. This should be emphasised to technical coordinators, fishing companies and national authorities at the earliest opportunity (Annex 5, paragraphs 7.151 to 7.153);

(ii) in circumstances where all other elements of Conservation Measure 29/XVI apply (e.g. in respect of night setting, streamer lines and offal discharge) and with appropriate closed seasons, the line-weighting regime for the Spanish system of longlining should be set at weights of a minimum of 8.5 kg spaced at no more than 40 m intervals (Annex 5, paragraph 7.146);

(iii) once experimental trials of autoline weighting are completed in Subarea 88.1 and similar trials have been carried out in areas of higher risk to seabirds, it should be possible to recommend a line weighting for autoline vessels that will have utility for all subareas of the Convention Area (Annex 5, paragraph 7.148); and

(iv) that the ultimate aim in managing seabird by-catch in the Convention Area will be to allow fishing at any time of day without seasonal closure of fishing grounds. However, current indications are that allowing fishing in summer, at night, using streamer lines, proper offal discharge practices and c. 40 m between weights on longlines (existing practice for Spanish system vessels), will still result in unacceptably high mortality of seabirds. Clearly, more time is required to allow experimentation into the effectiveness of line-weighting concepts and underwater setting devices with the Spanish system that will reduce seabird by-catch and be more acceptable to the fishing industry. In the meantime, seabird by-catch in the Convention Area should be managed in accordance with practices adopted in

Subarea 48.3, where a combination of a closed season in summer, night setting, the use of streamer lines and proper offal discharge practices has effectively solved the seabird by-catch problem (Annex 5, paragraphs 7.149 and 7.150).

4.42 The Scientific Committee further advised that, once full compliance with Conservation Measure 29/XVI was achieved, together with negligible levels of seabird by-catch, any relaxation of closed seasons should proceed in a step-wise fashion (e.g. similar to the process by which the closed season was extended) and the results of this carefully monitored and reported.

International and National Initiatives relating to Incidental Mortality of Seabirds in relation to Longline Fishing

4.43 The Scientific Committee recollected the Commission requests (CCAMLR-XVII, paragraph 6.27; CCAMLR-XVIII, paragraph 6.15) that Members implement by 2001 their National Plans of Action (NPOAs) in support of the FAO International Plan of Action on the Reduction of Incidental Catch of Seabirds in Longline Fisheries (IPOA–Seabirds). In this connection it welcomed the reports (Annex 5, paragraphs 7.160 to 7.169) that:

(i) New Zealand and the USA already had draft plans available for consultation and that Australia's Threat Abatement Plan contained the essence of its NPOA (which would be prepared in due course); and

(ii) Brazil and Chile were commencing to prepare plans.

It encouraged other Members, particularly the European Community, which it was understood had only just embarked on the assessment process, to develop and implement their plans as soon as possible.

4.44 Dr Kawaguchi stated that Japanese fishers also wished to conserve seabirds at appropriate levels because they respect seabirds as friends in isolated oceans. Japan is now working to finalise its NPOA through dialogue with fishers and industries and intends to submit it to the FAO COFI meeting next year. Japan will formulate its national plan in accordance with the FAO IPOA–Seabirds, taking into account the discussions, resolutions and recommendations by the regional fisheries organisations.

4.45 The Scientific Committee also noted:

(i) the very encouraging progress in respect of the development of a Regional Agreement for the Conservation of Albatross under the CMS (Annex 5, paragraph 7.201(ii)); and

(ii) meetings in New Zealand (November 2000) and Uruguay (2001) seeking to promote discussion with fishers and fishery managers in seeking solutions to the by-catch of seabirds in longline fisheries (Annex 5, paragraph 7.201(iii) and (iv)).

It encouraged Members to participate actively in these initiatives.

4.46 The Scientific Committee noted with appreciation the efforts by ASOC member BirdLife International to provide fishers and fishery managers in Taiwan with information on how to reduce seabird by-catch in longline fisheries (SC-CAMLR-XIX/BG/21 Rev. 1), based on information contained in CCAMLR publications on this topic.

Incidental Mortality of Marine Mammals in Longline Fisheries

4.47 The Scientific Committee noted that only one marine mammal was reported killed in the longline fishery in the Convention Area this year (Annex 5, paragraph 8.1); interactions with killer whales and sperm whales, resulting in potential loss of fish were, as usual, widely reported (Annex 5, paragraph 8.2).

