

INCIDENTAL MORTALITY

INCIDENTAL MORTALITY IN LONGLINE FISHERIES

10.1 Drs Croxall and Moreno presented SC-CAMLR-XII/BG/8 Rev. 1, on seabird interactions with longline operations during the exploratory fishing cruise for *D. eleginoides* at the South Sandwich Islands (Subarea 48.4). Based on the observations (by Scientific Observers on board the fishing vessel) of all seven sets on this cruise, no incidental mortality was seen and only one bird (a penguin) was caught on hooks. However, the number of seabirds present during day hauling operations suggested that incidental mortality could be expected from setting operations in daylight hours and in the absence of mitigating measures (such as the tori poles and streamer lines used on this cruise). The seabirds present included rather few individuals of the albatross species most vulnerable to longlining in the South Georgia region.

10.2 SC-CAMLR-XII/BG/8 Rev. 1 also presented some observations and anecdotal reports of incidental mortality of albatrosses in the South Georgia area. In the absence of streamer lines up to six albatrosses were being hooked and drowned per set, which, for the 406 sets for Subarea 48.3 in 1992/93, would extrapolate to a mortality of 2 346 albatrosses. This estimate does not include the activities of vessels in waters adjacent to the Convention Area.

10.3 Dr D. Robertson (New Zealand) reminded the Scientific Committee of the direct observation and measurement of incidental mortality of seabirds in the South Georgia *Dissostichus* longline fishery. These measurements were submitted by ASOC in 1991 (CCAMLR-X/BG/18). These data, which were presented in SC-CAMLR-X (paragraph 8.14(iii)), were re-worked and published in *Polar Record* earlier this year. The re-worked data gave a very high seabird catch rate of 0.66 birds per thousand hooks.

10.4 Estimated albatross mortality of this magnitude is supported by reports (recorded in CCAMLR-XII/BG/6) of hundreds of albatrosses attempting to take bait off hooks as longlines are set, resulting in two to five albatrosses being caught per day. Two rings taken from dead albatrosses came from birds in the Bird Island study population.

10.5 CCAMLR-XII/BG/6 also reported continuing evidence of South Georgia birds being caught in longline fisheries outside the Convention Area, and particularly in the Indian Ocean sector, and in the Atlantic Ocean off Brazil and Uruguay.

10.6 Dr Croxall noted that last year the Scientific Committee had received the first report of seabirds impaled with fishing hooks being observed at breeding colonies (SC-CAMLR-XI,

paragraph 8.13). SC-CAMLR-XII/BG/7 was tabled in response to the request for more information contained in SC-CAMLR-XI, paragraph 8.20. It documents the highest annual incidence yet recorded of similar evidence from albatrosses at South Georgia. At least some of these birds were likely to have swallowed hooks locally. Such records are likely to result from birds becoming entangled when lines are hauled and then cut free. The number of observations from a single site in one season is of concern, especially given that many birds may not survive swallowing, or being impaled on, fishing hooks.

10.7 Dr Croxall presented SC-CAMLR-XII/BG/21 on the population dynamics of black-browed and grey-headed albatrosses at Bird Island, South Georgia from 1975 to 1991. Significant population declines are reported from all but two of 14 grey-headed albatross colonies and from over half the 23 black-browed albatross colonies. Detailed work at four study colonies indicates that the main reason for the decline is a decrease in the juvenile survival rate. In comparing birds born in the 1960s (recruiting as breeders in the early 1970s) with the 1970s (recruiting in the early 1980s), survival was halved for black-browed albatrosses and reduced by 84% in grey-headed albatrosses.

