ANNEX 7

REPORT OF THE WORKING GROUP ON INCIDENTAL MORTALITY ASSOCIATED WITH FISHING

(Hobart, Australia, 12 to 16 October 2009)

CONTENTS

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OPENING OF THE MEETING

1.1 The meeting of WG-IMAF was held in Hobart, Australia, from 12 to 16 October 2009.

1.2 The Co-conveners, Ms K. Rivera (USA) and Mr N. Walker (New Zealand), opened the meeting and welcomed participants, including the invited experts from ACAP and BirdLife International.

1.3 Dr K. Reid (Science Officer) also welcomed the group and highlighted the significance of this first WG-IMAF meeting as a separate working group, no longer of 'ad hoc' status.

ORGANISATION OF THE MEETING AND ADOPTION OF THE AGENDA

2.1 The agenda of the meeting was discussed and it was agreed to add a separate subitem on the review of action plans to eliminate seabird incidental mortality to address France's progress with its action plan, and to include Conservation Measure 51-01 when evaluating information relating to the implementation of conservation measures with respect to seabird and marine mammal incidental mortality. The revised agenda was adopted (Appendix A).

2.2 The report was prepared by the participants and includes a List of Participants (Appendix B) and a List of Documents considered at the meeting (Appendix C).

INTERSESSIONAL WORK OF WG-IMAF

2.3 The Co-conveners reported on the intersessional activities of WG-IMAF according to the agreed plan of intersessional activities for 2008/09 (SC-CAMLR-XXVII, Annex 6, Table 1).

2.4 The Working Group thanked the Secretariat for its work on the coordination of WG-IMAF intersessional activities and the technical coordinators of national observer programs for their support. It also thanked the Secretariat for its work on the processing and analysis of data submitted to the Secretariat by international and national observers during the 2008/09 fishing season.

2.5 The Working Group concluded that most tasks planned for 2008/09 had been successfully implemented. Much of the information requested intersessionally had been presented to the Working Group in papers submitted to the meeting. The list of current intersessional tasks was reviewed and a number of changes were agreed in order to

consolidate specific tasks in future plans. The Working Group agreed that the plan of intersessional activities, compiled by the Co-conveners and the Science Officer, be appended to its report (Table 1).

2.6 The Working Group especially welcomed to the meeting Mrs E. Reid (BirdLife International) and Dr M. Favero (ACAP) who were attending for the first time.

2.7 The Working Group greatly appreciated the participation of national technical coordinators who provided invaluable experience to the Working Group as it addressed numerous observer-related and data collection issues. In addition to the continued participation of technical coordinators at future meetings, WG-IMAF would also welcome the participation of Members engaged in fishing activities in, or adjacent to, the Convention Area who have not recently participated in WG-IMAF.

INCIDENTAL MORTALITY OF SEABIRDS AND MARINE MAMMALS IN FISHERIES IN THE CONVENTION AREA

Seabirds

Seabirds in longline fisheries

3.1 Data were available from all longline cruises conducted in the Convention Area, including those within the French EEZs in Subarea 58.6 and Division 58.5.1, during the 2008/09 season (Tables 2 and 3).

3.2 The proportions of hooks observed ranged from 14 to 99% with an average of 48% (Table 2).

3.3 The total extrapolated seabird mortalities due to interactions with fishing gear during longline fishing for *Dissostichus* spp. in the Convention Area in 2008/09 (including the French EEZs) were estimated to be 521 (Table 4). These consisted of 2% albatrosses (1% grey-headed albatrosses (*Thalassarche chrysostoma*) and 1% southern black-browed albatrosses (*T. melanophrys*)) and 98% petrels (91% white-chinned petrels (*Procellaria aequinoctialis*), 5% grey petrels (*P. cinerea*), 2% northern giant petrels (*Macronectes halli*) and 1% Cape petrels (*Daption capense*). It should be noted that for the first time the data from the French EEZs has been adjusted to the CCAMLR season (1 December to 30 November).

3.4 The total number of seabirds observed caught and released uninjured was 26 (Tables 2 and 3); all caught during hauling. Of these, 10 were caught within Subarea 48.3, 2 in Division 58.5.2, and 14 from within the French EEZs in Subarea 58.6 and Division 58.5.1. All vessels recorded the use of a haul-mitigation device (WG-IMAF-09/4 Rev. 2, paragraph 6).

Seabird incidental mortality in the French EEZs
in Subarea 58.6 and Division 58.5.1

3.5 Data were available from 15 cruises in Subarea 58.6 and 15 cruises in Division 58.5.1 in 2008/09 (Table 3). All vessels in the French EEZs were autoliners using at least 50 g m^{-1} IWLs. The proportion of hooks observed was 25% in each of the areas and the total observed seabird incidental mortality was 23 and 105 birds respectively (sum of dead and injured birds) (Table 3). The corresponding incidental mortality rates were 0.015 and 0.034 birds/thousand hooks and the extrapolated total seabird mortalities for Subarea 58.6 and Division 58.5.1 were 93 and 417 respectively (Table 4).

3.6 The observed captures in Subarea 58.6 comprised 19 white-chinned petrels (83%), 3 northern giant petrels (13%) and 1 grey petrel (4%). The corresponding figures for Division 58.5.1 were 99 white-chinned petrels (94%) and 6 (6%) grey petrels (WG-IMAF-09/4 Rev. 2, paragraph 3).

3.7 The Working Group noted that when comparing the seabird incidental mortality rates provided by France, this represented reductions of 60.9% and 47% for Subarea 58.6 and Division 58.5.1 respectively, compared to the previous season; a reduction of 46% from the combined total estimated incidental mortality from these areas (Tables 3 and 4).

3.8 The Working Group noted that 13% of seabirds observed captured were caught alive, indicating that they were taken on the haul (Table 3). This compares to 24% last year and reflects the increased use and effectiveness of haul-mitigation devices compared to the previous years.

Seabirds in trawl fisheries

Subarea 48.3 icefish

3.9 Observer data were available from all seven trawl cruises (data from two cruises were not available at the time the report was compiled) conducted within Subarea 48.3 during the 2008/09 season, 82% of all tows were observed (WG-IMAF-09/5 Rev. 2, Table 2).

3.10 For 2008/09, 11 seabird mortalities (5 white-chinned petrels and 6 black-browed albatrosses) were reported in Subarea 48.3 from five vessels which results in an estimated 14 mortalities (Table 5). In addition, 31 seabirds were released alive in Subarea 48.3 (Table 5) (17 white-chinned petrels, 11 black-browed albatrosses, 2 grey-headed albatrosses and 1 southern giant petrel (*M. giganteus*)).

3.11 This represents an increase in the level of seabird mortality from the 2007/08 season where five were recorded dead and five recorded released alive. The rate of mortality in Subarea 48.3 in 2009 was 0.07 birds per trawl, compared to 0.024, 0.07, 0.07 and 0.14 in 2008, 2007, 2006 and 2005 respectively (Table 6). Eight warp strikes were observed; 3 albatrosses and 5 white-chinned petrels, all in the air.

3.12 Observers recorded a number of different mitigation measures used. These included net cleaning, streamer lines, Brady bafflers, water jets, net binding and net weighting (WG-IMAF-09/5 Rev. 2, paragraph 11). The use of net bindings was reported on all vessels

for all sets. Net bindings were spaced between 1 and 5 m apart, with the mesh sizes which were bound ranging from 96 to 800 mm. In the case of net weighting, four vessels, the *Robin M Lee, Insung Ho*, *New Polar* and *Sil*, reported on the use of net weights. The *Robin M Lee* attached approximately 400 kg of weights to the net. *Insung Ho* attached weights to either side of the codend with a total mass of 585 kg. *New Polar* used 96–100 kg on the codend and 130–400 kg on the belly, and the *Sil* had 400 kg attached to the belly and 70 kg of codend chains.

Division 58.5.2 toothfish/icefish

3.13 Data were available from one vessel, *Southern Champion*, which conducted two trawl cruises within Division 58.5.2 during the 2008/09 season (Table 6). The Working Group noted that there was 100% observer coverage of fishing vessels in this fishery with 100% of tows observed.

3.14 One seabird mortality was reported. A Cape petrel became entangled in a paravane (WG-IMAF-09/5 Rev. 2, paragraph 14) which gave a mortality rate of 0.002 birds per trawl. The observer reported that net cleaning did not occur before each shot and that no marine mammal mitigation devices were used, however, the vessel did employ minimal deck lighting to reduce seabird collisions (WG-IMAF-09/5 Rev. 2, paragraph 16).

Krill

3.15 Data were available from 11[1] trawl cruises conducted within Area 48 during the 2008/09 season (WG-IMAF-09/5 Rev. 2). In the krill fishery, 20% of vessels fishing in Subarea 48.1, 57% of vessels fishing in Subarea 48.2 (two cruises) and 100% of vessels fishing in Subarea 48.3 had observers on board at some time during their trips.

3.16 The Working Group noted that there were 10 reported incidents of seabird incidental mortality (all Cape petrels) in Subareas 48.1 and 48.2 and none were recorded in Subarea 48.3. This gave an overall incidental mortality rate of 0.01 birds per trawl for Area 48, slightly higher than last year. A further 35 birds were released alive uninjured (WG-IMAF-09/6 Rev. 2, Table 6).

3.17 The Working Group noted that all the mortalities were reported on the *Saga Sea* while fishing with continuous trawls in Subarea 48.2 (Table 5). The observer reported that this was due to birds swimming under the net while it was on the surface and becoming trapped when the swell caused the net to come down on top of them.

3.18 This season saw the introduction of a revised warp strike protocol for continuous trawl systems following a recommendation from last year. As a result of this there was an increased detection of warp strikes with 73 being observed, all were in the air and there were no mortalities recorded.

3.19 The Working Group recommended the continued use of the trawl warp strike protocol.

[1] One logbook was submitted by a national observer on board the *Konstruktor Koshkin*.

Seabirds in pot fisheries

3.20 During pot fishing in 2008/09, no seabird mortalities were recorded during either of the cruises targeting *D. eleginoides* in Division 58.5.2 (WG-IMAF-09/7, paragraph 6). No other pot fishing took place in the Convention Area.

Marine mammals

Marine mammals in longline fisheries

3.21 Seven marine mammal incidental mortalities were recorded in the Convention Area during the 2008/09 season (WG-IMAF-09/4 Rev. 2, paragraph 5). Three elephant seals (*Mirounga leonina*) were recorded as caught in the mainline (one in Subarea 48.3, two in Division 58.5.2), and two crabeater seals (*Lobodon carcinophagus*) were recorded as having being hooked in the flipper and hauled up dead in Subarea 88.1. There were also two cetacean incidental mortalities in Subarea 48.3. A killer whale (*Orcinus orca*) was recorded as hooked on the line and was dead when it came to the surface, and a sperm whale (*Physeter macrocephalus*) was hauled up dead after being caught in discarded fishing gear on the seabed (paragraph 13.10).

Marine mammals in trawl fisheries

Krill

3.22 Twelve marine mammal incidental mortalities (all fur seals) were recorded in the krill trawl fishery in 2008/09, all from one vessel, *Dalmor II* in Subarea 48.2 (WG-IMAF-09/5 Rev. 2, paragraph 6). This is an increase over the 2007/08 season where there were six reported incidental mortalities. The *Dalmor II* was the only observed trawler not to use a seal exclusion device although it had used one in the previous year in Subarea 48.3.

3.23 A further seven seals were recorded as being caught and released alive in Subarea 48.2, four from the *Dalmor II*, two from the *Saga Sea* and one from *Juvel*.

Finfish

3.24 No marine mammal incidental mortalities were observed in finfish trawl fisheries (Tables 7 and 8; WG-IMAF-09/5 Rev. 2, paragraphs 10 and 15). This was also the case for the previous two seasons.

Marine mammals in pot fisheries

3.25 No marine mammal incidental mortalities were reported for pot fisheries in the Convention Area (WG-IMAF-09/7). This was also the case for the previous two seasons.

Information relating to the implementation of Conservation Measures 26-01, 25-02, 25-03 and 51-01

3.26 Information from observer reports relating to the implementation of Conservation Measures 26-01, 25-02, 25-03 and 51-01 in 2008/09 was provided by the Secretariat (WG-IMAF-09/6 Rev. 2).

Conservation Measure 26-01 'General environmental protection during fishing'

Plastic packaging bands

3.27 Information from observer reports indicated that plastic packaging bands to secure bait boxes were on board during two cruises: *Antarctic Chieftain* in Division 58.5.2 and *Jung Woo No. 3* in Subareas 88.1 and 88.2 (WG-IMAF-09/6 Rev. 2, Table 1). Observers reported that on all vessels where plastic packaging bands to secure bait boxes were present, they were cut and retained or incinerated. Where information was provided, there was full compliance with Conservation Measure 26-01 with respect to the use of other plastic packaging bands. There was no information provided on the disposal of plastic packaging bands from one cruise, *New Polar* in Subarea 48.3.

Gear debris and garbage

3.28 The Working Group noted the discharge of oil from the *Argos Froyanes* in Subareas 88.1 and 88.2. There was no information provided on the disposal of oil, gear debris or garbage from one cruise, *Maksim Starostin* in Subarea 48.3 (WG-IMAF-09/6 Rev. 2, Table 1).

Conservation Measure 25-02 'Minimisation of the incidental mortality of seabirds in the course of longline fishing or longline fishing research in the Convention Area'

Line weighting

3.29 For Spanish-system vessels, one vessel (the *Jung Woo No. 2* in Subarea 88.1) did not meet the line-weighting regime as specified in Conservation Measure 25-02, paragraph 3, as weights were spaced beyond the 40 m maximum spacing (WG-IMAF-09/6 Rev. 2, Figure 1).

3.30 All autoline vessels fishing in Subareas 48.4, 48.6, 88.1 and 88.2 and Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b and 58.5.2, met the requirement to achieve a consistent minimum line sink rate as described in Conservation Measure 24-02 (WG-IMAF-09/6 Rev. 2, Table 7 and Figure 1). As in previous years, this line-weighting requirement has been fully achieved by all vessels. For 2008/09, the Working Group noted that one autoline vessel (*Ross Star* in Subarea 48.3) used IWL and clip-on weights to achieve the sink rate requirements. All other autoline vessels were using IWLs (WG-IMAF-09/6 Rev. 2, Figure 1).

Night setting

3.31 There was 100% compliance with night setting in all areas where this was required (Subareas 48.3 and 58.7) (Table 9).

3.32 Vessels fishing in Subareas 48.4, 48.6, 88.1 and 88.2 and Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b and 58.5.2, may set longlines during daylight hours providing they can demonstrate a consistent minimum line sink rate of 0.3 m s^{-1}, or use an IWL of at least 50 g m^{-1} and achieve a sink rate of 0.2 m s^{-1}. All vessels fishing in these areas fully implemented one or both of these requirements (WG-IMAF-09/6 Rev. 2, Table 7).

Offal discharge

3.33 All longline vessels fully implemented the requirement to retain offal on board in all areas where this was required (Subareas 48.6, 88.1 and 88.2 and Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b and 58.5.2) during the 2008/09 season (Table 9).

Discard of hooks

3.34 Observers reported hooks being present in offal discharge from one of 37 longline cruises. The observer on board the *Shinsei Maru No. 3* in Division 58.4.3 reported that hooks were present occasionally in offal discharge, despite efforts of the crew to remove them (WG-IMAF-09/6 Rev. 2, Table 1). This compares to one of 37 cruises last year with reports of hooks in offal discharge (SC-CAMLR-XXVII, Annex 6, paragraph 2.38).

3.35 The Working Group reiterated continued concern at the discarding of hooks in offal, given that nest surveys had once again found a high level of hooks around nests of wandering albatrosses (*Diomedea exulans*) on Bird Island, South Georgia (WG-IMAF-09/10). The Working Group again stressed that hook ingestion persists as a severe impact on Convention Area seabirds; these hooks come from longline fisheries inside and outside the Convention Area.

Streamer lines

3.36 Full implementation of all elements of the streamer line specification increased from 94.5% in 2007/08 (35 of 37 cruises) to 97% in 2008/09 (36 of 37 cruises) (Table 10).

3.37 There was one cruise (*Insung No. 1* in Divisions 58.4.1, 58.4.2, 58.4.3a and 58.4.3b) where streamer lines did not meet the specification based on streamer lengths (Table 10). The Working Group noted that this vessel has failed to meet the specification for streamer lengths for the second consecutive year.

3.38 One cruise did not have a streamer line deployed throughout all sets. The observer on the *Austral Leader II*, fishing in Division 58.5.2, noted that on one night set the streamer lines became fouled with the mainline and broke during the set and were retrieved the next day during hauling.

3.39 The Working Group noted that these small deviations from full implementation with streamer line configuration had not led to any observed seabird incidental mortality. Nevertheless, the Working Group encouraged vessels to strive for full implementation.

Haul mitigation

3.40 Apart from two vessels, there was full implementation of the haul-mitigation device requirement by all other vessels. The *Koryo Maru No. 11* used haul mitigation during 98% of hauls during one cruise in Subarea 48.3; it did not use haul-mitigation devices on four hauls due to severe weather conditions. The *Austral Leader II* used its haul-mitigation device on 98% of hauls during one cruise in Division 58.5.2, and the observer did not provide any information on the reason for non-deployment of the haul-mitigation device (Table 10).

Conservation Measure 25-03 'Minimisation of the incidental mortality of seabirds and marine mammals in the course of trawl fishing in the Convention Area'

3.41 A range of mitigation measures was used on board icefish vessels in Subarea 48.3 and Division 58.5.2 (WG-IMAF-09/5 Rev. 2, paragraph 11) and implementation of Conservation Measure 25-03 was good.

Net sonde cables

3.42 There were no reports of net monitoring cables (net sonde cables) being used in 2008/09 (WG-IMAF-09/6 Rev. 2, paragraph 18).

Offal discharge

3.43 The trawl vessel *Dongsan Ho*, operating in Subarea 48.3, was observed discarding small quantities of offal during net shooting on two occasions (WG-IMAF-09/6 Rev. 2, Table 6). Six seabirds (4 black-browed albatrosses and 2 white-chinned petrels) were killed or injured by this vessel during this cruise (Table 5). These captures did not occur in association with the observed offal discharge events.

Conservation Measure 51-01 'Precautionary catch limitations on *Euphausia superba*'

3.44 The observer reported that the *Dalmor II* was not using a seal exclusion device and caught 12 Antarctic fur seals (*Arctocephalus gazella*), during fishing in Subarea 48.2 (WG-IMAF-09/6 Rev. 2, paragraph 6).

Summary of conservation measure implementation

3.45 The Working Group recommended that the Scientific Committee refer to SCIC the following list of vessels which did not fully implement the requirements of Conservation Measures 26-01, 25-02, 25-03 and 51-01:

Conservation Measure 26-01 –

(i) *Antarctic Chieftain* and *Jung Woo No. 3,* which had plastic packing bands to secure bait boxes on board during cruises in the Convention Area (paragraph 3.27);

(ii) *Argos Froyanes,* which discharged oil (paragraph 3.28);

Conservation Measure 25-02 –

(iii) *Jung Woo No. 2* which exceeded the maximum spacing between weights on longlines (paragraph 3.29);

(iv) *Shinsei Maru No. 3* due to the discharge of hooks in offal (paragraph 3.34);

(v) *Insung No. 1* which used streamers that did not meet the minimum length specified (paragraph 3.37);

(vi) *Austral Leader II* which did not use a streamer line throughout all setting of longlines (paragraph 3.38);

(vii) *Koryo Maru No. 11* and *Austral Leader II* which did not use haul-mitigation devices on all hauls (paragraph 3.40);

Conservation Measure 25-03 –

(viii) *Dongsan Ho* which discharged offal during net shooting while trawling (paragraph 3.43);

Conservation Measure 51-01 –

(ix) *Dalmor II* which did not use a marine mammal exclusion device (paragraph 3.44).

Review of action plans to eliminate seabird mortality

France's action plan to reduce/eliminate seabird mortality in Subarea 58.6 and Division 58.5.1

3.46 The Working Group reviewed the progress report submitted by France in implementing its action plan developed to reduce seabird incidental mortality in Subarea 58.6 and Division 58.5.1 (SC-CAMLR-XXVIII/11) and other papers containing relevant information and analyses on seabird incidental mortality in the French EEZs (SC-CAMLR-XXVIII/BG/13, WG-IMAF-09/4 Rev. 2 and Table 11). As noted by France in 2007 (SC-CAMLR-XXVI, paragraph 5.7), the objective of the action plan is to halve the level of incidental mortality by 2010. The plan contains action details for the following five elements:

- prescription of conservation measures
- regulatory instruments
- education and training
- data collection
- research and development.

3.47 The Working Group noted that 2008/09 is the second year of the action plan and that France has reduced seabird incidental mortality in its EEZs by 67.3% since 2006/07; mortalities in Division 58.5.1 fell from 1 943 (0.0798 birds/thousand hooks) to 643 (0.0316 birds/thousand hooks) and, in Subarea 58.6, from 314 (0.065 birds/thousand hooks) to 94 (0.0119 birds/thousand hooks) between 2006/07 and 2008/09 (French season). Thus, the implementation of the action plan has achieved its initial objective of halving the level of incidental mortality (SC-CAMLR-XXVI, paragraph 5.7) by 2010. The Working Group commended France on progress made to date in implementing the plan and reducing seabird incidental mortalities.

3.48 Mr C. Marteau (France) provided data showing the total extrapolated weekly fishing effort and observed seabird incidental mortality rates (Figure 1). The Working Group agreed that these data were informative to discussions about the utility and optimal timing of mitigation measures such as total and area fishery closures and requested these data be included in France's progress report on action plan implementation in 2010.

3.49 As several measures have been implemented simultaneously by France, the Working Group noted that it is not possible to quantify the contribution of each measure to reduced by-catch rates. The Working Group reiterated its view (SC-CAMLR-XXVII, Annex 6, paragraph 3.7) that while this suite of measures may ultimately be effective in reducing the incidental mortality to low levels, the lack of understanding of the quantitative contribution of each measure to the overall mitigation outcome may create difficulties in the future should fishing practices change.

3.50 The Working Group considered that the observed reduction in incidental mortality in 2008/09 was primarily due to the longer mid-season closure of the fishery (from 1 February to 10 March 2009 instead of 15 February to 15 March in 2007/08), improved designs and increased use of haul-mitigation devices and streamer lines, and better offal management practices.

3.51 Mr Marteau noted that, as part of the third year of its action plan, France will further develop the suite of mitigation measures used, in particular by:

(i) extending the closure of the fishery in Division 58.5.1 by five days in order to cover more of the chick-rearing period of white-chinned petrels. The closure in 2009/10 will be for 43 days from 1 February to 15 March 2010;

(ii) making greater use of regulations, introduced in 2008/09 to close certain sectors (i.e. areas) of the fishery and to prohibit a vessel fishing within a radius of 100 n miles of a specified location, to reduce mortalities in the seabird chick-rearing period;

(iii) improving the performance of the streamer lines, particularly achieving an aerial coverage of 100 m on all vessels. The type of streamers used will be standardised throughout the fishing fleet;

(iv) further improving the haul-mitigation devices (i.e. bird exclusion device (BED)) to achieve a significant reduction in incidental captures during hauling;

(v) improving on-board retention of offal;

(vi) seeking improvements to ensure full thawing of baits and introducing line-setting devices (e.g. line shooters) on some vessels.

3.52 Mr Marteau also noted that, in order to better understand the causes of incidental mortality events, new data will be collected in 2009/10, including time-depth recorder data on line sink rates. These data will be submitted to CCAMLR in the CCAMLR format. Mr Marteau also advised that France had committed to undertaking population counts of white-chinned petrels and grey petrels in Division 58.5.1, in order to accurately determine their current population sizes, and to continuing education and training sessions with vessel operators and crews to raise awareness of seabird incidental mortality issues.

3.53 The Working Group discussed which actions proposed for 2009/10 were likely to be most effective in achieving lower total incidental mortality and near-zero incidental mortality of grey petrels. The Working Group strongly supported France's actions relating to line weighting, streamer lines and haul-mitigation devices and the implementation of regulatory instruments (e.g. seasonal closures, night setting, offal discharge practices, prevention of hook discarding and elimination of IUU fishing), education and training of fishers and improved data collection protocols. In respect of offal management, the Working Group noted that full offal retention is best practice for reducing the attractiveness of the vessel to seabirds and avoiding interactions.

3.54 The Working Group reiterated its previous advice that, were France to fully implement all elements of CCAMLR's best-practice advice for mitigation of incidental mortality of seabirds, the levels of mortality observed in the French EEZs would be substantially reduced to near-zero levels.

3.55 The Working Group expressed doubts about the efficacy of efforts to improve thawing of baits and make greater use of line-setting devices to expedite gear sink rates because:

(i) thawing beyond the point that allows the normal functioning of an automatic baiting machine has no effect on gear sink rates;

(ii) Robertson et al. (2008) showed that the use of line setters has no effect on gear sink rates.

3.56 The Working Group suggested that initiatives associated with bait thaw status and line setters be removed from the action plan, and that fishing operators be encouraged to focus efforts on other elements of the plan that are known to assist in reducing incidental mortality.

3.57 In respect of France's proposal to implement manual line weighting to IWLs to further increase sink rates, the Working Group recalled the results of line-weighting research on unweighted (i.e. not IW) longlines (Robertson, 2000). Added weight (6 kg) at less than 50 m spacings considerably increased sink rates between line weights, but intervals >50 m made no difference. Although the trial was based on unweighted longline − at the time of the trial IWL did not exist − a weight spacing of <50 m remains the best available advice for increasing sink rates of IWL to reduce seabird interactions.

3.58 The Working Group also recommended that France give high priority to:

(i) actions to ensure near-zero incidental mortality of grey petrels from the Kerguelen Islands population and to further significantly reduce the incidental mortality of white-chinned petrels, especially in those areas and periods of high incidental mortality. Such actions should include proactive seasonal closures of areas frequented during chick-rearing periods, when incidental mortality from fishing has been highest;

(ii) actions to further significantly reduce incidental catches during hauling to near-zero, including by the use of a BED (paragraph 6.3);

(iii) standardising the design and deployment of streamer lines;

(iv) recommendations in paragraph 8.8.

3.59 The Working Group noted that France was utilising sub-sector closures within Division 58.5.1 as a tool to reduce seabird incidental mortality. However, no information on the criteria and/or the decision-making process about when and where such closures are implemented is provided in France's action plan developed to reduce seabird incidental mortality (SC-CAMLR-XXVII/8) or the progress report on the action plan (SC-CAMLR-XXVIII/11).

3.60 The Working Group requested that in future progress reports France details the sub-sector closures and the criteria used to make such decisions in order to allow a more detailed understanding of this process.

3.61 The Working Group also noted that of the seven vessels fishing in Division 58.5.1, three vessels (Ships 3, 5 and 6) were responsible for the majority of observed mortalities (WG-IMAF-09/4 Rev. 2, Table 4). The observed catch totals (all cruises combined) for all other vessels were <10 birds/vessel.

3.62 The Working Group agreed that individual vessel seabird limits had been very effective in reducing incidental mortality in other CCAMLR fisheries and encouraged France to develop such limits as part of its action plan to reduce/eliminate seabird incidental mortality in Subarea 58.6 and Division 58.5.1.

INCIDENTAL MORTALITY OF SEABIRDS AND MARINE MAMMALS IN FISHERIES OUTSIDE THE CONVENTION AREA

4.1 The Working Group recalled the CCAMLR standing request to Members to report on the details and magnitude of seabird mortality for species breeding within the Convention Area, but arising from fisheries conducted outside the Convention Area (SC-CAMLR-XXIV/BG/28, item 3.2).

4.2 A written report was provided by New Zealand (WG-IMAF-09/16) noting the level of seabird incidental mortality within New Zealand's EEZ and its progress to reduce seabird incidental mortality. The Working Group encouraged New Zealand to undertake further actions in the near future to reduce these levels of incidental mortality.

4.3 Verbal reports were given by Mr C. Heinecken (South Africa) and Mr I. Hay (Australia) regarding the levels of incidental mortality of Convention Area seabirds within their respective country's EEZs and their progress to reduce seabird incidental mortality.

4.4 The Working Group welcomed these reports, noting that these Members had applied mitigation measures and processes that had been used by CCAMLR to significantly reduce seabird incidental mortality in the Convention Area.

4.5 Given that considerably greater levels of mortality of Convention Area seabirds continue to occur in areas north of the Convention Area, compared to levels within the Convention Area, the Working Group again urged all Members to comply with the request to report on incidental mortality of Convention Area seabirds and marine mammals arising from fisheries conducted outside the Convention Area (Resolution 22/XXV, paragraph 3; SC-CAMLR-XXV, Annex 5, Appendix D, Table 20, item 3.2; SC-CAMLR-XXVII, paragraphs 5.12 to 5.17). Members submitting reports in 2010 are encouraged to give emphasis to information about the level and species composition of incidental mortality, wherever possible, and the use of mitigation measures and management approaches similar to those used in CCAMLR fisheries or potentially relevant to such fisheries.

4.6 No data were received relating to fisheries' incidental mortality of Convention Area marine mammals outside the Convention Area.

INCIDENTAL MORTALITY OF SEABIRDS DURING IUU FISHING IN THE CONVENTION AREA

5.1 As no information is available on rates of incidental mortality of seabirds from the IUU fishery, estimation of the incidental mortality of seabirds during IUU fishing within the Convention Area presents a number of difficulties, requiring various assumptions to be made. Notwithstanding this, in previous years the Working Group has prepared estimates of seabird

incidental mortality in IUU longline fisheries using both the average catch rate for all cruises from the appropriate period of the regulated fishery in a particular area and the highest catch rate for any cruise in the regulated fishery for that period. The method used to prepare estimates of the incidental mortality of seabirds during IUU fishing within the Convention Area is described in full in SC-CAMLR-XXV/BG/27 and in SC-CAMLR-XXII, Annex 5, paragraphs 6.112 to 6.117.

5.2 Estimates of IUU seabird incidental mortality in longline fisheries have been prepared every year from 1996 to 2007. The most recent estimates (2007) of potential IUU seabird incidental mortality in the Convention Area for longline vessels are provided in SC-CAMLR-XXVI/BG/32.

5.3 The Working Group noted that during the 2008/09 season, at least five of the six IUU vessels sighted in the Convention Area were reported as using gillnets (WG-FSA-09/5 Rev. 2). The Working Group welcomed the information presented by Australia (TASO-09/10) that it had hauled part of one IUU gillnet and found no evidence of seabird incidental mortality, noting that this was the only information about incidental mortality of seabirds from IUU gillnetting.

5.4 The Working Group noted that, given the absence of baited hooks, the risks to seabirds posed by gillnetting were quite different to those from longlining and, because of the reasons described in 2008 (SC-CAMLR-XXVII, Annex 6, paragraph 5.3), reiterated its view that there were insufficient data to estimate seabird incidental mortality caused by IUU gillnetting.

5.5 Because many seabird species are facing potential extinction as a result of fisheries-related mortality, the Working Group again requested the Commission to continue to take action to prevent further incidental mortality of seabirds by IUU vessels in the forthcoming fishing season.

RESEARCH INTO AND EXPERIENCE WITH MITIGATION MEASURES

Longline

Haul-mitigation devices

6.1 In recent years there has been an increased focus on methods to reduce incidental seabird captures that occur during longline hauling. Mrs Reid reported to the Working Group on the design and performance of BEDs placed around the hauling bay in CCAMLR longline fisheries (WG-IMAF-09/14). This review highlighted that effective BEDs had two operational characteristics:

(i) to deter birds from flying directly into the area where the line is being hauled
(ii) prevent birds that are sitting on the surface from swimming into the hauling bay area.

6.2 The Working Group agreed that a best-practice BED should comprise two booms – one forward and one aft of the hauling area – connected at their outboard ends by a rope and

trailing a line of buoys on the water surface connected to the outboard ends of both booms. Depending on weather conditions and seabird behaviour, streamers can be hung from the booms and/or the connecting rope.

6.3 The Working Group agreed that Conservation Measure 25-02 be revised to provide a description of a best-practice BED to reduce haul incidental catch on longline vessels operating in areas defined as average- to high-risk areas (levels of risk 4 or 5), where BEDs are required to be deployed. In addition, it was recommended that Conservation Measure 25-02 be revised to encourage longliners operating in low- to medium-risk areas (1–3) to adopt best-practice BEDs.

Trawl

6.4 The Working Group acknowledged the usefulness of TASO-09/5 (that described in detail the three main types of fishing for krill: conventional trawling, continuous trawling and a pumping system to clear the codend) in understanding the potential interactions with seabirds and marine mammals in the krill fishery.

6.5 WG-IMAF-09/15 reported on a review on the development of mitigation measures to reduce seabird mortality caused by net entanglement in the icefish trawl fishery in Subarea 48.3. The review clearly suggests that the adoption of net binding has been critical in reducing seabird incidental mortality caused by entanglement on the shot and net weighting appears to be largely responsible for reducing entanglements on the haul. These two measures in combination with other operationally simple and cost-effective measures, such as net cleaning and good deck practices to minimise the surface time of the net during the haul, have resulted in a reduction of seabird entanglements in Subarea 48.3 from 0.26 birds/trawl in 2001/02 to 0.01 birds/trawl in 2008/09.

6.6 The Working Group commended the industry for its success in developing and trialling this suite of measures that have reduced seabird incidental mortality in the icefish trawl fishery in Subarea 48.3. It was agreed that the introduction of a vessel-specific 20-bird mortality limit in 2001 provided a strong commercial incentive that was the key driver that led to the development of net binding and a suite of other measures that are highly effective, simple and easily applied.

6.7 The Working Group encouraged the appropriate use of these measures (net binding, net cleaning, net weighting and good deck practices) in trawl fisheries outside the Convention Area to mitigate incidental mortality of Convention Area seabirds from net entanglement.

6.8 The Working Group recommended that best-practice mitigation advice for the icefish trawl fishery in Subarea 48.3 would be clarified if the citation in footnote 3 of Conservation Measure 42-01 (SC-CAMLR-XXV, Annex 5, Appendix D, paragraph 59), which cross-references technical advice on the application of net binding and other key mitigation measures, is substituted with the following text (in italics) which has been updated to reflect the findings of WG-IMAF-09/15:

> *The following guidelines are provided to assist in the uptake of best-practice mitigation measures:*

(i) When the net is on the deck, prior to shooting, the application of 3-ply sisal string (which typically has a breaking strength of around 110 kg), or a similar inorganic material, at intervals of 5 m or less prevents the net from spreading and lofting at the surface. Net binding should be applied to mesh ranging from 120–800 mm. These mesh sizes have been shown to cause the majority of entanglements of white-chinned petrels and black-browed albatrosses, which are the species most vulnerable to this form of mortality in Subarea 48.3.

(ii) When applying the 'string', tie an end to the net to prevent the string from slipping down the net and ensure that it can be removed when the net is hauled.

(iii) Since 2003, weights of 200–1 250 kg have been added to the codend, belly, mouth and groundrope of the net to increase the sink rate and increase the angle of the net's ascent during hauling, thus minimising surface net time. Evidence suggests that this has been effective in reducing bird entanglements during the haul. Vessels are encouraged to further experiment with appropriate net weighting.

(iv) Net cleaning should be used in conjunction with added weight and net binding to reduce seabird captures during shooting operations.

(v) Other additional steps should be taken to minimise the time that the net is on the water's surface during shooting and hauling.

General

6.9 WG-IMAF-09/16 summarised ongoing developments in New Zealand's EEZ relevant to the reduction of seabird mortality in trawl fisheries. Among other items, the document summarised the results of a trial examining the effect on the number of seabirds attending a trawl vessel when discharging minced/mealed fish waste compared with when discharging unprocessed offal and whole fish. Mincing led to significant reductions in abundance of the large albatross species but did not alter the abundance of smaller seabird species. Other trials under way examine the effect of batch versus continuous discharge using offal, whole fish and minced fish waste. The Working Group welcomed this initiative, noted its relevance to trawl and longline fisheries in the Convention Area and encouraged the submission of the findings to WG-IMAF.

6.10 The Working Group discussed the potential effectiveness of different approaches to controlled offal management, including the form (minced/whole) and timing (batched versus continuous) of discharge and the location of the discharge point on the vessel, and encouraged further research on this topic.

6.11 The Working Group requested that the Scientific Committee provide a clear definition of offal and other fisheries by-catch related material discharged from the vessels at sea.

OBSERVER REPORTS AND DATA COLLECTION

Notification of observer deployment

7.1 The Working Group expressed concern that the Secretariat reported that it had not received appropriate notifications prior to some observer deployments and reiterated the requirement that all technical coordinators report them as required in the text of the Scheme of International Scientific Observation.

Banded bird observation data

7.2 The Working Group requested again that technical coordinators advise observers to report both the colour and number of all bird bands in the cruise report (SC-CAMLR-XXVII, Annex 6, paragraph 7.3).

Extrapolation of total marine mammal incidental mortality

7.3 The Working Group agreed that, as in previous years, the nature of the longline fisheries meant that all marine mammal incidental mortalities are likely to have been recorded, and no extrapolation of the number of marine mammal incidental mortalities would be undertaken (SC-CAMLR-XXVII, Annex 6, paragraph 7.4).

7.4 The Working Group agreed that marine mammal incidental mortalities in krill fisheries should be considered on a case-by-case basis owing to inconsistent levels of observer coverage across vessels.

Progress on a trawl warp strike data collection protocol for inside the Convention Area

7.5 The Working Group noted that warp strike data were collected in 179 of 194 (92%) icefish trawls in Subarea 48.3 (up from 70% in the previous year) and that 8 strikes were observed: 3 albatrosses and 5 white-chinned petrels, all in the air. In Division 58.5.2, observation rates decreased from 14 to 6% and no strikes were recorded.

7.6 Warp strike data were collected in 234 of 1 329 (17%) of trawls in the krill fishery in Subareas 48.1 and 48.2 and a total of 73 strikes were observed: 64 petrels in the air, 8 petrels in the water and 1 petrel was dragged underwater. Data was also collected in 5 of 17 (29%) krill trawls in Subarea 48.3. In the continuous trawl system, observations are made during two 15-minute periods each day and not on the set and haul. For this reason, the coverage from the krill vessels this season cannot be compared with previous years.

7.7 Noting the similarity between the functions of paravanes and net sonde cables, the Working Group recommended that the observer logbook be updated and the term ‘net sonde’ be replaced by ‘net monitoring cable’ which should be defined as a third wire or cable running from the stern of the vessel to the net.

7.8 The Working Group recommended that the cruise report be updated to include a request to observers to describe the details of any paravanes or other equipment extending from the vessel into the water for the purposes of monitoring fishing gear.

Streamer line information

7.9 The Working Group noted that variability in the measurement of aerial extent was relatively small and that the two main factors affecting aerial extent will be the height of attachment above the water and the type of towed object.

7.10 The Working Group therefore requested that accurate measurements of the aerial extent continue to be taken at the start of a cruise and then again only if streamer line construction changes. It also requested that observers record more detail on the specifications of the towed device − including its dimensions, mass and the type of materials used in its construction − and include a photograph in the cruise report.

Marine debris data and photograph collection

7.11 The Working Group discussed its previous request for photographs of fishing gear on CCAMLR vessels for the purpose of identifying marine debris (SC-CAMLR-XXVII, Annex 6, paragraphs 12.8 and 12.9). However, it noted that the marine debris reported was predominantly from non-fishing origins (WG-IMAF-09/8, Table 2).

7.12 Following concerns over the loss of fishing gear, the Working Group recommended that observer reports be amended to include more details of lost fishing gear, such as length of lines lost (paragraph 13.11) and that observer photographs of fishing gear are no longer required.

Observer training and accreditation of observer training

7.13 The Working Group noted a request from ad hoc TASO (SC-CAMLR-XXVIII/BG/9) for guidelines and observer training standards information and agreed to include the request in its intersessional work plan (Table 1).

WG-IMAF priorities for data collection by observers

7.14 The Working Group reiterated its needs and priorities for data collection by observers in CCAMLR fisheries (Tables 12, 13 and 14).

Longline

7.15 The Working Group discussed the requirement to verify streamer line deployments on 100% of setting operations (Table 14).

7.16 The Working Group recommended that consideration should be given by ad hoc TASO to alternative methods for recording some of this information (e.g. via photographs, video, electronic monitoring (load cells)). It further noted that a reduction in the frequency of these observations, which may be hazardous in rough weather, would improve observer safety.

7.17 The Working Group also requested that ad hoc TASO investigate alternative methods (such as electronic monitoring means) of collecting data from hauling operations so that consideration of the current observer requirements may be reviewed in the future.

7.18 The Working Group reiterated its praise for the valuable work of observers and the importance of observer data to the work of WG-IMAF.

RESEARCH INTO THE STATUS AND DISTRIBUTION OF SEABIRDS AND MARINE MAMMALS

8.1 The Working Group thanked BirdLife International for details of the most recent update to the BirdLife International Global Procellariiform Tracking Database which included information on sooty albatrosses (*Phoebetria fusca*) and Tristan albatrosses (*D. dabbenena*) from Gough Island and wandering albatrosses from South Georgia that were added in 2009 (WG-IMAF-09/13).

8.2 Dr Favero reported on progress in the work of ACAP's Status and Trends Working Group on ACAP Species Assessments which are available on the ACAP website (www.acap.aq). The Working Group noted that there are 22 species of albatross and 7 species of petrel.

8.3 The Working Group thanked France for the English translation of SC-CAMLR-XXVIII/BG/13 that summarised results of a study between 2004 and 2006 to evaluate the impact of longline fisheries on the populations of white-chinned and grey petrels breeding on Crozet Archipelago and Kerguelen Islands.

8.4 The Working Group reiterated its advice of last year (SC-CAMLR-XXVII, Annex 6, paragraph 8.7) that the authors should submit SC-CAMLR-XXVIII/BG/13 to WG-SAM in order that the population modelling of both white-chinned and grey petrels can receive expert review. The Working Group suggested that this was an appropriate process for similar studies that may be submitted in the future.

8.5 The Working Group expressed concern that between 1988 and 2005 the estimated population size of grey petrels on Kerguelen had decreased at a rate of 20 to 30% per year. This decline in population was largely attributed to an increase in adult mortality which was directly attributable to the legal and IUU longline fisheries operating in Divisions 58.5.1 and 58.5.2. It noted that mortality rates in 2007/08 and 2008/09 were 10 times lower than the maximum rates in 2004/05.

8.6 The Working Group noted that the incidental mortality of grey petrels has reduced in recent years with nine recorded killed in Subarea 58.6 and Division 58.5.1 in 2008/09, however, it is unclear to what extent this reduction is due to reduced fishing effort, improved mitigation or fewer birds in the population.

8.7 SC-CAMLR-XXVIII/BG/13 also estimated that the number of breeding white-chinned petrel pairs on Possession Island declined by 41% between 1983 and 2004 at a rate of 2.6% per year. Fisheries incidental mortality was identified as being responsible for 30% of this decrease, while the remainder was due to environmental factors. The model also highlighted that longline fisheries mainly impact on juvenile white-chinned petrels and the Working Group noted that this suggested that, even in the absence of further incidental mortality, the population will continue to decline for several years due to reduced recruitment of juveniles into the breeding population.

8.8 The Working Group noted that the study in SC-CAMLR-XXVIII/BG/13 concluded in 2006. Since then the rate of incidental mortality had declined. However, the following suite of recommendations in respect of white-chinned and grey petrels, taken directly from SC-CAMLR-XXVIII/BG/13 (in italics), are still relevant to the further development and implementation of the French action plan aimed at reducing seabird by-catch in the French EEZs in Division 58.5.1 and Subarea 58.6 (paragraphs 3.46 to 3.62):

(i) Conservation schemes implemented to limit seabird by-catch by longliners operating around the Kerguelen Islands need to be sustained, at least for white-chinned petrels.

(ii) However, concerning grey petrels, new conservation actions need to be implemented otherwise the Kerguelen population would disappear within 30 years.

(iii) Banning of D. eleginoides *fishing during May to July would be an effective conservation action for reducing by-catch levels. Such a scheme was adopted for white-chinned petrels (fishing ban during February) and resulted in a dramatic drop in the numbers of birds accidentally killed by longliners. However, the implementation of such a conservation measure, which would benefit grey petrels without doubt, would also have some economic consequences that need to be evaluated.*

(iv) More data should be collected, notably on the gender and sexual maturity of killed birds recovered on fishing vessels to improve modelling of this population's evolution.

(v) With these new data, an updated analysis should be conducted to elucidate the exact most critical period and areas of overlap with fisheries for grey petrels. Such an analysis would help with designing effective conservations plans while also balancing economic interests.

ASSESSMENT OF RISK IN CCAMLR SUBAREAS AND DIVISIONS

9.1 As there was no additional information provided this year on the at-sea distribution of seabirds, the assessments and advice provided in SC-CAMLR-XXVI/BG/31 were again endorsed by the Working Group (Tables 13 and 14 and Figure 2).

9.2 WG-IMAF-09/11 contained a proposal to move the start date of the fishery for *D. eleginoides* in Subarea 48.3 forward by five days from the date of 1 May as set out in Conservation Measure 41-02.

9.3 The Working Group recalled the Scientific Committee's advice that the ultimate aim in managing seabird by-catch in the Convention Area is to allow fishing at any time of day without seasonal closure of fishing grounds (SC-CAMLR-XIX, paragraphs 4.41(iv) and 4.42), and that any relaxation of closed seasons should proceed in a step-wise fashion and the results of this be carefully monitored and reported (SC-CAMLR-XXI, paragraph 11.7).

9.4 The Working Group agreed that such an extension in the 2009/10 fishing season should only be open to vessels fully complying with Conservation Measure 25-02 in the previous fishing season and that any vessel that had three or more seabird mortalities during the extension would be required to suspend fishing operations until 1 May. The Working Group considered the additional risk was addressed by these measures.

9.5 The Working Group agreed that Conservation Measure 41-02 be modified as follows (in italics):

> *For the purpose of the longline fishery for* Dissostichus eleginoides *in Statistical Subarea 48.3, the 2009/10 season is defined as the period from 1 May to 31 August in each season, or until the catch limit is reached, whichever is sooner. For the purpose of the pot fishery for* Dissostichus eleginoides *in Statistical Subarea 48.3, the 2009/10 season is defined as the period from 1 December to 30 November, or until the catch limit is reached, whichever is sooner. The season for longline fishing may be extended and start on 26 April for any vessel which has demonstrated full compliance with Conservation Measure 25-02 in the previous season. The extension to the season shall also be subject to a catch limit of three (3) seabirds per vessel. If three seabirds are caught during the season extension, fishing shall cease immediately for that vessel and shall not resume until 1 May 2010.*

9.6 The Working Group noted that WG-IMAF-09/11 contained a proposal for incremental five-day extensions to the fishing season into April in subsequent years. In the event that WG-IMAF does not meet in 2010, the Working Group agreed that the following decision rules could be used by the Scientific Committee in respect of an extension in 2010/11, based on the level of seabird incidental mortality during the extension period in 2009/10:

(i) if, on average, less than one seabird per vessel is caught during the extension period, the Working Group would not object to an extension for 2010/11 for a 10-day period at the end of April; or

(ii) if, on average, between one and three seabirds per vessel, or more than 10 seabirds in total, are caught during the extension period, the Working Group would not object to another extension for 2010/11 for the same five-day period; or

(iii) if, on average, more than three seabirds per vessel, or more than 15 seabirds in total, are caught during the extension period, the Working Group would recommend that there would be no extension into April for 2010/11.

9.7 Following 2010/11, results of these trial season extensions would need to be reviewed before any recommendations on further extensions could be made.

9.8 During its discussion of this proposal, the Working Group also noted that the requirement for sequential setting, as set out in Conservation Measure 41-08, paragraph 5, was unlikely to be useful in fishing season extensions in established fisheries.

INCIDENTAL MORTALITY OF SEABIRDS IN RELATION TO NEW AND EXPLORATORY FISHERIES

New and exploratory fisheries operational in 2008/09

10.1 Of the 72 vessel by subarea/division notifications for exploratory longline fisheries for 2008/09, 33 were undertaken. No incidental seabird mortality was recorded. The strict adherence to the requirements in Conservation Measures 24-02 and 25-02 has proven successful in achieving zero incidental mortality of seabirds. Two crabeater seals were reported caught in the exploratory fishery in Subarea 88.1 (WG-IMAF-09/4 Rev. 2).

10.2 The notification for an exploratory krill trawl fishery for 2008/09 was undertaken. The two notifications for new pot fisheries in 2008/09 were not undertaken.

New and exploratory fisheries proposed for 2009/10

10.3 The assessment of the risk to seabirds posed by new and exploratory longline fisheries in the Convention Area is incorporated in SC-CAMLR-XXVI/BG/31, and is summarised in Table 14 and Figure 2. Table 14 also includes an assessment of recommended levels of observer coverage.

10.4 Sixty-nine notifications (vessels by subarea/division) for exploratory longline fisheries, submitted by nine Members, were received by CCAMLR in 2009. The areas for which longline proposals were received (CCAMLR-XXVIII/13, Table 1) were assessed in relation to the risk of seabird incidental mortality according to the approach and criteria set out in SC-CAMLR-XXVI/BG/31.

10.5 One notification for an exploratory trawl fishery for krill was received by CCAMLR in 2009. The area for which a trawl proposal was received (Subarea 48.6, CCAMLR-XXVIII/13, Table 2) was assessed in relation to the risk of seabird incidental mortality according to the approach and criteria set out in SC-CAMLR-XXVI/BG/31.

10.6 Two notifications for new pot fisheries for crabs were received by CCAMLR in 2009. The areas for which these proposals were received (CCAMLR-XXVIII/13, Table 3) have not

been assessed in relation to the risk of seabird incidental mortality in pot fisheries. A risk assessment for pot fisheries may be possible in future, but at this time insufficient information is available to undertake such an exercise.

10.7 The Working Group agreed that in the interim, observation of pot fishing was required to collect descriptive information about the potential for seabird and marine mammal incidental mortality using this fishing method. Observation should focus on hauls for incidental mortality events and description of any entanglements.

10.8 In 2005 the Working Group developed a checklist to assist Members when completing their longline notifications (SC-CAMLR-XXIV, Annex 5, Appendix O, paragraph 193). This checklist was expanded in 2009 to also include trawl and pot fishery notifications (COMM CIRC 09/66–SC CIRC 09/31, 16 June 2009).

10.9 All longline notifications provided sufficient information to indicate that the proposals fully comply with relevant seabird incidental mortality minimisation measures (Conservation Measures 24-02 and 25-02, and the relevant measures in the 41-series), and do not conflict with the WG-IMAF risk assessment.

10.10 The Working Group welcomed the continued improvement in notifications, in particular that all longline notifications in 2008 and 2009 have provided a high standard of information compared with 15% of proposals that had insufficient information in 2007.

10.11 However, the Working Group noted that two notifications contained ambiguities that will be discussed by the Secretariat with the relevant Members and clarified prior to SC-CAMLR-XXVIII.

10.12 The Working Group noted that it had not undertaken a risk assessment for marine mammals to date and that this was an identified item of future work for WG-IMAF. Completion of such a risk assessment would allow the provision of more complete advice on incidental mortality associated with fishing.

INTERNATIONAL AND NATIONAL INITIATIVES RELATING TO INCIDENTAL MORTALITY OF SEABIRDS AND MARINE MAMMALS IN FISHING

ACAP

11.1 The ACAP representative (Dr Favero) introduced WG-IMAF-09/17 which presented key outcomes of the Third Session of its Meeting of the Parties (27 April to 1 May 2009) of relevance to WG-IMAF. Those outcomes were the adoption of the Advisory Committee's Work Programme for 2010–2012 and the granting of approval for the ACAP Secretariat to enter into a Memorandum of Understanding (MOU) with CCAMLR. The objective of this MOU is to facilitate cooperation between CCAMLR and ACAP with a view to supporting efforts to minimise incidental mortality of albatrosses and petrels listed in Annex 1 of ACAP within CAMLR's Convention Area, including exchange of data and expertise. The proposed MOU has been submitted as a background document for consideration at CCAMLR-XXVIII (CCAMLR-XXVIII/BG/19).

11.2 The Working Group strongly supported closer engagement with ACAP, noting that it would potentially benefit the work of CCAMLR in several ways, including data exchange (e.g. reporting of seabird incidental mortalities outside the Convention Area by CCAMLR Parties which are also ACAP Parties) and encouraging RFMOs adjacent to the Convention Area to reduce seabird incidental mortality in the fisheries they manage. Therefore, the Working Group supported an MOU between CCAMLR and ACAP.

11.3 Dr B. Sullivan (BirdLife International) informed the Working Group about a BirdLife/ACAP collaboration to develop fact sheets aimed at informing fisheries and vessel managers on best-practice mitigation to reduce seabird by-catch. There are currently 15 available in English[2] and they will soon be available in French, Japanese, Portuguese and Spanish. The experiences of CCAMLR feature prominently in the demersal longline and trawl fact sheets.

International initiatives

Implementation of CCAMLR Resolution 22/XXV

11.4 The Working Group noted that the work of ACAP is increasingly relevant to the implementation of Resolution 22/XXV including, in respect of ACAP, gathering data on incidental mortalities of Convention Area species in fisheries outside the Convention Area. The Working Group encouraged ACAP to report this and other relevant information to CCAMLR.

FAO IPOA-Seabirds

11.5 CCAMLR-XXVIII/BG/4 reported on the Secretariat's attendance at COFI-28 and the pending publication of best-practices technical guidelines for implementation of the *International Plan of Action for Reducing the Incidental Catch of Seabirds in Longline Fisheries* (COFI-28 Report[3], paragraph 13). The guidelines will become part of the UN FAO Technical Guideline Series under the Code of Conduct for Responsible Fisheries. As reported in 2007 (SC-CAMLR-XXVI, Annex 6, paragraph I.65(ii)) and 2008 (SC-CAMLR-XXVII, Annex 6, paragraph 11.8) the guidelines will extend the application of IPOA-Seabirds beyond longline fisheries and will provide guidance on best practice to other relevant gear (trawl and gillnet fisheries) and for regional plans developed by RFMOs.

11.6 The achievements of CCAMLR in reducing seabird incidental mortality in demersal longline and trawl fisheries featured prominently in the report of the Consultation. The Working Group thanked CCAMLR Members for their critical support for the initiative at COFI-28.

11.7 The Working Group recommended that CCAMLR Members follow the Best Practice Technical Guidelines for IPOA/NPOA-Seabirds when designing or revising their NPOA-Seabirds.

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2 www.birdlife.org/seabirds/savethealbatross.html#Simple_effect_and_cheap_solutions

3 Available from ftp://ftp.fao.org/docrep/fao/012/i1017e/i1017e00.pdf.

RFMOs and international governmental organisations

WCPFC

11.8 The Working Group noted that WCPFC is continuing its risk-assessment process and this is expected to result in further improvements to its seabird incidental mortality management measures, including those for reducing seabird incidental mortality.

ICCAT

11.9 ICCAT's Sub-committee on Ecosystems completed its initial seabird risk assessment in 2009. Information from this assessment as well as the sub-committee's recommendations, will be considered by ICCAT's Scientific Committee on Research and Statistics and the ICCAT Commission in October and November of this year.

CCSBT

11.10 In discussion of CCAMLR-XXVIII/BG/10, the Working Group noted the offers made by CCAMLR to the CCSBT ERSWG in respect of sharing knowledge and experience in issues related to seabird mitigation, including in areas of education and outreach.

11.11 Noting that the discussion of seabird by-catch by the CCSBT ERSWG was relevant to CAMLR Convention Area seabirds, WG-IMAF asked that the Secretariat request a copy of the ERSWG report from CCSBT and any other documents from that meeting that might be relevant to incidental mortality of seabirds in the fishery for southern bluefin tuna.

11.12 The Working Group noted the difference in approach to issues of seabird incidental mortality of Members of CCSBT and other relevant RFMOs, which are also Members of CCAMLR, in different fora and encouraged internal communications within these Members in order to give better effect to the commitment contained in CCAMLR Resolution 22/XXV in all of the RFMOs listed in Appendix 1 of that resolution.

IOTC

11.13 The Working Group had no further update on developments in IOTC and noted that the IOTC is presently meeting in Kenya.

Joint Tuna RFMOs Meeting

11.14 The European Community organised and hosted in 2009 the Second Joint Meeting of Tuna RFMOs. The meeting developed and adopted by consensus a Course of Actions,

including a number of elements for immediate action and the organisation of four intersessional workshops, one of them specifically addressing issues relating to by-catch, to be organised by the USA and held in 2010.

National initiatives

11.15 Since 2007, South Africa has maintained 100% observer coverage on all foreign-flagged pelagic tuna longline vessels permitted to fish within the South African EEZ and operating on adjacent high seas with South African permits. South African-flagged pelagic and demersal longline vessels have 25 and 15% observer coverage respectively.

11.16 South Africa has taken a proactive approach to mitigation measures in all sectors of its longline and trawl fisheries and these form part of the permit conditions that legally allow vessels to operate. Specific seabird mitigation measures include: (i) seasonal limits on the total seabird catch for each vessel; (ii) setting operations restricted to night-time only; (iii) the compulsory use of streamer lines for longliners during the setting operations; (iv) the compulsory use of streamer lines for demersal and midwater trawlers during the entire tow time; and (v) regulations of offal discharge for longline fisheries.

11.17 The Working Group noted that New Zealand is currently revising its 'National Plan of Action to Reduce the Incidental Catch of Seabirds in New Zealand Fisheries' (NPOA-Seabirds) and is taking into account FAO's Best Practice Technical Guidelines for IPOA/NPOA Seabirds. The revised approach uses a hierarchical risk-assessment process to determine high-risk seabird species and high-priority fisheries where additional management action may be necessary to reduce mortalities to biologically 'safer' levels. In addition, best-practice measures will likely be implemented across all fisheries that pose a risk to seabirds, with the aim of minimising seabird interactions in a safe and practical manner (WG-IMAF-09/16). The Working Group commended New Zealand for using the Best Practice Technical Guidelines for IPOA/NPOA Seabirds as a basis for the revision of its NPOA-Seabirds.

11.18 The Working Group welcomed a range of information and papers submitted by France to WG-IMAF-09 (Agenda Item 3.4).

11.19 Mr Hay reported on the third year of a trial of demersal longlining for toothfish off Macquarie Island, which lies adjacent to the Convention Area, and the seabird incidental mortality mitigation measures used during the trial (WG-FSA-07/19). No seabirds have been caught during the three years of the trial, which used mitigation measures similar to those prescribed in CCAMLR but with the addition of seabird catch limits for individual species. The trial is presently being evaluated prior to a decision about whether longlining should be an approved method in this fishery.

11.20 Mr Hay also reported that Australia is presently conducting a study of seabird incidental mortality in its major pelagic finfish trawl fishery. The study, which will be completed in mid-2010, is assessing the risks of incidental mortality from different gear types and will provide advice about how best to mitigate seabird incidental mortality.

FISHERY REPORTS

12.1 The Working Group reviewed the Fishery Reports developed by WG-FSA (Annex 5, Agenda Item 5) and the information relating to the incidental mortality of seabirds and marine mammals contained within the reports.

12.2 The Working Group updated the Fishery Reports based on the information contained in SC-CAMLR-XXVII, Annex 6, and the information contained in WG-IMAF-09/4 Rev. 2, 09/5 Rev. 2 and 09/6 Rev. 2.

MARINE DEBRIS AND ITS IMPACTS ON MARINE MAMMALS AND SEABIRDS IN THE CONVENTION AREA

13.1 The Working Group considered WG-IMAF-09/8, 09/9 and 09/10 that provided reviews of marine debris in the Convention Area and noted that data had been submitted by four Members from five sites in 2009.

13.2 The Working Group noted that although the Secretariat had contacted six Members which may have relevant data, it had only received two responses so far from Members stating that there was no program in place. The Working Group encouraged Members with marine debris data and/or the potential to collect those data to participate in CCAMLR's marine debris monitoring program.

13.3 Data from long-term monitoring of marine debris on beaches from three sites in Area 48 indicated that in 2009 there had been an increase in the amount of debris in Subareas 48.1 and 48.2 and a slight decrease in Subarea 48.3 and that at all three sites monitored, the majority of debris was categorised as non-fishing items.

13.4 At Bird Island in South Georgia, the number of entangled seals was lower than the long-term mean. However, the number of oiled seabirds was the highest recorded since annual monitoring began in 1992. The Working Group noted that the oiling occurred in August/September, and as it involved gentoo penguins, the source of the oil was probably local, as gentoo penguins only make short foraging trips from colonies at this time of year.

13.5 The Working Group noted that the occurrence of fishing debris (longline hooks and snoods) in wandering albatross colonies at Bird Island, South Georgia, was consistently higher than in other seabird species monitored, had been high relative to the long-term mean for the last three years and showed no sign of decreasing. Reports from scientists involved in this monitoring suggest that in most cases the snoods appear to have been cut rather than snapped under load.

13.6 From an analysis of hooks found in the wandering albatross colonies at Bird Island, presented in WG-IMAF-09/10, it is apparent that determining the vessel-specific provenance of hooks is probably not possible. However, changes in the occurrence of hooks may indicate changes in the operation of a fishery. For example, the increase in the number of hooks reported in the last three years was attributed to an increase in the use of the trotline system, especially when snoods are cut to dispose of by-catch.

13.7 The Working Group noted anecdotal reports that some longline fisheries using the trotline method routinely discard by-catch fish, such as macrourids, by cutting the snood and leaving the hook in place. These fisheries are known to occur within the foraging range of chick-rearing wandering albatrosses from South Georgia.

13.8 Although the breeding success of wandering albatrosses at Bird Island remains relatively high, the Working Group noted that the digestion of hooks by chicks has the potential to compromise their long-term survival because of the likely effects of disruption of body function/development by metal contaminants from the digested hooks and this may be a contributory factor in the low rate of recruitment of birds into the breeding population.

13.9 The Working Group welcomed ACAP's offer to engage with ACAP Parties to find out where the practice of cutting snoods to dispose of by-catch fish occurred and to seek to address this issue with those Parties in their domestic fisheries.

13.10 In considering the reports by observers of gear lost from vessels, the Working Group acknowledged that there was a high degree of variability in the level of detail provided. From the available data, at least 100 km of longline had been lost in Subarea 88.1 in both 2007/08 and 2008/09. The Working Group also noted the recovery of a sperm whale entangled in lost fishing gear in 2008/09 (paragraph 3.21).

13.11 In order that WG-IMAF can consider the impacts of lost fishing gear on Convention Area seabirds and marine mammals in the future, the Working Group encouraged the improved collection of data regarding lost fishing gear by observers and in all catch and effort data. This should be reflected in an alteration in the observer reports.

13.12 The Working Group recommended that observers no longer need to collect photographs of potential marine debris from fishing vessels (paragraph 7.12).

13.13 The Working Group recommended that photos of beach debris of fisheries-origin should be submitted to CCAMLR with future marine debris reports. This may aid in tracking the provenance of the marine debris to fishery, country or vessel, in order to better target any program to reduce marine debris.

13.14 The Working Group encouraged those Members conducting marine debris surveys to continue to seek input from fishing industry experts about the potential origins of any fishing gear debris.

STREAMLINING THE WORK OF THE SCIENTIFIC COMMITTEE

14.1 In 2008, WG-IMAF held a workshop to consider its terms of reference, future work and meeting frequency required to achieve this work, and agreed to review these items on a continuing basis (SC-CAMLR-XXVII, Annex 6, paragraphs 15.1 to 15.4).

14.2 The work of WG-IMAF (including ad hoc WG-IMALF) has raised awareness of, and created a response to, seabird mortality that is widely recognised and unprecedented in fisheries management organisations. The expertise developed in WG-IMAF at successfully designing and implementing effective mitigation measures is now being applied to address seabird incidental mortality in other fisheries, particularly pelagic longlining, outside the

Convention Area (including those where Convention Area seabirds are at risk). This has also been reflected in the reduced attendance at WG-IMAF, with many current and former participants now engaged in work with other fisheries and RFMOs where the problem of incidental mortality of seabirds is a much more urgent issue.

14.3 The development of ACAP, within which WG-IMAF participants have many key roles, has provided a vehicle to address some of the issues previously on the agenda of WG-IMAF, including research into mitigation approaches and the status and distribution of seabirds.

14.4 Given these changes in circumstances, the Working Group recommended amending its meeting schedule to a biennial basis and holding its next meeting in October 2011.

14.5 The Working Group reviewed its terms of reference and core tasks that were endorsed by the Scientific Committee in 2008 (SC-CAMLR-XXVII, paragraph 5.43) and agreed that the core functions continue to be:

(i) annual review and monitoring of incidental mortality of seabirds and marine mammals in Convention Area fisheries;

(ii) annual review and monitoring of information relating to the performance of implementation of specific conservation measures;

(iii) research into, and experience with, fishing gears and mitigation methods;

(iv) evaluate and advise on changing needs for observer reports and data collection;

(v) conduct assessments of risk to seabirds in CCAMLR areas, subareas and divisions;

(vi) coordinate and collaborate with ACAP;

(vii) review the level and significance of direct impacts of marine debris in the Convention Area.

14.6 The Working Group acknowledged that, with a biennial schedule of meetings, it would be necessary for the Scientific Committee and SCIC to find a mechanism to address some of these tasks during years when WG-IMAF does not meet.

14.7 The Working Group recommended that:

(i) the Secretariat continue to summarise the incidental mortality of seabirds and marine mammals in the Convention Area, and the scientific observations related to the implementation of various conservation measures (25-02, 25-03, 26-01 and 51-01);

(ii) the review of notifications for new and exploratory fisheries with respect to these conservation measures could be included in the work of WG-FSA in the years when that working group was not undertaking assessments;

(iii) other core WG-IMAF tasks could be addressed on a biennial basis.

14.8 A biennial WG-IMAF meeting schedule conveys several benefits. This meeting frequency represents an efficiency and reflects a logical progression based on the successful work of this group. It further allows for WG-IMAF's enhanced coordination with ACAP as WG-IMAF participants may attend ACAP Advisory Committee meetings in off years. This schedule also represents reduced costs to Members for participation at WG-IMAF and reduced cost to CCAMLR for report production and translation.

14.9 A biennial WG-IMAF meeting schedule may present delays in addressing incidental mortality issues arising in the fishing season immediately after a WG-IMAF meeting. However, the continued production of annual reviews by the Secretariat, the increased technical interaction with ACAP and the facility to consider IMAF-related issues in WG-FSA in years when WG-IMAF does not meet, should ensure that the risks incurred by such delays are minimal.

OTHER BUSINESS

15.1 There was no other business presented for discussion.

ADVICE TO THE SCIENTIFIC COMMITTEE AND ITS WORKING GROUPS

16.1 The Working Group identified the following advice to the Scientific Committee and its working groups:

(i) intersessional work of WG-IMAF (paragraphs 2.5 and 2.7);

(ii) incidental mortality of seabirds and marine mammals in fisheries in the Convention Area (paragraphs 3.3, 3.4, 3.7, 3.10, 3.14, 3.16, 3.19 to 3.22, 3.24 and 3.25);

(iii) implementation of conservation measures (paragraphs 3.35 and 3.45);

(iv) France's action plan to reduce/eliminate seabird mortality in Subarea 58.6 and Division 58.5.1 (paragraphs 3.48, 3.54, 3.56, 3.58, 3.60 and 3.62);

(v) incidental mortality of seabirds and marine mammals in fisheries outside the Convention Area (paragraphs 4.5 and 4.6);

(vi) incidental mortality of seabirds during IUU fishing in the Convention Area (paragraphs 5.4 and 5.5);

(vii) research into, and experience with, mitigation measures (paragraphs 6.3, 6.7, 6.8 and 6.11);

(viii) observer reports and data collection (paragraphs 7.1, 7.2, 7.7, 7.8, 7.10, 7.12, 7.16 and 7.17);

(ix) research into the status and distribution of seabirds and marine mammals (paragraphs 8.4 and 8.8);

(x) assessment of risk in CCAMLR subareas and divisions (paragraphs 9.5 and 9.6);

(xi) incidental mortality of seabirds in relation to new and exploratory fisheries (paragraphs 10.3 and 10.7);

(xii) international and national initiatives relating to incidental mortality of seabirds and marine mammals in fishing (paragraphs 11.2, 11.7 and 11.12);

(xiii) marine debris and its impacts on marine mammals and seabirds in the Convention Area (paragraphs 13.2 and 13.11 to 13.14);

(xiv) streamlining the work of the Scientific Committee (paragraphs 14.4 and 14.7).

ADOPTION OF THE REPORT AND CLOSE OF THE MEETING

17.1 The report of the meeting of WG-IMAF was adopted.

17.2 In closing the meeting, Ms Rivera and Mr Walker thanked all participants for their engagement and teamwork that characterised meetings of WG-IMAF. They particularly thanked the new participants for their input into the meeting and the Secretariat for its support. Ms Rivera noted that the ability to move to a biennial schedule should be viewed as a mark of success for the Working Group and did not diminish the importance of its work.

17.3 Mr Hay, on behalf of the participants, thanked Ms Rivera and Mr Walker for their guidance throughout the meeting and their dedication during the intersessional period.

17.4 The meeting closed.

REFERENCES

Robertson, G.G. 2000. Effect of line sink rate on albatross mortality in the Patagonian toothfish longline fishery. *CCAMLR Science*, 7: 133–150.

Robertson, G., J. Williamson, M. McNeill, S.G. Candy and N. Smith. 2008. Seabird by-catch by autoline vessels: do line setters increase the sink rate of integrated weight longlines? *CCAMLR Science*, 15: 107–114.

Table 1: Intersessional work plan for WG-IMAF.

	Task/Topic	Paragraphs of WG-IMAF report	Priority	Members	Secretariat	Delivery	Specific action
1.	**Planning and coordination of work**						
1.1	Develop advice for ad hoc TASO on observer training standards and information related to IMAF.	7.13	High	Technical coordinators		TASO 2010	Submission of curricula and accreditation procedures.
2.	**Integrate work of WG-IMAF and ACAP**						
2.1	Maintain dialogue with ACAP on issues of common interest and plan for migration of tasks as appropriate. Develop a medium- to long-term strategy to accomplish this coordination.	Ongoing	High	Co-conveners	Secretariat		ACAP
3.	**Research and development activities**						
3.1	Plan with BirdLife for more detailed multi-year review of tracking database to be provided at next IMAF meeting.	SC-CAMLR-XXVII, Annex 6, 8.2	for next WG-IMAF	Co-conveners			Co-conveners to liaise with BirdLife International with respect to multi-year review.
3.2	Report on implementation of action plan. Submit progress report of action plan. Include figures to show the overlap between the weekly fishing effort by sector and seabird incidental mortality rates. Note status of implementation with recommendations from Table 12.	3.48	High	France		Report to SC 2010	
4.	**Information from outside the Convention Area**						
4.1	Develop standard format for reporting data from outside the Convention Area about Convention Area seabird incidental mortality.	4.3	High	Co-conveners	Science Officer	Late 2010	Coordinate with ACAP

(continued)

Table 1 (continued)

	Task/Topic	Paragraphs of WG-IMAF report	Priority	Members	Secretariat	Delivery	Specific action
5.	**Cooperation with international organisations**						
5.1	Maintain/outreach and correspondence with Executive Secretaries of RFMOs listed in Appendix 1 of Resolution 22/XXV reiterating the Commission's interest in reducing the incidental mortality of Convention Area seabirds outside the Convention Area. When communicating with RFMOs and other appropriate international bodies, address marine debris discharge in, and adjacent to, the Convention Area.	Ongoing	High		Executive Secretary	Ongoing	Brief CCAMLR observers on desired feedback on IMAF matters (seabird by-catch levels and mitigating measures).
6.	**Data acquisition and analysis**						
6.1	Compile information (including observer cruise reports and commercial data) on gear reported as lost by vessels.	Ongoing	High		Secretariat	For next WG-IMAF	
6.2	Research into management and processing of all fisheries waste within the CCAMLR area.	6.10	High	Technical coordinators		For next WG-IMAF	

Table 2: Observed incidental mortality of seabirds in the longline fisheries for *Dissostichus* spp. in Subareas 48.3, 48.4, 48.6, 58.7, 88.1, 88.2 and Divisions 58.4.1, 58.4.2, 58.4.3 and 58.5.2 during the 2008/09 season, including related mitigation information. A – auto; Sp – Spanish; T – trotline; N – night-time setting; D – daytime setting (including nautical dawn and dusk); O – opposite side to hauling; S – same side as hauling.

Vessel	Dates of fishing	Method	Sets deployed				No. of hooks (thousands)			No. of birds observed caught[1]						Observed seabird mortality (includes injured birds)[1] (birds/thousand hooks)			Streamer line in use %		Offal discharge during	
			N	D	Total	%N	Obs.	Set	% observed	Dead		Injured		Uninjured							Set (%)	Haul (%)
										N	D	N	D	N	D	N	D	Total	N	D		
Subarea 48.3																						
Argos Froyanes	2/5–31/8	A	307	0	307	100	535.8	2073.9	25	0	0	0	0	0	0	0	0	0	100		(0.0)	O (0.0)
Tronio	1/5–24/8	Sp	204	0	204	100	476.1	1886.7	25	0	0	0	0	2	0	0	0	0	100		(0.0)	O (0.5)
Argos Helena	3/5–30/8	A	390	0	390	100	420.2	1777.5	23	0	0	0	0	0	0	0	0	0	100		(0.0)	S (0.0)
Koryo Maru No. 11	5/5–27/8	Sp	216	0	216	100	414.6	1651.0	25	1	0	0	0	0	0	0.002	0	0.002	100		(0.0)	O (82.4)
Viking Bay	1/5–27/8	Sp	283	0	283	100	396.8	1598.9	24	1	0	0	0	3	0	0.003	0	0.003	100		(0.0)	O (85.9)
San Aspiring	1/5–11/6	A	118	0	118	100	448.7	853.1	52	0	0	0	0	0	0	0	0	0	100		(0.0)	O (0.0)
Jacqueline	7/5–31/8	Sp	297	0	297	100	508.1	1652.6	30	0	0	0	0	0	0	0	0	0	100		(0.0)	O (98.3)
Antarctic Bay	21/5–5/8	Sp	202	0	202	100	248.9	1071.0	23	0	0	0	0	3	0	0	0	0	100		(0.0)	O (20.3)
Ross Star	16/5–30/8	A	200	0	200	100	340.3	1119.6	30	0	0	0	0	2	0	0	0	0	100		(0.0)	O (0.0)
Argos Georgia	28/5–13/8	A	187	0	187	100	224.0	1095.2	20	0	0	0	0	0	0	0	0	0	100		(0.0)	O (0.0)
San Aspiring	23/6–26/8	A	151	0	151	100	340.5	1336.0	25	0	0	0	0	0	0	0	0	0	100		(0.0)	O (0.7)
Total						100	4354.0	16115.7	27	2	0	0	0	10	0	0.0005	0	0.0005				
Subarea 48.4																						
Argos Georgia	1/3–24/3	A	25	35	60	42	74.4	342.8	21	0	0	0	0	0	0	0	0	0	100	100	(0.0)	S (0.0)
San Aspiring	21/3–23/4	A	55	39	94	59	298.2	528.8	56	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (2.1)
Argos Georgia	4/5–17/5	A	31	10	41	76	35.1	208.3	16	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (0.0)
Total						57	407.7	1079.9	38	0	0	0	0	0	0	0	0	0				
Subarea 48.6																						
Shinsei Maru No. 3	10/11–21/12	T	24	59	83	29	213.1	415.9	51	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (0.0)
Total						29	213.1	415.9	51	0	0	0	0	0	0	0	0	0				
Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b																						
Insung No. 1[2]	12/12–8/3	Sp	53	59	112	112	139.6[3]	991.4	14	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (0.0)
Insung No. 22	24/12–5/3	Sp	2	139	141	141	992.0	1006.1	98	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (0.0)
Shinsei Maru No. 3[2]	19/1–29/3	T	33	87	120	120	279.2	581.2	48	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (19.2)
Banzare	5/1–5/3	T	4	90	94	94	563.4[3]	573.1	98	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (54.3)
Shinsei Maru No. 3	26/6–30/7	T	32	27	59	59	183.7	392.2	46	0	0	0	0	0	0	0	0	0	100	100	(0.0)	O (100)
Total						24	2157.9	3544.0	61	0	0	0	0	0	0	0	0	0				
Division 58.5.2																						
Austral Leader II	14/4–21/6	A	97	74	171	57	499.0	1019.3	48	0	0	0	0	0	2	0	0	0	99	100	(0.0)	O (0.0)
Antarctic Chieftain	27/4–29/8	A	131	90	221	59	696.6	1562.3	44	0	1	0	0	0	0	0	0.004	0.001	100	100	(0.0)	O (0.0)
Total						58	1195.5	2581.6	46	0	1	0	0	0	2	0	0.002	0.001				

(continued)

Table 2 (continued)

Vessel	Dates of fishing	Method	Sets deployed				No. of hooks (thousands)			No. of birds observed caught[1]						Observed seabird mortality (includes injured birds) [1] (birds/thousand hooks)			Streamer line in use %		Offal discharge during	
			N	D	Total	%N	Obs.	Set	% observed	Dead		Injured		Uninjured		N	D	Total	N	D	Set (%)	Haul (%)
										N	D	N	D	N	D							
Subarea 58.7																						
Koryo Maru No. 11	11/4–11/4	Sp	2	0	2	100	12.1	22.5	54	0	0	0	0	0	0				100		(0.0)	O (100)
Total						100	12.1	22.5	54	0	0	0	0	0	0	0	0	0				
Subarea 88.1, 88.2																						
Jung Woo No. 2	29/12–25/1	Sp	0	49	49	0	640.0[3]	673.8	95	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
Jung Woo No. 3	3/1–24/1	T	0	36	36	0	134.5	135.7	99	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
San Aotea II	1/1–22/1	A	0	91	91	0	198.7	400.2	49	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
San Aspiring	3/12–24/1	A	0	74	74	0	204.8	457.6	44	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
Ross Mar	5/12–3/2	A	0	156	156	0	347.7	725.4	47	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
Argos Georgia	8/12–6/2	A	48	98	146	33	324.6	599.9	54	0	0	0	0	0	0	0	0	0	100	100	(0.0)	(0.0)
Tronio	8/12–7/2	Sp	0	107	107	0	477.8	911.2	52	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
Ross Star	9/1–16/2	A	0	64	64	0	59.5	358.0	16	0	0	0	0	0	0	0	0	0	0	100	(0.0)	(0.0)
Isla Eden	1/12–31/1	A	0	96	96	0	272.1	497.7	54	0	0	0	0	0	0	0	0	0		100	(0.0)	(0.0)
Hong Jin No. 707	7/12–10/2	Sp	4	83	87	5	668.0[3]	674.0	99	0	0	0	0	0	0	0	0	0	100	100	(0.0)	(0.0)
Janas	1/1–18/2	A	1	112	113	1	330.7	666.4	49	0	0	0	0	0	0	0	0	0	100	100	(0.0)	(0.0)
Argos Helena	4/12–30/1	A	1	162	163	1	312.8	580.2	53	0	0	0	0	0	0	0	0	0	100	100	(0.0)	(0.0)
Antarctic Chieftain	2/12–16/2	A	0	111	111	0	401.9	806.9	49	0	0	0	0	0	0	0	0	0		100	(0.0)	(0.0)
Argos Froyanes	1/12–12/2	A	5	157	162	3	356.5	706.9	50	0	0	0	0	0	0	0	0	0	100	100	(0.0)	(0.0)
Total						4	4729.6	8193.9	58	0	0	0	0	0	0	0	0	0				

[1] Bird ‘caught’ as defined by the Commission at CCAMLR-XXIII, paragraphs 10.30 and 10.31.

[2] These vessels also conducted some fishing in Subarea 88.1 during this cruise.

[3] Information obtained from cruise report.

Table 3: Observed incidental mortality of seabirds in the French EEZ longline fisheries for *Dissostichus* spp. in Subarea 58.6 and Division 58.5.1 during the 2008/09 season, including related mitigation information. A – autoliner; N – night-time setting; D – daytime setting (including nautical dawn and dusk).

Vessel	Dates of fishing	Method	Sets deployed				No. of hooks (thousands)			No. of birds observed caught						Observed seabird mortality (includes injured birds)[1] (birds/thousand hooks)			Streamer line in use %	
			N	D	Total	%N	Obs.	Set	% observed	Dead		Injured		Uninjured						
										N	D	N	D	N	D	N	D	Total	N	D
Subarea 58.6																				
Ship 2	29/1–14/2	A	45	0	45	100	67.3	269.0	25	2	0	0	0	0	0	0.030	0	0.030	100	
Ship 2	5/6–9/8	A	97	0	97	100	128.2	567.6	22	0	0	0	0	1	0	0	0	0	100	
Ship 8	12/12–22/2	A	107	0	107	100	128.2	529.8	24	5	0	0	0	0	0	0.039	0	0.039	100	
Ship 1	28/1–9/2	A	31	0	31	100	53.6	214.5	24	1	0	0	0	1	0	0.019	0	0.019	100	
Ship 1	20/3–27/5	A	94	0	94	100	132.2	553.5	23	1	0	2	0	3	0	0.023	0	0.023	100	
Ship 2	28/4–12/5	A	42	0	42	100	76.3	291.7	26	0	0	0	0	1	0	0	0	0	100	
Ship 3	19/1–31/1	A	32	0	32	100	64.9	254.1	25	0	0	0	0	0	0	0	0	0	100	
Ship 3	11/4–19/5	A	88	0	88	100	245.7	984.8	24	1	0	0	0	0	0	0.004	0	0.004	100	
Ship 5	2/2–15/2	A	37	0	37	100	56.8	241.5	23	1	0	0	0	0	0	0.018	0	0.018	100	
Ship 5	16/5–1/6	A	56	0	56	100	89.7	363.8	24	0	0	0	0	0	0	0	0	0	100	
Ship 6	31/1–3/3	A	82	0	82	100	98.8	366.0	27	1	0	1	0	0	0	0.020	0	0.020	100	
Ship 6	19/6–14/7	A	88	0	88	100	80.8	319.5	25	0	0	0	0	0	0	0	0	0	100	
Ship 7	5/4–9/6	A	111	0	111	100	53.1	212.3	25	2	0	0	0	0	0	0.016	0	0.016	100	
Ship 7	5/2–16/2	A	37	0	37	100	128.5	537.0	23	4	0	0	0	0	0	0.075	0	0.075	100	
Ship 8	1/4–25/5	A	107	0	107	100	118.9	503.0	23	2	0	0	0	1	0	0.017	0	0.017	100	
Total						100	1 522.9	6 207.9	25	20	0	3	0	7	0	0.015	0	0.015		
Division 58.5.1																				
Ship 1	8/4–3/5	A	72	0	72	100	255.8	1 026.0	24	3	0	0	0	0	0	0.022	0	0.022	100	
Ship 1	11/12–23/1	A	102	0	102	100	138.0	561.8	24	1	0	0	0	1	0	0.004	0	0.004	100	
Ship 2	8/12–24/1	A	147	0	147	100	298.1	1 116.1	26	2	0	0	0	0	0	0.007	0	0.007	100	
Ship 2	16/6–9/7	A	87	0	87	100	236.8	933.3	25	2	0	0	0	2	0	0.017	0	0.017	100	
Ship 2	11/3–23/4	A	117	0	117	100	120.2	507.9	23	9	0	0	0	0	0	0.038	0	0.038	100	
Ship 3	14/3–5/4	A	47	0	47	100	284.4	1 120.4	25	27	0	0	0	0	0	0.162	0	0.162	100	
Ship 3	5/12–15/1	A	95	0	95	100	167.1	669.9	24	0	0	0	0	0	0	0	0	0	100	
Ship 5	2/5–14/6	A	113	0	113	100	314.1	1 251.8	25	1	0	0	0	1	0	0.004	0	0.004	100	
Ship 5	18/12–30/1	A	112	0	112	100	261.8	1 080.8	24	3	0	0	0	1	0	0.011	0	0.011	100	
Ship 5	25/3–10/5	A	124	0	124	100	253.0	1 010.3	25	28	0	0	0	0	0	0.089	0	0.089	100	

(continued)

Table 3 (continued)

Vessel	Dates of fishing	Method	Sets deployed				No. of hooks (thousands)			No. of birds observed caught						Observed seabird mortality (includes injured birds)[1] (birds/thousand hooks)			Streamer line in use %	
			N	D	Total	%N	Obs.	Set	% observed	Dead		Injured		Uninjured						
										N	D	N	D	N	D	N	D	Total	N	D
Ship 6[2]	13/1–1/4	A	78	0	78	100	231.6	789.0	29	23	0	0	0	0	0	0.099	0	0.099	100	
Ship 7	20/4–14/5	A	58	0	58	100	233.0	920.3	25	1	0	0	0	0	0	0.007	0	0.007	100	
Ship 7	19/12–29/1	A	128	0	128	100	149.2	616.5	24	4	0	0	0	1	0	0.017	0	0.017	100	
Ship 8	24/12–25/1	A	94	0	94	100	110.5	443.1	24	1	0	0	0	0	0	0.009	0	0.009	100	
Ship 8	26/4–11/5	A	51	0	51	100	56.4	232.1	24	0	0	0	0	1	0	0.022	0	0.022	100	
Total						100	3 110.0	12 279.0	25	105	0	0	0	7	0	0.034	0	0.034		

[1] Bird ‘caught’ as defined by the Commission at CCAMLR-XXIII, paragraphs 10.30 and 10.31.

[2] This vessel did not conduct any fishing in Division 58.5.1 during the closed season (1/2/09–10/3/09).

Table 4: Total extrapolated incidental mortality of seabirds and observed mortality rates (birds/thousand hooks) in longline fisheries in Subareas 48.3, 48.4, 48.6, 58.6, 58.7, 88.1, 88.2, Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b, 58.5.1 and 58.5.2 from 1997 to 2009 (- indicates no fishing occurred).

Area	Year												
	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Subarea 48.3													
Extrapolated mortality	5 755	640	210[1]	21	30	27	8	27	13	0	0	0	8
Observed mortality rate	0.23	0.032	0.013[1]	0.002	0.002	0.0015	0.0003	0.0015	0.0011	0	0	0	0.0005
Subarea 48.4													
Extrapolated mortality	-	-	-	-	-	-	-	-	0	0	0	0	0
Observed mortality rate	-	-	-	-	-	-	-	-	0	0	0	0	0
Subarea 48.6													
Extrapolated mortality	-	-	-	-	-	-	-	0	0	0	0	-	0
Observed mortality rate	-	-	-	-	-	-	-	0	0	0	0	-	0
Subareas 58.6, 58.7													
Extrapolated mortality	834	528	156	516	199	0	7	39	76	0	0	0	0
Observed mortality rate	0.52	0.194	0.034	0.046	0.018	0	0.003	0.025	0.149	0	0	0	0
Subarea 58.6 French EEZ													
Extrapolated mortality[3]	no	no	no	no	-	1243[2]	720[2]	343[2]	242	235	314	131	94
Observed mortality rate[3]	data	data	data	data	-	0.1672	0.1092	0.0875	0.0490	0.0362	0.065	0.0305	0.0119
Extrapolated mortality													93
Observed mortality rate													0.015
Subareas 88.1, 88.2													
Extrapolated mortality	-	0	0	0	0	0	0	1	0	0	0	0	0
Observed mortality rate	-	0	0	0	0	0	0	0.0001	0	0	0	0	0
Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b													
Extrapolated mortality	-	-	-	-	-	-	-	0	8	2	0	0	0
Observed mortality rate	-	-	-	-	-	-	-	0	<0.001	0.0002	0	0	0
Division 58.5.1 French EEZ													
Extrapolated mortality [3]	no	no	no	no	1 917[2]	10 814[2]	13 926[2]	3 666[2]	4 387	2 352	1 943	1 224	643
Observed mortality rate [3]	data	data	data	data	0.0920	0.9359	0.5180	0.2054	0.1640	0.0920	0.0798	0.0585	0.0316
Extrapolated mortality													417
Observed mortality rate													0.034
Division 58.5.2													
Extrapolated mortality	-	-	-	-	-	-	0	0	0	0	0	2	3
Observed mortality rate	-	-	-	-	-	-	0	0	0	0	0	0.002	0.001
Total seabird mortality	6 589	1 168	366	537	2 146	12 084	14 661	4 076	4 726	2 589	2 257	1 357	521[4]

[1] Excluding *Argos Helena* line-weighting experiment cruise.
[2] The number of hooks has not been collected and the values given are from the total number of hooks set.
[3] Data provided by France for fishing season 1 September to 31 August, not CCAMLR season (1 December to 30 November).
[4] This total excludes the extrapolated totals provided by France for 2009.

Table 5: Seabird mortality totals and rates (BPT: birds/trawl) and species composition, recorded by observers in the CAMLR Convention Area trawl fishery during the 2008/09 season. DIM – *Thalassarche melanophrys*; PRO – *Procellaria aequinoctialis*; DAC – *Daption capense*.

Area	Vessel (target species)	Cruise dates	Trawls		BPT	Dead			Total dead	Total alive
			Set	Observed		DIM	PRO	DAC		
48.1, 48.2	*Saga Sea* (KRI)[1]	28/21–2/3	1060	1037	0.01			9	9	0
	Saga Sea (KRI)[1]	6/3–5/5	774	17[2]	0.00				0	1
	Saga Sea (KRI)[1]	7/5–22/7	875	13[2]	0.08			1	1	34
	Dalmor II (KRI)	23/5–16/7	337	217	0.00				0	0
	Maksim Starostin (KRI)[1]	4/1–9/3	56	56	0.00				0	0
	Juvel (KRI)	22/3–8/8	27	25	0.00				0	0
	Total		3129	1365	0.01			10	10	35
48.3	*Robin M Lee* (ANI)	14/1–11/2	38	38	0.03		1		1	12
	Robin M Lee (ANI)	20/4–22/5	30	24	0.00				0	0
	Sil (ANI)	13/1–11/2	27	21	0.07		2		2	5
	New Polar (ANI)	31/1–11/2	22	20	0.00				0	0
	Insung Ho (ANI)	27/12–6/1	27	22	0.07	2			2	1
	Dongsan Ho (ANI)	5/2–14/2	18	11	0.33	4	2		6	13
	New Polar (ANI)	28/4–21/5	32	23	0.00				0	0
	Total		194	159	0.07	6	5		11	31
48.3	*Maksim Starostin* (KRI)[1]	9/6–16/6	16	10	0.00				0	0
	Insung Ho (KRI)	23/7–23/7	1	1	0.00				0	0
	Total		17	11	0.00				0	0
58.5.2	*Southern Champion* (TOP)	29/12–19/1	118	118	0.01			1	1	0
	Southern Champion (ANI/TOP)	23/3–19/5	440	440	0.00				0	0
	Total		558	558	0.002			1	1	0

[1] Continuous trawl method

[2] These low haul numbers are a result of continuous trawls (WG-IMAF-09/5 Rev. 2, paragraph 2).

Table 6: Seabird mortality totals and rates (BPT: birds/trawl) and species composition of by-catch, recorded by observers in the CAMLR Convention Area trawl fisheries over the last six seasons. DIC – *Thalassarche chrysostoma*; DIM – *Thalassarche melanophris*; PRO – *Procellaria aequinoctialis*; MAH – *Macronectes halli*; KPY – *Aptenodytes patagonicus*; PTZ – unknown petrel; DAC – *Daption capense*; MAI – *Macronectes giganteus*.

Season	Area	Target species	Trips observed	Trawls			BPT	Dead								Total dead	Total alive
				Set	observed	(%)		DIC	DIM	PRO	MAH	KPY	PTZ	DAC	MAI		
2004	48	*E. superba*	1	334	258	77	<0.10									0	0
	48.3	*E. superba*	6	1145	829	72	<0.10									0	0
	48.3	*C. gunnari*	6	247	238	96	0.37	1	26	59					1	87	132
	58.5.2	*D. eleginoides*	5	1218	1215	100	<0.10									0	13
		C. gunnari															
2005	48.2	*E. superba*	2	391	285	73	<0.10							1		1	0
	48.3	*C. gunnari*	7	337	277	82	<0.14		9	1	1					11	14
	48.3	*E. superba*	5	1451	842	58	<0.10									0	0
	58.5.2	*D. eleginoides*	6	1303	1301	100	<0.11		5	3						8	0
		C. gunnari															
2006	48.1	*E. superba*	2	1127	839	74	0.00									0	0
	48.3	*C. gunnari*	5	585	457	78	0.07	1	11	20			1			33	89
	48.3	*E. superba*	2	395	181	46	0.00									0	0
	58.5.2	*D. eleginoides*	3	1086	1086	100	0.00									0	0
		C. gunnari															
2007	48.1/2	*E. superba*	2	656	418	64	0.00									0	2
	48.3	*C. gunnari*	4	102	91	89	0.07	1	2	3						6	3
	48.3	*E. superba*	4	580	194	33	0.00									0	0
	58.5.2	*D. eleginoides*	3	1005	936	93	<0.01							2		2	0
		C. gunnari															
2008	48.1/2	*E. superba*	4	2877	233	8[1]	0.00									0	0
	48.3	*C. gunnari*	6	232	206	89	0.024			3		2				5	5
	48.3	*E. superba*	4	1058	81	8[1]	0.00									0	0
	58.5.2	*D. eleginoides*	3	723	700	97	0.00									0	1
		C. gunnari															
2009	48.1/2	*E. superba*	6	3129	1365	44[1]	0.01							10		10	35
	48.3	*C. gunnari*	7	194	159	82	0.07		6	5						11	31
	48.3	*E. superba*	2	17	11	65	0.00									0	0
	58.5.2	*D. eleginoides*	2	558	558	100	0.002							1		1	0
		C. gunnari															

[1] These low haul numbers are a result of continuous trawls (WG-IMAF-09/5 Rev. 2, paragraph 2).

Table 7: Seal mortality totals and rates (SPT: seals/trawl) and species composition, recorded by observers in the CAMLR Convention Area trawl fishery during the 2008/09 season. SEA – *Arctocephalus gazella*.

Area	Vessel (target species)	Cruise dates	Trawls		SPT	Dead	Total dead	Total alive
			Set	Observed		SEA		
48.1, 48.2	*Saga Sea* (KRI)[1]	28/21–2/3	1060	1037	0.00		0	0
	Saga Sea (KRI)[1]	6/3–5/5	774	17[2]	0.00		0	0
	Saga Sea (KRI)[1]	7/5–22/7	875	13[2]	0.00		0	2
	Maksim Starostin (KRI)[1]	4/1–9/3	56	56[2]	0.00		0	0
	Dalmor II (KRI)	23/5–16/7	337	217	0.06	12	12	4
	Juvel (KRI)	22/3–8/8	27	25	0.00		0	1
	Total		3129	1365	0.01		12	7
48.3	*Robin M Lee* (ANI)	14/1–11/2	38	38	0.00		0	0
	Robin M Lee (ANI)	20/4–22/5	30	24	0.00		0	0
	Sil (ANI)	13/1–11/2	27	21	0.00		0	0
	New Polar (ANI)	31/1–11/2	22	20	0.00		0	0
	Insung Ho (ANI)	27/12–6/1	27	22				
	Dongsan Ho (ANI)	5/2–14/2	18	11	0.00		0	0
	New Polar (ANI)	28/4–21/5	32	23	0.00		0	0
	Total		194	159	0.00		0	0
48.3	*Maksim Starostin* (KRI)[1]	9/6–16/6	16	10[2]	0.10		0	0
	Insung Ho (KRI)	23/7–23/7	1	1	0.00		0	0
	Total		17	11	0.00		0	0
58.5.2	*Southern Champion* (TOP)	29/12–19/1	118	118	0.00		0	0
	Southern Champion (ANI/TOP)	23/3–19/5	440	440	0.00		0	0
	Total		558	558	0.00		0	0

[1] Continuous trawl method

[2] These low haul numbers are a result of continuous trawls (WG-IMAF-09/5 Rev. 2, paragraph 2).

Table 8: Seal mortality totals and rates (SPT: seals/trawl) and species composition of by-catch, recorded by observers in the CAMLR Convention Area trawl fisheries over the last six seasons. SLP – *Hydrurga leptonyx*; SEA – *Arctocephalus gazella*; SXX – unidentified seal.

Season	Area	Target species	Trips observed	Trawls		SPT	Dead			Total dead	Total alive
				Set	Observed		SLP	SEA	SXX		
2004	48	*E. superba*	1	334	258	0		0		0	0
	48.3	*E. superba*	6	1145	829	0.17		142		142	12
	48.3	*C. gunnari*	6	247	238	0				0	0
	58.5.2	*D. eleginoides*	5	1218	1215	0.002		3		3	0
		C. gunnari									
2005	48.2	*E. superba*	2	391	285	0.06		16		16	8
	48.3	*C. gunnari*	7	337	277	0.00		0		0	2
	48.3	*E. superba*	5	1451	842	0.006		5		5	64
	58.5.2	*D. eleginoides*	6	1303	1301	0.00				0	1
		C. gunnari									
2006	48.1	*E. superba*	2	1127	839	0.001		1		1	0
	48.3	*C. gunnari*	5	585	457	0.00				0	0
	48.3	*E. superba*	2	395	181	0.00				0	0
	58.5.2	*D. eleginoides*	3	1086	1086	0.00	1			1	0
		C. gunnari									
2007	48.1/2	*E. superba*	2	656	418	0.00				0	0
	48.3	*C. gunnari*	4	102	91	0.00				0	0
	48.3	*E. superba*	4	580	194	0.00				0	0
	58.5.2	*D. eleginoides*	3	1005	936	0.00				0	0
		C. gunnari									
2008	48.1/2	*E. superba*	4	2877	(233)[1]	0.00				0	0
	48.3	*C. gunnari*	6	232	206	0.00				0	0
	48.3	*E. superba*	4	1058	(81)[1]	0.07		5	1	6	0
	58.5.2	*D. eleginoides*	3	723	700	0.00				0	0
		C. gunnari									
2009	48.1/2	*E. superba*	6	3129	1365[1]	0.01		12		12	7
	48.3	*C. gunnari*	7	194	159	0.00				0	0
	48.3	*E. superba*	2	17	11	0.00				0	0
	58.5.2	*D. eleginoides*	2	558	558	0.00				0	0
		C. gunnari									

[1] These low haul numbers are a result of continuous trawls (WG-IMAF-09/5 Rev. 2, paragraph 2).

Table 9: Summary of scientific observations relating to compliance with Conservation Measure 25-02 (2008), based on data from scientific observers from the 1996/97 to the 2008/09 season. Values in parentheses are % of observer records that were complete. na – not applicable.

Area/season	Line weighting (Spanish system only)			Night setting (% night)	Offal discharge (%) opposite haul	Streamer line compliance (%)										Total catch rate (birds/thousand hooks)	
	Compliance %	Median weight (kg)	Median spacing (m)			Overall		Attached height		Total length		Streamers length[7]		Distance apart		Night	Day
Subarea 48.3																	
1996/97	0 (91)	5.0	45	81	0 (91)	6 (94)		47 (83)		24 (94)		76 (94)		100 (78)		0.18	0.93
1997/98	0 (100)	6.0	42.5	90	31 (100)	13 (100)		64 (93)		33 (100)		100 (93)		100 (93)		0.03	0.04
1998/99	5 (100)	6.0	43.2	80[1]	71 (100)	0 (95)		84 (90)		26 (90)		76 (81)		94 (86)		0.01	0.08[1]
1999/00	1 (91)	6.0	44	92	76 (100)	31 (94)		100 (65)		25 (71)		100 (65)		85 (76)		<0.01	<0.01
2000/01	21 (95)	6.8	41	95	95 (95)	50 (85)		88 (90)		53 (94)		94 (94)		82 (94)		<0.01	<0.01
2001/02	63 (100)	8.6	40	99	100 (100)	87 (100)		94 (100)		93 (100)		100 (100)		100 (100)		0.002	0
2002/03	100 (100)	9.0	39	98	100 (100)	87 (100)		91 (100)		96 (100)		100 (100)		100 (100)		<0.001	0
2003/04	87 (100)	9.0	40	98	100 (100)	69 (94)		88 (100)		93 (94)		73 (100)		100 (100)		0.001	0
2004/05	100 (100)	9.5	45	99	100 (100)	75 (100)		88 (100)		88 (100)		75 (100)		100 (100)		0.001	0
2005/06	100 (100)	10.0	40	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2006/07	100 (100)	9.8	39	100	100 (100)	90 (100)		100 (100)		100 (100)		90 (100)		100 (100)		0	0
2007/08	100 (100)	9.5	38.5	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2008/09	100 (100)	9.5	39	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		<0.001	0
Subarea 48.4																	
2005/06	Auto only	na	na	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2006/07	Auto only	na	na	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2007/08	Auto only	na	na	100	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2008/09	Auto only	na	na	57[10]	100 (100)	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
Subarea 48.6																	
2003/04	100 (100)	7.0	20	41[6]	No discharge	0 (100)		100 (100)		100 (100)		0 (100)		100 (100)		0	0
2004/05	100 (100)	6.5	19.5	29[6]	No discharge	100 (100)		100 (100)		100 (100)		100 (100)		0 (100)		0	0
2005/06	Auto only	na	na	36[6]	No discharge	50 (100)		100 (100)		50 (100)		100 (100)		100 (100)		0	0
2006/07	Auto only	na	na	44[6]	No discharge	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0
2008/09	Trotline	na	na	29[6]	No discharge	100 (100)		100 (100)		100 (100)		100 (100)		100 (100)		0	0

(continued)

Table 9 (continued)

Area/season	Line weighting (Spanish system only)			Night setting (% night)	Offal discharge (%) opposite haul	Streamer line compliance (%)										Total catch rate (birds/thousand hooks)	
	Compliance %	Median weight (kg)	Median spacing (m)			Overall		Attached height		Total length		Streamers length[7]		Distance apart		Night	Day
Division 58.4.1, 58.4.2, 58.4.3a, 58.4.3b																	
2002/03	Auto only	na	na	24[5]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2003/04	Auto only	na	na	0[5]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2004/05	33[8] (100)	7.9	40	26[5]	No discharge	88	(100)	100	(100)	100	(100)	88	(100)	100	(100)	0	<0.001
2005/06	16[8] (100)	7.2	48	16[5]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	<0.001
2006/07	20[8] (100)	7.7	40	10[5]	4% by 1 vessel[9]	50	(100)	100	(100)	83	(100)	83	(100)	83	(100)	0	0
2007/08	71[8] (100)	8.5	40	10[5]	No discharge	88	(100)	100	(100)	100	(100)	88	(100)	100	(100)	0	0
2008/09	100 (100)	10	40	24[5]	60 (100)	80	(100)	100	(100)	100	(100)	80	(100)	100	(100)	0	0
Division 58.4.4																	
1999/00	0[9] (100)	5	45	50	0 (100)	0	(100)	100	(100)	0	(100)	100	(100)	100	(100)	0	0
Division 58.5.2																	
2002/03	Auto only	na	na	100	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2003/04	Auto only	na	na	99[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2004/05	Auto only	na	na	50[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2005/06	Auto only	na	na	53[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2006/07	Auto only	na	na	54[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2007/08	Auto only	na	na	45[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2008/09	Auto only	na	na	58[8]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0.002
Subareas 58.6 and 58.7																	
1996/97	0	6	35	52	69 (87)	10	(66)	100	(60)	10	(66)	90	(66)	60	(66)	0.52	0.39
1997/98	0 (100)	6	55	93	87 (94)	9	(92)	91	(92)	11	(75)	100	(75)	90	(83)	0.08	0.11
1998/99	0 (100)	8	50	84[2]	100 (89)	0	(100)	100	(90)	10	(100)	100	(90)	100	(90)	0.05	0
1999/00	0 (83)	6	88	72	100 (93)	8	(100)	91	(92)	0	(92)	100	(92)	91	(92)	0.03	0.01
2000/01	18 (100)	5.8	40	78	100 (100)	64	(100)	100	(100)	64	(100)	100	(100)	100	(100)	0.01	0.04
2001/02	66 (100)	6.6	40	99	100 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2002/03	0 (100)	6.0	41	98	50 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	<0.01	0
2003/04	100 (100)	7.0	20	83	100 (100)	50	(100)	50	(100)	100	(100)	100	(100)	100	(100)	0.03	0.01
2004/05	100 (100)	6.5	20	100	100 (100)	0	(100)	100	(100)	100	(100)	100	(100)	0	(100)	0.149	0
2005/06	100 (100)	9.1	40	100	100 (100)	0	(100)	100	(100)	100	(100)	0	(100)	0	(100)	0	0
2006/07	100 (100)	10.4	40	100	100 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2007/08	0 (100)	11	56	100	100 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2008/09	100 (100)	12	39	100	100 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0

(continued)

Table 9 (continued)

Area/season	Line weighting (Spanish system only)			Night setting (% night)	Offal discharge (%) opposite haul	Streamer line compliance (%)										Total catch rate (birds/thousand hooks)	
	Compliance %	Median weight (kg)	Median spacing (m)			Overall		Attached height		Total length		Streamers length[7]		Distance apart		Night	Day
Subarea 88.1, 88.2																	
1996/97	Auto only	na	na	50	0 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
1997/98	Auto only	na	na	71	0 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
1998/99	Auto only	na	na	1[3]	100 (100)	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
1999/00	Auto only	na	na	6[4]	No discharge	67	(100)	100	(100)	67	(100)	100	(100)	100	(100)	0	0
2000/01	1 (100)	12	40	18[4]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2001/02	Auto only	na	na	33[4]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2002/03	100 (100)	9.6	41	21[4]	1 incidence by 1 vessel	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0
2003/04	89 (100)	9	40	5[4]	24% by 1 vessel	59	(100)	82	(100)	86	(100)	61	(81)	100	(100)	0	<0.01
2004/05	33 (100)	9.0	45	1[4]	1% by 1 vessel	64	(100)	100	(100)	100	(100)	60	(94)	94	(100)	0	0
2005/06	100 (100)	9.2	35	1[4]	No discharge	85	(92)	100	(92)	85	(92)	92	(92)	100	(92)	0	0
2006/07	100 (100)	10	36	4[4]	1% by 1 vessel	93	(100)	100	(100)	100	(100)	93	(93)	100	(100)	0	0
2007/08	67 (100)	10	37	11[4]	No discharge	92	(100)	100	(100)	100	(100)	92	(100)	100	(100)	0	0
2008/09	67 (100)	10	37	4[4]	No discharge	100	(100)	100	(100)	100	(100)	100	(100)	100	(100)	0	0

[1] Includes daytime setting – and associated seabird by-catch – as part of line-weighting experiments on *Argos Helena* (WG-FSA-99/5).
[2] Includes some daytime setting in conjunction with use of an underwater-setting funnel on *Eldfisk* (WG-FSA-99/42).
[3] Conservation Measure 169/XVII allowed New Zealand vessels to undertake daytime setting south of 65°S in Subarea 88.1 to conduct a line-weighting experiment.
[4] Conservation Measures 216/XX and 41-09, 41-10 (2002, 2003, 2004) permit daytime setting south of 65°S in Subarea 88.1 if able to demonstrate a sink rate of 0.3 m/s.
[5] Conservation Measures 41-05, 41-11 (2002, 2003, 2004, 2007) permits daytime setting in Divisions 58.4.1 and 58.4.2 if the vessel complies with Conservation Measure 24-02.
[6] Conservation Measure 41-04 (2003, 2004, 2007) permits daytime setting if the vessel complies with Conservation Measure 24-02.
[7] Conservation Measure 25-02 (2003, 2007) was updated in 2003 and the requirement for a minimum of five streamers was replaced by minimum streamer lengths.
[8] Conservation Measure 41-08 (2004, 2007) permits daytime setting if the vessel complies with Conservation Measure 24-02.
[9] The *Tronio* discharged offal on seven occasions due to mechanical problems.
[10] Conservation Measure 41-03 (2008) permits daytime setting if the vessel catches no more than three seabirds.

Table 10: Scientific observations relating to compliance with the minimum specifications set out in Conservation Measure 25-02 (2008) during the 2008/09 Season. Y – yes; N – no; - – no information; MP – Moon pool; * – conservation measure not applicable in this area.

Vessel name	Dates of fishing	Fishing method	Compliance with CCAMLR specifications	Compliance with details of streamer line specifications				Length of streamers (m)	Streamer line in use % setting		Haul-mitigation device used %
				Attachment, height above water (m)	Total length (m)	No. streamers per line	Spacing of streamers per line (m)		Night	Day	
Subarea 48.3											
Argos Froyanes	2/5–31/8	Auto	Y	Y (7.1)	Y (152)	11	Y (5)	Y (2–7.2)	100		100
Tronio	1/5–24/8	Spanish	Y	Y (8.1)	Y (160)	12	Y (5)	Y (1–6.6)	100		100
Argos Helena	3/5–30/8	Auto	Y	Y (8.1)	Y (162)	13	Y (5)	Y (1–7)	100		MP
Koryo Maru No. 11	5/5–27/8	Spanish	Y	Y (8.2)	Y (155)	10	Y (5)	Y (3.2–8)	100		98
Viking Bay	1/5–27/8	Spanish	Y	Y (7)	Y (155)	12	Y (4)	Y (1.2–7)	100		100
San Aspiring	1/5–11/6	Auto	Y	Y (7.9)	Y (150)	23	Y (5)	Y (1.6–9)	100		100
Jacqueline	7/5–31/8	Spanish	Y	Y (7.75)	Y (168)	7	Y (5)	Y (1.3–7)	100		100
Antarctic Bay	21/5–5/8	Spanish	Y	Y (8)	Y (160)	7	Y (5)	Y (2–7)	100		100
Ross Star	16/5–30/8	Auto	Y	Y (7.5)	Y (175)	7	Y (5)	Y (1.1– 7)	100		100
Argos Georgia	28/5–13/8	Auto	Y	Y (8)	Y (170)	8	Y (5)	Y (1–8)	100		100
San Aspiring	23/6–26/8	Auto	Y	Y (8)	Y (200)	23	Y (5)	Y (1.4–10)	100		100
Subarea 48.4											
Argos Georgia	1/3–24/3	Auto	Y	Y (8.6)	Y (165)	8	Y (5)	Y (1–8)	100	100	100
San Aspiring	21/3–23/4	Auto	Y	Y (7.9)	Y (250)	23	Y (5)	Y (1.8–9)	100	100	100
Argos Georgia	4/5–17/5	Auto	Y	Y (8)	Y (170)	8	Y (5)	Y (1–8)	100	100	100
Subarea 48.6											
Shinsei Maru No. 3	10/11–21/12	Trotline	Y	Y (7.5)	Y (162.5)	6	Y (4.7)	Y (4–6.9)	100	100	100
Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b											
Insung No. 1[1]	12/12–8/3	Spanish	N	Y (7)	Y (200)	10	Y (4.5)	N (1–5)	100	100	96
Insung No. 22	24/12–5/3	Spanish	Y	Y (7)	Y (155)	14	Y (5)	Y (1–6.5)	100	100	0
Shinsei Maru No. 3[1]	19/1–29/3	Trotline	Y	Y (10)	Y (156)	6	Y (4.7)	Y (4.4–6.9)	100	100	98
Banzare	5/1–5/3	Trotline	Y	Y (7)	Y (150)	35	Y (5)	Y (6.5)	100	100	0
Shinsei Maru No. 3	26/6–30/7	Trotline	Y	Y (7.45)	Y (157.4)	6	Y (4.5)	Y (4.5–7)	100	100	100
Division 58.5.2											
Austral Leader II	14/4–21/6	Auto	Y	Y (8)	Y (200)	9	Y (5)	Y (1–7.5)	99	100	98
Antarctic Chieftain	27/4–29/8	Auto	Y	Y (7.1)	Y (173)	21	Y (4.5)	Y (1–7)	100	100	100
Subarea 58.7											
Koryo Maru No. 11	11/4–11/4	Spanish	Y	Y (8.41)	Y (163)	10	Y (4.5)	Y (3.3–8)	100		

(continued)

Table 10 (continued)

Vessel name	Dates of fishing	Fishing method	Compliance with CCAMLR specifications	Compliance with details of streamer line specifications				Length of streamers (m)	Streamer line in use % setting		Haul-mitigation device used %
				Attachment, height above water (m)	Total length (m)	No. streamers per line	Spacing of streamers per line (m)		Night	Day	
Subareas 88.1, 88.2											
Jung Woo No. 2	29/12–25/1	Spanish	Y	Y (7.8)	Y (150)	10	Y (5)	Y (1–6.8)		100	8
Jung Woo No. 3	3/1–24/1	Trotline	Y	Y (7)	Y (150)	15	Y (4.5)	Y (1–6.5)		100	0
San Aotea II	1/1–22/1	Auto	Y	Y (7)	Y (153)	21	Y (4.5)	Y (1–7.2)		100	0
San Aspiring	3/12–24/1	Auto	Y	Y (8)	Y (200)	30	Y (4)	Y (1–10)		100	0
Ross Mar	5/12–3/2	Auto	Y	Y (7.4)	Y (150)	21	Y (4.8)	Y (1–7.2)		100	0
Argos Georgia	8/12–6/2	Auto	Y	Y (7)	Y (155)	7	Y (5)	Y (1–7)	100	100	0
Tronio	8/12–7/2	Spanish	Y	Y (7.2)	Y (170)	12	Y (5)	Y (0.5–6.5)		100	100
Ross Star	9/1–16/2	Auto	Y	Y (8)	Y (160)	7	Y (5)	Y (1–7)		100	0
Isla Eden	1/12–31/1	Auto	Y	Y (7.1)	Y (150)	7	Y (5)	Y (1–7)		100	0
Hong Jin No. 707	7/12–10/2	Spanish	Y	Y (7)	Y (150)	25	Y (5)	Y (1–6.5)	100	100	100
Janas	1/1–18/2	Auto	Y	Y (9)	Y (160)	29	Y (4)	Y (1–6.5)	100	100	0
Argos Helena	4/12–30/1	Auto	Y	Y (8)	Y (157)	13	Y (5)	Y (1–8)	100	100	MP
Antarctic Chieftain	2/12–16/2	Auto	Y	Y (7.1)	Y (150)	32	Y (4.5)	Y (1–7.2)		100	0
Argos Froyanes	1/12–12/2	Auto	Y	Y (7.1)	Y (152)	11	Y (4)	Y (2.7–7)	100	100	0

[1] These vessels also conducted a small amount of fishing in Subarea 88.1 during this cruise.

Table 11: Summary of recommendations from SC-CAMLR-XXVII/10, 12 and SC-CAMLR-XXVII/BG/8, BG/10, BG/11, BG/12, and the Scientific Committee's 2007 recommendations to France (SC-CAMLR-XXVI, paragraph 5.6) and updated progress from France.

	Scientific Committee or French recommendation	Description	Status	Comments/notes
1	SC-CAMLR-XXVI, 5.6(i)	Observer data	In progress	Additional data are being recorded: details of the deployment of a haul-mitigation device, characteristics of streamer lines and line sink rates.
2	SC-CAMLR-XXVI, 5.6(ii)	Petrel population analysis	Complete	SC-CAMLR-XXVII/BG/8 is the completed analysis; France submitted all required documents to IMAF in 2008 and will submit an English version to WG-SAM for its 2010 meeting.
3	SC-CAMLR-XXVI, 5.6(iii)	Raw by-catch data	Completed	This year, France has submitted the full set of data from the 2008/09 fishing season.
4	SC-CAMLR-XXVI, 5.6(iv)	Analysis of vessel specific issues	Completed	See SC-CAMLR-XXVII/12 and BG/10.
5	SC-CAMLR-XXVI, 5.6(v)	Broaden set of measures used, particularly during haul	In progress	Implementation of an effective Brickle curtain (haul mitigation) on all vessels; management of offal has been modified since September 2008, offal can only be discharged between hauls; offal will be retained for a longer period of time on board the new vessel operating in the French EEZ from 2009/10; improving streamer line construction to meet CCAMLR standards.
6	SC-CAMLR-XXVI, 5.6(vi)	Further research with WG-IMAF	Ongoing	Close collaboration between TAAF and IMAF. The independent working group composed of fishermen, scientists and the TAAF administration meets regularly.
7	SC-CAMLR-XXVI, 5.6(vii)	Redirection of management based on data analysis	Ongoing	Improvements to streamer lines, haul-mitigation devices, and offal management practices; additional data collection and analysis will inform other possible management options; weekly by-catch reports from vessel observers (daily reports during the breeding seasons of both the grey and the white-chinned petrel).
8	SC-CAMLR-XXVI, 5.6(viii)	Submit action plan	Completed	SC-CAMLR-XXVII/8 submitted and being implemented.
9	SC-CAMLR-XXVI, 5.6(ix)	Submit paper on regulatory requirements	Completed	SC-CAMLR-XXVII/BG/11

(continued)

Table 11 (continued)

	Scientific Committee or French recommendation	Description	Status	Comments/notes
10	SC-CAMLR-XXVII/12 (DeLord et al. study on environmental, spatial, temporal and operational effects 2003–2006)	Fishery closure during critical chick-rearing periods for both petrel species – 15 February to 15 March and 50 days in part of May and all of June	In progress	The one-month closure 15 February to 15 March (2003 to 2008) has been extended from 1 February to 10 March in 2009. The closure will be extended for the coming season from 1 February to 15 March in 2010. There is no specific fishing closure during the grey petrel's chick-rearing period. There is a possibility that certain sectors might be closed during periods when the mortality peaks in these areas (SC-CAMLR-XXVII/BG/11).
11	SC-CAMLR-XXVII/12	Controlled effort in seasons	In progress	Fishing closure from 1 February to 15 March 2009. Possibility exists to close the most sensitive sectors, move the fishing vessels, or reduce hook effort.
12	SC-CAMLR-XXVII/12	Minimise seabird access to baits (e.g. heavier IWL, 150 g m^{-1})	In progress	All vessels have been required to use IW line (50 g m^{-1}) since 2005, which allows a sink rate greater than 0.2 m s^{-1} (CCAMLR standard). IW line heavier than 50 g m^{-1} is not practicable or possible. Manual weights have been and will continue to be deployed on several vessels during periods when mortality peaks. Recording the line sink rates on all of the vessels during the next season will be done.
13	SC-CAMLR-XXVII/12	Minimum three streamer lines	Completed	Regulations are imposed to use a minimum of two streamer lines on all vessels, but in general three or more streamer lines are used.
14	SC-CAMLR-XXVII/12	Haul-mitigation device	Completed	All vessels required to use a haul-mitigation device (e.g. Brickle curtain).
15	SC-CAMLR-XXVII/BG/10 (Waugh et al. cooperative study)	*Line setting*	In progress	*Recommendations*: **Increase aerial coverage**, *increase sink rate of lines, add weights at high-risk times*, **reduce/eliminate fisheries waste discharge**, *underwater setting*, **batch dumping of offal**, **waste management strategies,** e.g. **storage during hauls and discharge between hauls,** mincing, mealing.
16	SC-CAMLR-XXVII/BG/10	*Haul mitigation*	In progress	*Recommendations*[1]: **improve Brickle curtain**, **use CCAMLR reporting procedures**, **reduce/eliminate waste discharge during hauling**, **batch offal dumping**, *active research program*, **study to tailor Brickle curtain design for vessels**.

(continued)

Table 11 (continued)

	Scientific Committee or French recommendation	Description	Status	Comments/notes
17	SC-CAMLR-XXVII/BG/10	*Hook discards*	In progress	*Recommendations*[1]: **increase awareness**, **outreach posters**, *improve filtering/waste treatment systems.*
18	SC-CAMLR-XXVII/BG/10	*Waste management*	In progress	*Recommendations*[1]: **batch dumping**, **offal retention during hauls and discharge between hauls**, *improve factory filtering system, test batching regimes.*
19	SC-CAMLR-XXVII/BG/10	*Haul curtains*	In progress	*Recommendations*[1]: **install structure needed to set up haul curtain**, **use design and custom fit for vessel which resembles the New Zealand type**, **use haul curtains at all times during hauling**.
20	SC-CAMLR-XXVII/BG/10	*Information flow*	Ongoing	*Recommendations*[1]: **reinforce exchange between CCAMLR (e.g. WG-IMAF) and TAAF**, **establish working group to advise TAAF**, **continued exchange between TAAF and scientists**, *exchange of personnel between French vessels and New Zealand or Australian vessels.* **WG-IMAF scientists reviewed cooperative study proposal and several participated in study. TAAF has participated at annual WG-IMAF meetings since 2003**.
21	SC-CAMLR-XXVII/BG/10	*Strategic framework*	Ongoing	*Recommendations*[1]: **Develop a strategic action plan that includes: by-catch reduction objectives, uptake of best-practice measures**, **specialist by-catch working group, research program, penalty regime, and education and awareness raising programs**.
22	SC-CAMLR-XXVII/BG/10	*Proposed research program*	In progress	*Recommendations*[1]: **Develop a program to consider offal management**, **streamer line design improvements in materials and aerial extent**, **and sink rate improvements.**
23	SC-CAMLR-XXVII/BG/10	*Streamer line configuration*	In progress	*Recommendations*[1]: **revision of streamer materials**, **improve aerial extent**, **vessel-specific solutions,** *attach branch streamers with swivels, multiple streamer lines (five or more)*, **increase attachment height to 7 m or more**, **use of outboard booms**, *consider wind direction when setting streamer line*, **carry replacement streamer lines and materials on board**.

[1] **Bold indicates item completed or under way.** *Italics indicates item is under consideration.* Regular font indicates no action has been taken.

Table 12: List and priority observer tasks for WG-IMAF.

User group	Data type	Description	Use	Optimal collection	Practical limitations
IMAF	Incidental mortality (high priority)	Record mortality of seabirds and marine mammals.	Estimate seabird and marine mammal mortalities within the Convention Area caused by fishing.	Observe all krill trawl hauls and appropriate proportions of finfish trawl hauls and longline hooks hauled as defined in Tables 13 and 14.	Time constraints Safety considerations Poor weather conditions
	Seabirds and marine mammal interactions with fishing gear (high priority)	Record entanglement and injury to seabirds and marine mammals.	Estimate seabird and marine mammal mortalities within the Convention Area caused by fishing.	Observe all krill trawl hauls and appropriate proportions of finfish trawl hauls and longline hooks hauled as defined in Tables 13 and 14.	Time constraints Safety considerations Poor weather conditions
		Trawl warp strikes.	Estimate risk of trawl warp strike interactions with seabirds within the Convention Area.	At least one warp strike observation per 24-hour period.	Time constraints Safety considerations Poor weather conditions
		Interaction of marine mammals with fishing vessels and gear.	To assess ecological impact of depredation.	Once per haul observation period (in conjunction with haul observations).	Time constraints Safety considerations Poor weather conditions Poor visibility
	Implementation of mitigation measures (medium priority but also required by SCIC)	Description and specification of mitigation measures (L2 data).	To assess the performance of the measures to review attainment of minimum requirements.	Once every seven days (in conjunction with sink rate tests).	Night setting limits ability to assess aerial extent Poor weather conditions Safety considerations
		TDR and bottle tests (L10 data).	To assess sink rates.	One test per 24-hour period and four tests on a single longline once per seven-day period (in conjunction with mitigation observations).	Poor weather conditions Night setting for bottle tests Safety considerations

Table 13: Summary of assessment of risk posed to seabirds from net entanglements in pelagic finfish trawl fisheries in the Convention Area (see also Figure 2).

Risk level[1]	Mitigation requirements	Recommended observer coverage
1 – low	• Strict compliance with standard seabird by-catch conservation measure[2]. • Vessels that catch a total of three birds in any season shall consider the use of net binding to reduce seabird captures during shooting operations. • No offal discharge during the shooting and hauling of trawl gear. Full offal retention where possible.	20% of sets 50% of hauls
2 – average to low	• Strict compliance with standard seabird by-catch conservation measure[2]. • Vessels that catch a total of three birds in any season shall consider the use of net binding to reduce seabird captures during shooting operations. • No offal discharge during the shooting and hauling of trawl gear. Full offal retention where possible.	25% of sets 75% of hauls
3 – average	• Strict compliance with standard seabird by-catch conservation measure[2]. • Vessels that catch a total of three birds in any season shall consider the use of net binding to reduce seabird captures during shooting operations. • No offal discharge during the shooting and hauling of trawl gear. Full offal retention where possible.	40% of sets 90% of hauls
4 – average to high	• Strict compliance with standard seabird by-catch conservation measure[2]. • Vessels that catch a total of three birds in any season shall use net binding, and consider adding weight to the codend to reduce seabird captures during shooting operations. • No offal discharge during the shooting and hauling of trawl gear. Full offal retention where possible.	45% of sets 90% of hauls
5 – high	• Strict compliance with standard seabird by-catch conservation measure[2]. • Use net binding, and consider adding weight to the codend to reduce seabird captures during shooting operations. • No offal discharge during the shooting and hauling of trawl gear. Full offal retention where possible.	50% of sets 90% of hauls

[1] Where 'risk' means seabird by-catch risk if no mitigation is used for a given level of seabird abundance.
[2] Conservation Measure 25-03.

Table 14: Summary of assessment of risk to seabirds posed by longline fisheries in the Convention Area (see also Figure 2).

Risk level	Mitigation requirements	Recommended observer coverage
1 – low	• Strict compliance with standard seabird by-catch conservation measure[1]. • No need for restriction of longline fishing season. • Daytime setting permitted subject to line sink rate requirement. • No offal dumping.	20% of hooks hauled 100% of sets[3]
2 – average to low	• Strict compliance with standard seabird by-catch conservation measure[1]. • No need for restriction of longline fishing season. • Daytime setting permitted subject to line sink rate requirements and seabird by-catch limits. • No offal dumping.	25% of hooks hauled 100% of sets[3]
3 – average	• Strict compliance with standard seabird by-catch conservation measure[1]. • Restrict longline fishing to period outside at-risk species' breeding season where known/relevant unless line sink rate requirement is met at all times. • Daytime setting permitted subject to strict line sink rate requirements and seabird by-catch limits. • No offal dumping.	40% of hooks hauled[2] 100% of sets[3]
4 – average to high	• Strict compliance with standard seabird by-catch conservation measure[1]. • Restrict longline fishing to the period outside any at-risk species' breeding season(s). • Strict line sink rate requirements at all times. • No daytime setting permitted. • No offal dumping.	45% of hooks hauled[2] 100% of sets[3]
5 – high	• Strict compliance with standard seabird by-catch conservation measure[1]. • Restrict longline fishing to period outside at-risk species' breeding season. • Closed areas as identified. • Strict line sink rate requirements at all times. • No daytime setting permitted. • Strict seabird by-catch limits in place. • No offal dumping.	50% of hooks hauled[2] 100% of sets[3]

[1] Conservation Measure 25-02 with the possibility of exemption to paragraph 5 as provided by Conservation Measure 24-02.
[2] This is likely to require the presence of two observers.
[3] Observers are requested to record whether seabird mitigation is in place at least once per set and verify that no offal is being discharged.

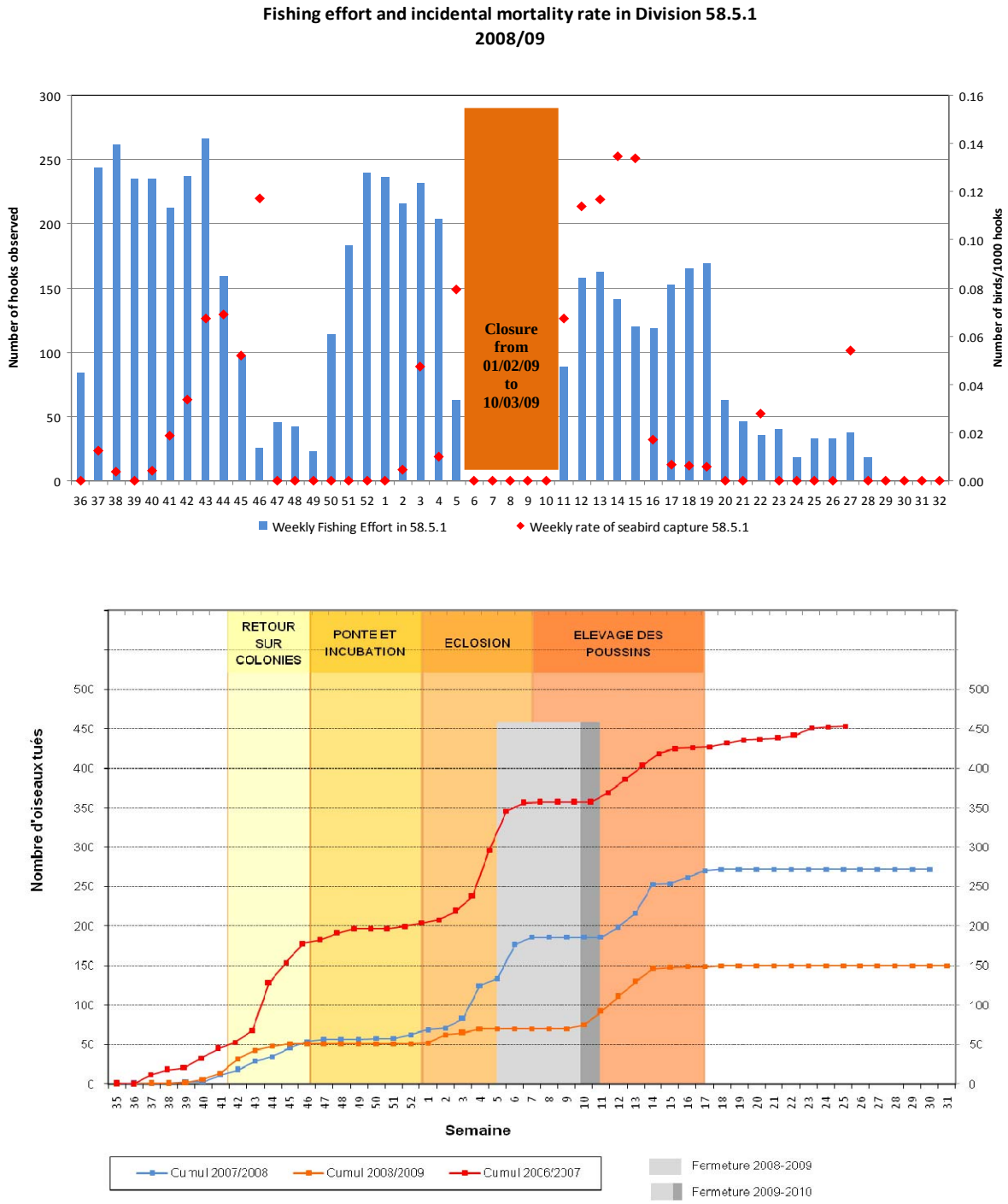

Figure 1* Trends in incidental mortality in Division 58.5.1 over the last three years (scatter plot). The figure also shows the reproductive cycle of the white-chinned petrel (coloured histogram) and periods of fishery closure (in grey).

* This figure is available in colour on the CCAMLR website.

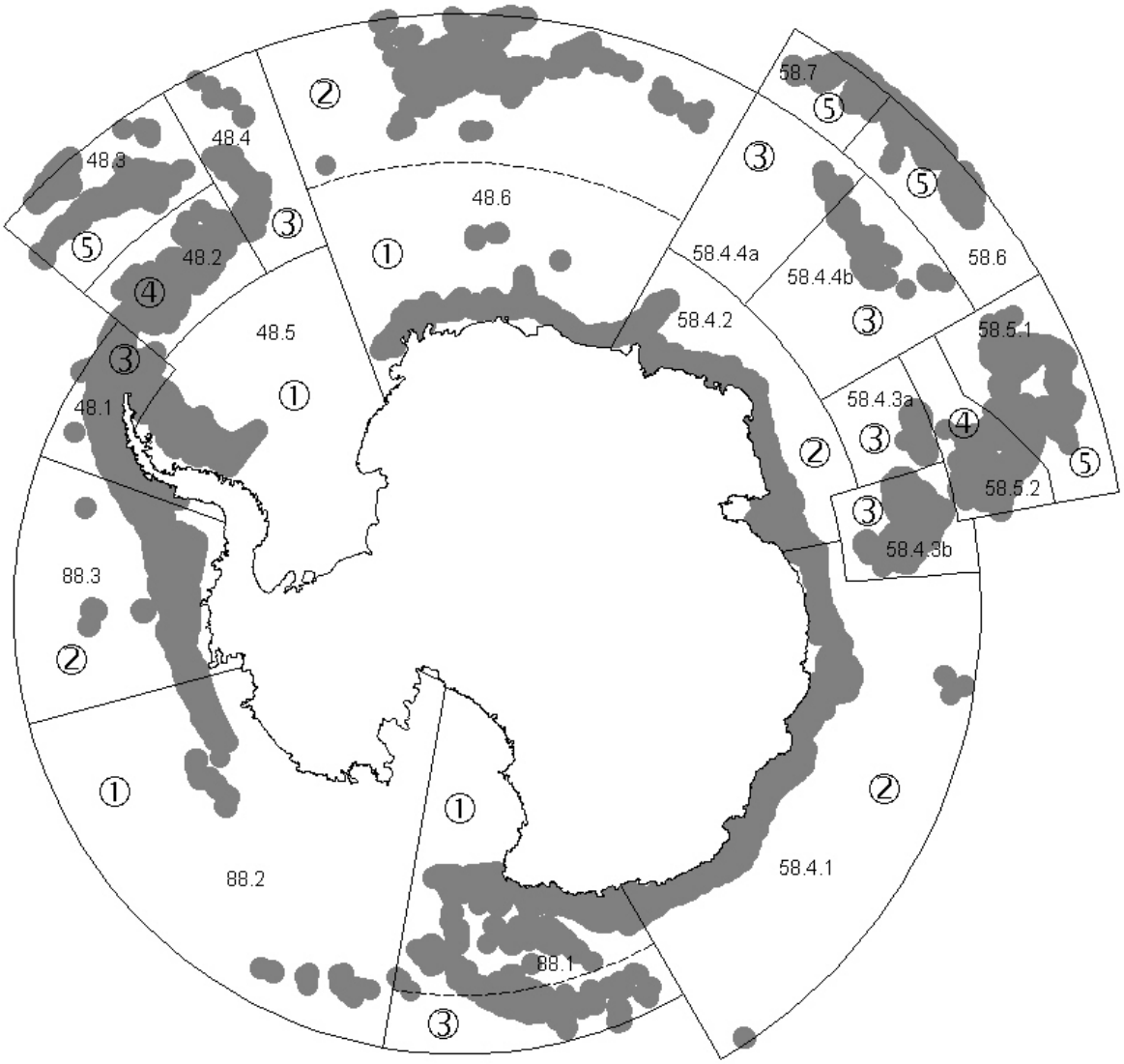

Figure 2: Assessment of the potential risk of interaction between seabirds, especially albatrosses, and longline fisheries within the Convention Area. 1: low, 2: average to low, 3: average, 4: average to high, 5: high. Shaded patches represent seabed areas between 500 and 1 800 m.

APPENDIX A

AGENDA

Working Group on Incidental Mortality Associated with Fishing
(Hobart, Australia, 12 to 16 October 2009)

1. Introduction

    1.1 Opening of the meeting
    1.2 Adoption of the agenda, appointment of rapporteurs and subgroups

2. Intersessional work of WG-IMAF

3. Incidental mortality of seabirds and marine mammals in fisheries in the Convention Area

    3.1 Seabirds
    3.2 Marine mammals
    3.3 Information relating to the implementation of Conservation Measures 25-02 (2008), 25-03 (2003), 26-01 (2008), 24-02 (2008) and 51-01 (2008)
    3.4 Review of action plans to eliminate seabird mortality

4. Incidental mortality of seabirds and marine mammals in fisheries outside the Convention Area

5. Incidental mortality of seabirds during IUU fishing in the Convention Area

6. Research into and experience with mitigation measures

7. Observer reports and data collection

8. Research into the status and distribution of seabirds

9. Assessments of risk in CCAMLR subareas and divisions

10. Incidental mortality of seabirds in relation to new and exploratory fisheries

    10.1 New and exploratory fisheries operational in 2008/09
    10.2 New and exploratory fisheries proposed for 2009/10

11. International and national initiatives relating to incidental mortality of seabirds in relation to longline fishing

    11.1 Coordination with ACAP
    11.2 International and national initiatives

12. Fishery reports

13. Marine debris

14. Streamlining the work of the Scientific Committee

15. Other business

16. Advice

17. Adoption of the report and close of the meeting.

APPENDIX B

LIST OF PARTICIPANTS

Working Group on Incidental Mortality Associated with Fishing
(Hobart, Australia, 12 to 16 October 2009)

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APPENDIX C

LIST OF DOCUMENTS

Working Group on Incidental Mortality Associated with Fishing
(Hobart, Australia, 12 to 16 October 2009)

WG-IMAF-09/1	Provisional Agenda and Provisional Annotated Agenda for the 2009 Meeting of WG-IMAF
WG-IMAF-09/2	List of participants
WG-IMAF-09/3	List of documents
WG-IMAF-09/4 Rev. 2	A summary of observations on board longline vessels operating within the CCAMLR Convention Area during the 2008/09 season Secretariat
WG-IMAF-09/5 Rev. 2	Summary of observations aboard trawlers operating in the Convention Area during the 2008/09 season Secretariat
WG-IMAF-09/6 Rev. 2	A summary of scientific observations related to Conservation Measures 25-02 (2008), 25-03 (2003) and 26-01 (2008) Secretariat
WG-IMAF-09/7	Summary of observations aboard pot vessels operating in the Convention Area during the 2008/09 season Secretariat
WG-IMAF-09/8	Review of CCAMLR activities on monitoring marine debris in the Convention Area Secretariat
WG-IMAF-09/9	Beached marine debris surveys and incidences of seabird/marine mammal entanglements and hydrocarbon soiling at Bird Island, South Georgia, and Signy Island, South Orkneys, 2008–2009 C.M. