

ASSESSMENT OF INCIDENTAL MORTALITY

7.1 At its Seventh Meeting, the Commission requested SCAR to provide advice on ways to assess the incidence, causes, and effects of the ingestion of and entanglement in marine debris by Antarctic seals and birds (CCAMLR-VII, paragraph 40 and CCAMLR-VIII, paragraph 28). The responses from SCAR were considered by the Commission in 1989 (CCAMLR-VIII, paragraphs 29 and 30).

7.2 The Commission requested (CCAMLR-VIII, paragraph 31) the Scientific Committee to continue consultations to assist in identifying, designing, and implementing programs to assess and monitor the effects of marine debris and incidental catch on marine mammal and bird populations (SC-CAMLR-IX/BG/11).

Longline Fisheries

7.3 Dr K. Kerry (Australia) summarised a paper describing albatross mortality associated with longline fisheries for tuna outside the Convention Area (CCAMLR-IX/BG/17). A conservative estimate of the number of albatrosses (mostly sub-Antarctic species) killed annually is 44 000, which is sufficiently high to substantiate claims that serious declines in albatross populations within the Convention Area are due to this type of fishing activity (SC-CAMLR-VIII, paragraph 6.7).

7.4 The recent development of a longline fishery on *D. eleginoides* within the Convention Area has raised major concerns about the potential adverse effects on local albatross populations (CCAMLR-VIII, paragraphs 24, 107 and 108), to the extent that the Commission adopted a specific Resolution (5/VIII) concerning this issue.

7.5 The results of a joint Australian/Japanese effort to reduce the mortality of albatross in tuna longline fisheries (CCAMLR-IX/BG/14) were considered. Through the use of streamers on 'bird poles', the catch rate of birds was reduced by 88%. The streamers are trailed behind the ship and deter birds from settling on the water to take baits. In addition to dramatically reducing bird mortality, this technique resulted in an estimated gain of A\$7 million for the tuna industry by reducing fish loss. Additional steps to reduce bird mortality have been proposed (CCAMLR-IX/14 Rev. 1).

7.6 Dr Naganobu noted that there are no Japanese longline fisheries in the Convention Area. Outside the Convention Area, in addition to efforts to develop methods to reduce avian by-catch (as described above), Japan is considering requiring 'bird poles' to be fixed to all Japanese longline vessels which operate in areas where albatrosses are encountered.

7.7 Prof. Lubimova stated that because the *D. eleginoides* fishery is a bottom longline fishery, it is different from longline fisheries for tuna. She also noted that there have been no reported cases of incidental catch of birds from Soviet longline fisheries.

7.8 However, Dr Croxall pointed out that:

- (i) without full data on the longline fishing methods it was impossible to determine whether or not a bottom longline fishery was different from a pelagic one in respect of its likelihood of causing significant incidental mortality to seabirds; and
- (ii) until the time when observers had been placed on Japanese longline tuna fishing boats, there had been no reports of incidental catches of seabirds.

7.9 At its 1989 Meeting, the Commission requested (CCAMLR-VIII, paragraphs 52 and 109) that full information on the fishing methods used in the *D. eleginoides* longline fishery and information on levels of incidental mortality be provided as a matter of urgency.

7.10 No such information had been received and therefore the Scientific Committee has no data available to it upon which to consider the potential impact of this fishery on seabirds in the Convention Area and especially on populations of wandering albatross in Subarea 48.3 which are already known to be declining principally due to incidental mortality from a longline fishery.

7.11 Prof. Lubimova agreed that information on fishing methods and incidental mortality was required to assess the magnitude of any problem. She extended an invitation to Members for observers to come aboard Soviet longline vessels to observe fishing techniques and to monitor any incidental mortality which may occur. It was agreed that cooperative research and observation on longline fisheries vessels should be encouraged.

7.12 It was noted that SCAR has also recommended that CCAMLR place observers on longline vessels in the Convention Area to obtain data as soon as possible on incidental mortality of seabirds (SC-CAMLR-IX/BG/18).

7.13 Dr D. Robertson (New Zealand) drew the attention of Members to a source of incidental seabird mortality associated with the trawl fishery in New Zealand waters. Soviet trawlers use net monitor cables, upon which the wings of seabirds (albatrosses in particular) can become entangled. Entangled birds are swept under the water and drown. There has been an indication from Dr Duhamel that a similar problem may occur around Kerguelen. Members were asked to investigate this issue further and to prepare papers for consideration at the next meeting of the Scientific Committee.

Advice to the Commission

7.14 In view of its concern over the management of longline fishing in the Convention Area, the Scientific Committee recommended that:

- (i) the request for information specified in paragraph 52 of CCAMLR-VIII should be reiterated and emphasised;
- (ii) the request for information should include the seven points described in paragraph 10 of CCAMLR-IX/14 Rev. 1;
- (iii) modifications to the Antarctic longline fishery should be implemented as set out in paragraph 9 of CCAMLR-IX/14 Rev. 1, at least until such time as data specified above in (i) and (ii) have been made available and have demonstrated that such modifications are unnecessary; and
- (iv) steps should be taken to place scientific observers on longline fishery vessels.

Driftnet Fisheries

7.15 Mr Miller introduced a paper on penguin mortality associated with driftnet fisheries (CCAMLR-IX/BG/5). There have been several instances of rockhopper penguins being killed by driftnets in the South Atlantic Ocean, and in particular from Gough Island, which is just outside the Convention Area. These reports are cause for concern because:

- (i) the activities are taking place very close to the Convention Area;
- (ii) data on fishing procedures and the fishery are sparse;

- (iii) driftnet fisheries are known to cause significant levels of incidental mortality on a wide variety of marine life; and
- (iv) the fishing is being conducted by a country that is not a Member of CCAMLR.

7.16 It was noted that because few data are available regarding the fisheries referred to above, steps should be taken to obtain more information. The Scientific Committee agreed that data pertaining to this fishery should be sought as a matter of priority, possibly through the mechanisms being explored by the Secretariat in relation to the squid fishery within the Convention Area.

7.17 Dr K. Chu (USA) briefly summarised a joint report by the US, Japan, and Canada which described levels of incidental mortality associated with driftnet fisheries in the North Pacific (SC-CAMLR-IX/BG/8). He noted that there has been a significant by-catch of marine mammals, birds, turtles, and non-target fish species in this fishery and that there is therefore reason for serious concern about the impact of driftnet fisheries on ecosystems in the North Pacific.

7.18 The Scientific Committee noted that during 1990, both SCAR and the United Nations passed recommendations or resolutions regarding driftnet fisheries. SCAR Recommendation XXI-BIOL-2 urged CCAMLR to ban the use of driftnets and gillnets within the Convention Area (SC-CAMLR-IX/BG/18). UN Resolution 44/225 imposed a moratorium on existing driftnet fishing in certain areas and prohibited the expansion of driftnet fishing on the high seas (CCAMLR-IX/BG/12).

7.19 A number of delegations expressed their concerns about the possible adverse impacts of driftnets in and near the Convention Area, and stated that driftnets should not be introduced into the Convention Area because of the high abundance of marine mammals, seabirds, and other pelagic species in Antarctic waters. It was also stated that there was a danger of derelict driftnets lost from fisheries outside the Convention Area floating south and causing harm to Antarctic marine living resources.

7.20 The Scientific Committee strongly endorsed UN Resolution 44/225 and recommended that the Commission also express its support of this Resolution.

7.21 All delegations except Japan endorsed the SCAR recommendation and expressed their desire that the Commission ban driftnets in the Convention Area. The Japanese Delegation stated that there is no need to ban driftnet fishing in the Convention Area because:

- (i) there is presently no active driftnet fishery in the Convention Area;
- (ii) there are no known resources that could effectively be caught by this method;
and
- (iii) no countries have expressed an intention to develop such fisheries.

7.22 Recognising that at present there are no driftnet fisheries in the Convention Area, and that the inception of such fisheries would constitute an expansion as defined in paragraph 4.c. of United Nations Resolution 44/225, the Scientific Committee expressed its understanding that in accordance with UN Resolution 44/225, the development of any new driftnet fishery in the Convention Area is prohibited.

Impact of Bottom Trawling

7.23 Dr Kock summarised a paper describing the potential adverse impacts of bottom trawling on Antarctic benthic communities (SC-CAMLR-IX/BG/15). Bottom trawling is known to have a substantial impact on benthic organisms in many shelf areas around the world, and long-term shifts in benthic community structure (e.g., in the North Sea) have been attributed to the continuous impact of heavy bottom gear on these communities. Members were encouraged to take note of this matter and, as possible, provide further information to the Scientific Committee in the future.

7.24 This issue also raises the question of whether or not it would have been helpful for CCAMLR to be asked to comment on the proposals to designate marine Sites of Special Scientific Interest (SSSI) under the Antarctic Treaty. Given CCAMLR's expertise in the area of marine living resources, the Scientific Committee expressed its view that, had it been asked, it would have been able to make a useful contribution to SCAR's review of the marine SSSI proposals.

Marine Debris

Entanglement

7.25 Members' reports on assessment and avoidance of incidental mortality in the Convention Area had been received from Australia (CCAMLR-IX/BG/21), Japan

(CCAMLR-IX/BG/19), Korea (CCAMLR-IX/BG/22), USA (CCAMLR-IX/BG/9) and USSR (CCAMLR-IX/BG/18). No observations of entanglement of seabirds or seals at sea were reported.

7.26 Australia (SC-CAMLR-IX/BG/20 reporting two seabirds entangled in 1987 and 1989), Chile (SC-CAMLR-IX/BG/21 reporting two Antarctic fur seals entangled in 1988), UK (SC-CAMLR-IX/BG/6 reporting 161 Antarctic fur seals entangled in 1990) and USA (CCAMLR-IX/BG/9 reporting nine Antarctic fur seals entangled in 1990) had provided reports of seabirds and seals observed ashore entangled in marine debris. The Secretariat had provided a summary of reports submitted to CCAMLR on entanglement and incidental mortality of birds and seals (SC-CAMLR-IX/BG/16).

7.27 The UK study at Bird Island, South Georgia (SC-CAMLR-IX/BG/6) had repeated the survey of the previous year, which derived an estimate of at least 0.4% of the seal population (at least 5 000 seals) entangled. The 1990 study reported an incidence of entanglement of 0.22%, about 60% of the 1989 value. The distribution of entanglement by age and sex of animals was very similar in both years and polypropylene straps (55%) and fishing nets (21%) were again the main source of entanglement. It was intended to repeat this study in 1991.

7.28 The Australian Delegation noted that stricter compliance with regulations prohibiting at-sea dumping could significantly reduce the problem of entanglement in marine debris in Antarctic waters. The Scientific Committee expressed its concerns about disposing of debris at sea, and stated that such dumping should be minimised as a matter of priority.

7.29 Reviews of debris surveys at sea during Southern Hemisphere minke whale surveys (CCAMLR-IX/BG/15) and ashore at Bird Island, South Georgia (CCAMLR-IX/BG/4) had been received.

7.30 The latter study indicated that 20% of plastic packaging bands (the main source of entanglement of Antarctic fur seals) retrieved from beaches had been discarded without being cut. The United Kingdom intends to continue these surveys over the next several years to establish baseline data on the incidence and types of debris found on beaches.

7.31 In respect of the requirement to design programs to monitor the incidence and effects of marine debris (paragraph 7.2 above), the Scientific Committee noted that the SCAR Group of Specialists on Seals (SC-CAMLR-IX/BG/18) had requested its members to consider whether the monitoring procedures for beach debris and seal entanglement in use at South

Georgia would be applicable to other areas and therefore suitable as a general method for CCAMLR.

7.32 Dr V. Marín (Chile) introduced SC-CAMLR-IX/BG/21 which addressed the question of attempting to extricate marine mammals and birds from marine debris in which they are entangled. It was noted that care must be taken in avoiding harm to either the wildlife or the person removing the debris. For example, although experienced personnel with appropriate equipment can effectively remove 'neck collars' often found on Antarctic fur seals, this procedure can be dangerous if attempted on fur seal males older than 4 years of age.

7.33 Dr Robertson enquired whether or not there are reports of pinnipeds being caught or entangled in active trawling gear. It was noted that no reports of this nature have been received by the Secretariat.

Ingestion of Plastic by Seabirds

7.34 In following up on its earlier review of the incidence and effects of plastic ingestion by seabirds (SC-CAMLR-VIII/BG/6), the SCAR Bird Biology Subcommittee noted that experimental work on the direct effects of plastic ingestion is being conducted by South Africa (SC-CAMLR-IX/BG/11). In addition, investigators from South Africa and New Zealand are monitoring the incidence of plastic pollutants in beach-cast seabirds. Scientists from the Netherlands are researching the levels of plastics in the diet of Wilson's storm petrels.

Oil Pollution

7.35 Dr P. Penhale (USA) summarised a report on oil spillage in Antarctica (CCAMLR-IX/BG/11). Now that the US Palmer Station has been designated as a site under the National Science Foundation's Long-Term Ecological Research (LTER) Program, there will be a long-term follow-up to monitor environmental conditions after the oil spill that occurred in 1989. The follow-up studies are part of a cooperative effort between the United States and Argentina.