10.8 These changes coincided with the development of longline fisheries for tuna outside the Convention Area and most recent records of mortality of juvenile albatrosses relate to entanglement in longlines. Although survival rates of adult black-browed and grey-headed albatrosses had fluctuated considerably there had been no clear trend, except for a substantial decline in the survival rates of adult black-browed albatrosses since 1988. This is of particular concern as it coincides with the development of the *D. eleginoides* longline fishery carried out in very close proximity to the breeding colonies of black-browed albatrosses under study. Not only is the black-browed albatross a species particularly prone to associate with fishing vessels but satellite-tracking data show that birds breeding at South Georgia forage mainly around the shelf and shelf-edge areas. This is in contrast to grey-headed albatrosses which associate less with ships and whose foraging is rather less associated with areas where longlining is currently undertaken.

10.9 Dr Robertson introduced SC-CAMLR-XII/BG/14, which reported on a large amount of data collected by observers on tuna longline vessels in New Zealand waters. Twelve taxa of seabirds, including high numbers of albatrosses and species also found in the CCAMLR Convention Area, were taken incidentally in this fishery. A number of seabird populations subject to incidental mortality have declined after the introduction of longline fishing to the New Zealand region in 1962. A substantial reduction (by a factor of 10) in bird mortality has been observed between 1988 and 1992, following the introduction of mitigation measures including streamer lines and the setting of longlines at night. However, he considered that the magnitude of this result should be interpreted with caution because preliminary observer data from 1993 shows a return to higher levels of incidental mortality.

10.10 The study has led to a number of recommendations which are also relevant to CCAMLR. These included:

- the need for observer coverage at a level which can provide statistically robust measurements;
- the need to provide rapid feedback between observers and managers on the effectiveness of mitigation measures under different prevailing circumstances;
- the desirability of having two observers to obtain complete coverage of all longline sets;
- the requirement for vessel masters to record details of bird capture as a part of normal catch and effort reporting;
- the use of streamer lines (which CCAMLR has already implemented); and
- techniques which lead to faster sinking of the bait, for example using thawed rather than frozen bait.

10.11 SC-CAMLR-XII/BG/13 described some practical problems which had been encountered with using the streamer line with the design specified in Conservation Measure 29/XI on a Japanese longliner in New Zealand waters. A series of modifications which improve the durability and ease of use of the streamer line was developed in collaboration between a New Zealand observer and the crew of the Japanese tuna vessel.

10.12 The Scientific Committee congratulated New Zealand and Japan for the work they had carried out, and thanked New Zealand for presenting it to the Committee.

10.13 SC-CAMLR-XII/BG/18 reported on measures taken to reduce incidental bird mortality by Russian longline vessels fishing in Subarea 48.3. Observations were made on the numbers of birds attracted to the bait in order to evaluate the effectiveness of different mitigation measures. It was established that the best time for setting lines was from 0300 to 0400 local time, when the least number of birds were observed following the vessels. Disposal of offal and food scraps ceased at least 30 minutes prior to setting the line.

10.14 The relative effectiveness of each prescribed measure, as well as compliance with minimum lighting requirements, was estimated to be about 5 to 10%. Bright moonlight negated the effectiveness of setting at night and the use of minimum lighting. The streamer line was a much more effective preventative measure (60 to 80%), however, birds begin to become habituated to the streamers after about 1.5 hours. Therefore, it was recommended that the lines should be set as quickly as possible after deploying the streamer line. The paper also reported on improvements to the specification and rigging of the streamer line.

10.15 The Scientific Committee welcomed the studies reported in SC-CAMLR-XII/BG/18, and encourages the authors to prepare a paper for the next meeting giving full details on the research methods and data used to calculate the effectiveness of the various mitigation measures.

10.16 At its last meeting Dr T. Øritsland (Norway) reported on successful experiments in reducing bird mortality in longline fisheries in the North Atlantic, and undertook to provide a paper giving details on these experiments to this meeting. At this meeting, he reported that this paper was not prepared because the experiments showed that the methods of mitigation were very successful, and that the experiments were cut short in order to proceed with the implementation of the measures to all the vessels in the fishery as quickly as possible. The Scientific Committee considered that such results made it all the more important to receive further details on the methods used, along with such data as existed on their effectiveness. Accordingly, the Scientific Committee encouraged Dr Øritsland to prepare a paper on the mitigation methods developed in Norway for the next meeting of the Scientific Committee.

10.17 The Scientific Committee noted that Japan and Australia are collaborating on a project to test various types of streamer lines for effectiveness in reducing bird mortality in waters to the north of the Convention Area, and undertaking the development of a manual on longlining techniques which takes into account the problem of incidental mortality. The Scientific Committee encourages those involved to complete this work as soon as possible and is interested in receiving further reports on this work as well as copies of the manual.

10.18 The Scientific Committee is concerned that there continues to be problems in giving effect to measures designed to reduce the incidental mortality of seabirds in longline fishing operations. In particular the Scientific Committee is concerned about:

- (i) substantial lack of compliance with reporting requirements agreed by the Commission (CCAMLR-IX, paragraph 5.4 and given further effect in Conservation Measures relating to the data reporting system for the *D. eleginoides* fishery); and

- (ii) possible non-compliance with Conservation Measure 29/XI.

10.19 The Scientific Committee recognised that incidental mortality, particularly from longline fishing, was an increasingly important part of its deliberations. It was now difficult for the Scientific Committee to review adequately the amount of material becoming available and to develop management advice for the Commission in the time available at its annual meeting. Accordingly, the Scientific Committee decided to establish an *ad hoc* working group to consider incidental mortality arising from longline fishing, with the following terms of reference:

- (i) review and analyse the data submitted in accordance with CCAMLR requirements on incidental mortality associated with longline fishing;
- (ii) review the efficacy of mitigating measures currently in use in the Convention Area, and consider improvements to them, taking into account experience both inside and outside the Convention Area;
- (iii) review data on the level and significance of incidental mortality arising from longline fishing to marine animals found within the Convention Area;
- (iv) prepare a summary of the above for the consideration of the Scientific Committee;
- (v) provide the Scientific Committee with advice for improvements to:
 - (a) the reporting requirements currently in use in the Convention Area; and
 - (b) the measures in use to avoid incidental mortality in longline fisheries within the Convention Area.

10.20 The first meeting of the *ad hoc* group is to be convened by Dr Moreno, and will be held in Hobart between the next meetings of WG-FSA and the Scientific Committee.

INCIDENTAL MORTALITY IN TRAWL FISHERIES

10.21 In 1991 the Commission adopted Conservation Measure 30/X, which prohibited the use of net monitor cables in the Convention Area starting with the 1994/95 fishing season. The Scientific Committee was pleased to learn that almost all trawlers operating in the Convention Area have already complied with this measure. Mr Cielniaszek reported that Polish vessels, which still use net

monitor cables may operate in the coming season. Last year these net monitor cables were deployed in accordance with the procedure set out in Annex 6 of CCAMLR-X and this practice will continue for the next season.

MARINE DEBRIS

10.22 Member's reports on the assessment and avoidance of incidental mortality and impacts of marine debris on biota in the Convention Area have been received from the UK, Australia, South Africa, Japan, USA and Brazil (CCAMLR-XII/BG/6, 8, 9, 10, 12 and 18).

10.23 SC-CAMLR-XII/BG/6 reported the results of surveys of Antarctic fur seals entangled in marine debris carried out for the third consecutive winter and fifth consecutive summer at Bird Island, South Georgia. In winter 1992, 97 entangled fur seals were seen, a tenfold increase over the previous two years. In summer (1993), 84 entangled seals were seen, which was a 75% increase from 1992. About 50% of the entanglements involved plastic packing bands (probably from bait boxes), and about 25% involved net fragments. These results reversed a steady decline in entanglements which had been observed over the preceding four years.

10.24 CCAMLR-XII/BG/12 reported that 14 entangled fur seals were found on Seal Island in the South Shetland Islands. The number of fur seals hauling out on the island was much higher than usual, and this is reflected in the larger number of entangled seals observed. The majority of entanglements was from plastic packing bands, although some net fragments were also observed.

10.25 The Scientific Committee noted that entanglement of fur seals with packing bands from bait boxes is a persistent problem. The Scientific Committee reiterates that these bands should not be disposed of at sea. At its last meeting, the Scientific Committee drew attention to the availability of bait boxes which do not use plastic packing bands. In light of the availability of an alternative bait box, the Scientific Committee recommends that the Commission prohibits the use of bait boxes which use plastic packing bands, over a short phase-out period.

10.26 CCAMLR-XII/BG/8 reported three fur seals entangled in net fragments on Heard Island.

10.27 In the intersessional period the Secretariat had prepared and circulated a draft set of guidelines for conducting surveys of beached marine debris. After taking into account the comments received, a final version of the guidelines was prepared (CCAMLR-XII/BG/15). The Scientific Committee thanked the Secretariat for undertaking this task. The Scientific Committee encourages

Members to conduct future beach surveys for marine debris in accordance with the guidelines, and to suggest any further refinements which may be required.

10.28 A number of Members indicated that they would be undertaking beached debris surveys in the near future in accordance with the guidelines.

10.29 SC-CAMLR-XII/BG/15 reported the first ever observation of penguins contaminated with oil at Bird Island, South Georgia. One chinstrap and five gentoo penguins were found contaminated with oil in July and August 1993. Because gentoo penguins feed close inshore in winter, they must have been contaminated from nearby pollution. Krill fishing vessels were known to be operating nearby at about this time.

10.30 Mr S. Uno (Japan) stated that the Government of Japan has strictly prohibited the discharge of oil and wastes from vessels at sea under its maritime law since 1970. Japanese vessels were in effect complying with the provisions of the Antarctic Treaty pertaining to the prevention of marine pollution long before they were adopted in 1991. He reported that no Japanese vessels deliberately discharge oil and other wastes at sea, and that no accidental discharges had been reported.

ADVICE TO THE COMMISSION

10.31 The Scientific Committee recalled that paragraph 8.24, SC-CAMLR-XI, advises the Commission that if reports on incidental mortality and the effectiveness of mitigation measures were not forthcoming, then the Commission may have to consider adopting measures which would allow an effective assessment of incidental mortality. The Scientific Committee noted with regret that reporting of data on incidental mortality of seabirds on longlines and the effectiveness of mitigation measures was incomplete.

10.32 The Scientific Committee noted that experience in other fisheries has shown that reliable data collection on incidental mortality required Scientific Observers on fishing vessels, and that a high proportion of the vessels requires observer coverage if the total amount of incidental mortality is to be estimated reliably. The Scientific Committee therefore recommends that the Commission consider means for placing Scientific Observers on a high proportion of longline fishing vessels in the Convention Area for at least one fishing season to collect the data required for a reliable assessment of the numbers and species of birds incidentally captured on longlines in the CCAMLR Convention Area.

10.33 Experience by some Members in using the streamer line specified in Conservation Measure 29/XI has shown that there may be some problems in its design in terms of durability and ease of use. Members should report on their experience in using any type of mitigation measure inside or outside the Convention Area. The Scientific Committee advises that until it receives further detailed reports on improved streamer designs and other potential mitigation methods it would not be prudent to devise new Conservation Measures. However, the Scientific Committee agreed that in the interim it would be appropriate to revise Conservation Measure 29/XI to:

- (i) allow some flexibility in the design of the streamer line to increase its robustness and ease of use, so long as the effective sea surface area covered by the streamers is no less than that covered by the currently specified design;
- (ii) include a recommendation that only thawed bait should be used; and
- (iii) explicitly include provisions for reporting the data on incidental mortality required on form C2 (instead of giving effect to this requirement through the *D. eleginoides* biological data reporting system).

10.34 The Scientific Committee recommends that the Commission prohibits the use of bait boxes which use plastic packing bands, over a short phase-out period.