Incidental Mortality in Trawl Fisheries

4.48 With one exception, reported incidental mortality of seabirds and marine mammals associated with trawl fisheries in the Convention Area was at a very low level indeed, involving two Antarctic fur seals and three seabirds (Annex 5, paragraphs 8.4 and 8.5).

4.49 In Subarea 48.3, however, a trawler (*Betanzos*) targeting icefish killed 19 black-browed albatrosses in a single haul using pelagic trawl gear. This total is similar to the overall estimated by-catch (21 birds) for all vessels in the longline fishery in Subarea 48.3 this year (Annex 5, paragraphs 8.6). The Scientific Committee endorsed the request to observers to report in detail on such occurrences, including advice as to how they could be avoided in future (Annex 5, paragraph 8.8).

4.50 No reports were received indicating any contravention of Conservation Measure 173/XVIII in respect of incidental mortality of seabirds or marine mammals.

Marine Debris

4.51 The Chairman noted that under this agenda item the Scientific Committee reviewed:

(i) reports from Members on impacts of marine debris on marine living resources; and

(ii) data and reports from Members on surveys of marine debris.

4.52 He also drew attention to the fact that CEP had requested CCAMLR to table a report on marine debris, especially in relation to compliance with Protocol Annex IV, at the next CEP meeting (SC-CAMLR-XIX/BG/17; St Petersburg, Russia, May 2001). It was important for the Scientific Committee to provide advice on what might be contained in this report.

4.53 It was noted that at the request of SCOI (CCAMLR-XVIII, Annex 5, paragraphs 5.10(iii) and (xx)), the Commission decided at last year's meeting to:

(i) discontinue the Members' Reports on Assessment and Avoidance of Incidental Mortality once the Secretariat, in consultation with the Scientific Committee, has designed a standard form for submission of the data generally included in the report. Once the standard form is developed and approved, it will be used to submit data directly to the CCAMLR database; and

(ii) direct the Secretariat to provide information submitted by Members on assessment and avoidance of incidental mortality in summary form to Members for review during annual meetings of SCOI, the Commission and the Scientific Committee.

4.54 However, Comm Circ 00/37:

(i) directed Members to report on research activities on the assessment and avoidance of incidental mortality of Antarctic marine living resources as part of their report of Member's Activities in the Convention Area – currently posted on the CCAMLR website in language of submission;

(ii) indicated that reports of beached debris surveys undertaken according to the CCAMLR standard method would continue to be submitted directly to the CCAMLR database in the normal fashion;

(iii) enacted the decision in CCAMLR-XVIII, Annex 5, paragraph 5.10(iii), in the absence of prior consultation with the Scientific Committee. The circular contained an appendix of forms for reporting, direct to the CCAMLR database, information on:

(a) loss or discards of fishing gear;
(b) collection of marine debris by vessels at sea; and
(c) interactions of marine mammals and seabirds with fishing gear.

4.55 It was noted that the form in paragraph 4.54(iii)(c) had potential overlap with data submitted by scientific observers on longline vessels fishing in the Convention Area. Furthermore, no provision had been made for reporting, in standard format, data from surveys (or observations) of:

(i) entanglement of mammals (and birds) in marine debris;
(ii) marine debris associated with seabird colonies; and
(iii) animals externally contaminated (i.e. soiled) by hydrocarbons or other substances.

All these categories relate to data currently submitted in reports by Members, in some cases for the last decade.

4.56 The Scientific Committee summarised its understanding that information on six topics relating to marine debris were (or should be) reported to CCAMLR in standard fashion on an annual basis, viz:

(i) loss or discards of fishing gear;
(ii) collection of marine debris by vessels at sea;
(iii) surveys of marine debris on beaches;
(iv) entanglement of mammals in marine debris;
(v) marine debris associated with seabird colonies; and
(vi) animals externally contaminated (i.e. soiled) by hydrocarbons or other substances.

4.57 In response to a question as to whether data on pollutants such as pesticides should be provided to CCAMLR, the Scientific Committee indicated that the coordination of programs of research and monitoring into such topics were under active consideration by CEP, which would probably be the appropriate recipient for such information.

4.58 In respect of information relating to the six topics set out in paragraph 4.56, the Scientific Committee requested the Secretariat to ensure, in consultation with Members as appropriate, that standard reporting forms were available for submission to the CCAMLR database of all categories of information.

4.59 It also requested the Secretariat to prepare annual summaries of these data in a manner that would enable the Scientific Committee to view trends across time for data from each site or

source for which information was (or had been) reported. It should consult intersessionally with Members as necessary in order to ensure that an appropriate consolidated report was available for consideration at next year's meeting of the Scientific Committee.

Loss or Discard of Fishing Gear

4.60 SC-CAMLR-XIX/BG/28 indicated that only Australia had reported lost or discarded fishing gear, involving 28 fishing floats, 3 plastic safety helmets and 4 pieces of netting, the largest 220 m^2, in Division 58.5.2.

Marine Debris collected by Vessels at Sea

4.61 SC-CAMLR-XIX/BG/28 indicated that only Australia had reported the observation and/or collection of marine debris by vessels at sea, involving two fishing buoys (one each in Divisions 58.4.1 and 58.5.2) and 500 m of longline fishing gear (in Division 58.5.2).

Surveys of Marine Debris on Beaches

4.62 SC-CAMLR-XIX/BG/28 indicated that in 1999 beach debris surveys had been conducted by Brazil, Chile, UK, Uruguay and the USA and that data had been reported to the CCAMLR database by the UK.

4.63 The Scientific Committee encouraged Brazil, Chile, Uruguay and the USA to submit their data to the CCAMLR database, especially Brazil (which had been carrying out surveys at Admiralty Bay each summer since 1984) and Chile (whose surveys at Cape Shirreff had been reported to the database for the period 1993 to 1997).

4.64 The UK reported (SC-CAMLR-XIX/BG/5) that the ninth year of beach debris surveys at Bird Island, South Georgia, revealed a total of 213 items of debris, half the total in 1997/98 and the second lowest ever. Longline fishing materials made up the majority of items collected; several packaging bands were reported.

4.65 At Signy Island, South Orkney Islands, the tenth UK survey (SC-CAMLR-XIX/BG/6) recorded a total of 55 items, 35% lower than in 1998/99 and the second lowest total ever. Plastic waste was predominant, including 10 packaging bands. Of additional concern was the quantity of polystyrene foam which accounted for 31% of all items and 46% of items small enough to be ingested by seals and seabirds. The Scientific Committee endorsed the recommendation in the report that Members should be advised to use alternative packaging materials wherever possible.

4.66 Beach debris surveys by Uruguay (SC-CAMLR-XIX/BG/26) at King George Island, South Shetland Islands, reported a small number of items, mainly fishing line material but also a packaging band.

4.67 Prof. Torres informed the meeting that Chilean surveys at Cape Shirreff in 1999 had collected some 265 kg of beach debris, 93% of which was plastic.

Entanglement of Marine Mammals in Marine Debris

4.68 UK surveys at Bird Island, South Georgia, for the tenth consecutive winter and the twelfth consecutive summer (SC-CAMLR-XIX/BG/2), indicated continuing low levels of entanglement of Antarctic fur seals. Nevertheless, four of the six winter observations and seven of the 14 summer ones involved entanglement in packaging bands.

4.69 The fourth annual survey at Signy Island, South Orkney Islands (SC-CAMLR-XIX/BG/3), reported only five entangled fur seals, the lowest total yet. One seal was entangled in a packaging band.

4.70 Prof. Torres updated the meeting on the results of Chilean surveys at Cape Shirreff. Between 1988 and 1997 the average annual number of entangled fur seals recorded was two. No entangled seals were recorded during 1998/99. However, five Antarctic fur seals (two adult females and three adult males) were observed with neck wounds and/or scars indicating the likelihood of having been entangled. During the 1999/2000 summer, one juvenile female fur seal was released from entanglement with plastic debris. Five individuals with signs or marks of entanglement were observed.

Marine Debris associated with Seabird Colonies

4.71 The seventh year of surveys at Bird Island, South Georgia (SC-CAMLR-XIX/BG/4), revealed an unprecedented quantity of fishing hooks (54% higher than the previous year) and monofilament longline originating from fishing vessels, in association with wandering albatrosses. Analysis of regurgitated material from wandering albatross chicks indicated that 79% received food containing line and/or hooks. Quantities of fishing gear remained close to levels of previous years for all other species (grey-headed albatross, northern giant petrel and southern giant petrel) but had increased for black-browed albatross.

Oil Contamination

4.72 At Bird Island, South Georgia, one wandering albatross was recorded with a small patch of oil on its flank (SC-CAMLR-XIX/BG/4). No other reports were received of animals contaminated by oil, but Prof. Torres noted that Chilean scientists had recorded oil stains on rocks at Cape Shirreff.

Report to CEP

4.73 The Scientific Committee advised that for the CCAMLR response to the CEP request (paragraph 4.53), the Secretariat should compile a report to include:

(i) relevant text taken from the review of interactions between marine life in the Convention Area and fishing and fishing-related activities (SC-CAMLR-XIX/BG/11);

(ii) Tables 1 and 2 (summarising marine debris surveys) from SC-CAMLR-XIX/BG/28;

(iii) similar tables relating to the other categories of information reported to CCAMLR as listed in paragraph 4.57; and

(iv) a list of all papers on these topics submitted to the Scientific Committee and Commission.

4.74 In this connection, Members were requested to inform the Secretariat as soon as possible of any errors or omissions concerning the data in Tables 1 and 2 of SC-CAMLR-XIX/BG/28.

4.75 The report to CEP should also seek to clarify, based on the data summarised by and available to CCAMLR, what information CEP might wish CCAMLR to report to it in the future.

Fourth International Marine Debris Conference on
Derelict Fishing Gear and the Marine Environment

4.76 Prof. Torres reported on his attendance at this meeting (SC-CAMLR-XIX/BG/29), where he had also participated in a working group on monitoring and removal of materials and had drawn attention to the work being undertaken by CCAMLR. He had provided the Secretariat with copies of relevant information and leaflets relating to marine debris. For more information on the conference, Members should access the website at www.hihwnms.nos.noaa.gov.

4.77 Prof. Torres noted that the conference had proposed the establishment of a Pacific Rim Debris Commission, the first meeting of which was scheduled for Hawaii, USA, in March 2002. He suggested that CCAMLR should be represented at this meeting. The Scientific Committee agreed to consider this at its next meeting.

Marine Mammal and Bird Populations

4.78 Following decisions made at the Sixth Meeting to consider every three to five years the status of Antarctic bird and mammal populations, WG-EMM reviewed their status at its 2000 meeting, based on an extensive report provided by SCAR-BBS and a summary report from SCAR-GSS.

4.79 The SCAR-BBS report focused on bird populations for which datasets of 10 years and longer existed. A total of 61 datasets from 21 species (7 penguins, 7 albatrosses, 4 petrels, 1 skua, 2 shags) satisfied these criteria. These probably represent almost all the available long-term data on Antarctic bird populations. All these data were analysed using appropriate statistical models and techniques to identify statistically significant trends.

4.80 The Scientific Committee noted the endorsement of the report by WG-EMM (Annex 4, section 3) together with its summary of some of the principal conclusions, relating both to CEMP and non-CEMP species (Annex 4, paragraphs 3.7, 3.21 to 3.23).

4.81 In respect of the CEMP species, the Scientific Committee noted, from the report itself (WG-EMM-00/16) and from Annex 4, paragraph 3.7(i) that:

(i) whereas Adélie penguins in east Antarctica had increased since the 1980s, most populations of Adélie and chinstrap penguins in the Antarctic Peninsula region had decreased over the same period;

(ii) gentoo penguin populations in the Antarctic Peninsula area had increased since the 1980s, whereas populations at sub-Antarctic islands were stable or decreasing over similar, though more recent, periods; and

(iii) macaroni penguin populations at South Georgia had decreased significantly since the late 1970s, whereas populations in the Indian Ocean were probably stable.

4.82 The Scientific Committee noted the comments (Annex 4, paragraph 3.9) concerning potential sources of bias which might confound some interpretations and suggestions to SCAR-BBS to assist in future undertakings of this kind.

4.83 Prof. Croxall indicated that:

(i) concerns that shifts in species or population distributions could confound, or complicate, interpretations of declines (Annex 4, paragraph 3.9(i)) were, given the time spans involved and the philopatry and site fidelity of the species concerned, unfounded in most, if not all, cases;

(ii) great care had been exercised by SCAR-BBS with any interpretations involving potentially anomalous or outlier values, such that weighting each abundance estimate by some reliability function (Annex 4, paragraph 3.9(iii)) would be unnecessary, if not inappropriate – especially given the standardised protocols used to collect the data for most of the species involved; and

(iii) there were few, if any, rapid changes in abundance which were inconsistent with the demographies of the species concerned (Annex 4, paragraph 3.9(iv)), except in certain well-documented cases where deferred breeding (e.g. in gentoo penguins and black-browed albatrosses) was largely responsible for the magnitude of certain interannual changes in abundance.

4.84 The Scientific Committee noted these comments and requested that information on these three points be provided to WG-EMM to help interpret the report of SCAR-BBS when it next considers the status and trends of these species.

4.85 In addition, the Scientific Committee endorsed the view of WG-EMM that summarised information on the demographies (e.g. generation time, productivity) would be useful in the short term for understanding how populations may be changing at this time, particularly in relation to the trends identified by SCAR-BBS.

4.86 The Scientific Committee also noted the potentially valuable data on population trends in non-CEMP species. WG-EMM was asked to consider the utility of such data for its work on ecosystem assessment and to identify which species would be most appropriate as long-term indicators of changes in the ecosystem.

4.87 The Scientific Committee noted the absence of population data from any species of burrowing petrel, particularly white-chinned petrel, the species most commonly killed in longline fisheries in the Convention Area.

4.88 Prof. Croxall commented that population trends for such species were particularly difficult to establish and very few baseline data existed. However, a statistically significant decrease had recently been detected in the breeding population of white-chinned petrels at Bird Island, South Georgia, the only site for this species where adequate baseline data exist (Annex 5, paragraph 7.8).

4.89 The Scientific Committee thanked SCAR-BBS for its considerable work in assembling such comprehensive data and undertaking such careful and extensive analyses. It agreed to ask SCAR again in five years time to provide a report on the status of bird populations taking into account the consideration by WG-EMM at its next meeting on those species considered to be of greatest interest.

4.90 The summary report from SCAR-GSS indicated that fur seals (two species) were increasing over their whole range of distribution. Elephant seals seemed to be stable in the Atlantic Ocean sector whilst declining in the Indian Ocean. Less was known about the current trends in populations of the four ice seal species. Further information on ice seals and a cross-species review were likely to be produced from workshops in 2001 to analyse data from the SCAR-GSS APIS Program.

4.91 The Scientific Committee had only received the report on seals immediately prior to its meeting. It was unable to consider it in detail. It asked Prof. I. Boyd (UK) to provide an assessment of the relevant aspects of this report for the 2001 meeting of WG-EMM.

4.92 Concerning interactions with IUCN (Annex 4, paragraphs 3.17 and 4.26) Prof. Croxall noted that the latest edition of the IUCN Red List had just been published. This used the criteria to assess threatened species status which had been developed following extensive international collaboration by a variety of biological and statistical experts. These criteria included explicit use of rates of population decrease in relation to the generation time of the species involved. They were thus of considerable potential relevance to CCAMLR's approaches and interests. No species of Antarctic seal was currently classified as threatened using these criteria, although several species of Cetacea occurring in the Convention Area were classified as globally threatened. For birds, several penguin, albatross and petrel species breeding or occurring in the Convention Area had been classified as globally threatened. Full details of the assessments of the bird species had been published in BirdLife (2000).

4.93 The Scientific Committee recommended that the Secretariat contact BirdLife International to obtain copies of the relevant accounts for tabling at the next meeting of the Scientific Committee.

4.94 The Scientific Committee was encouraged by the close cooperation it had with the IWC at its CCAMLR-2000 Survey in January–February 2000 in the western part of the Atlantic Ocean and other national whale research programs in the Southern Ocean. Whale observers were present on three of the four vessels participating in the survey. A workshop is envisaged for 2001 to jointly analyse data on krill distribution and oceanographic features in relation to whale distribution. The IWC Observer provided a brief report on the status of their comprehensive assessment of whale stocks. The only whale species for which the assessment is nearly completed is humpback whales and some stocks of minke and Bryde's whales. Assessments of other ecologically important species, such as fin whales, have not been started. The Scientific Committee will continue its close collaboration with the IWC (paragraphs 11.27 and 11.28).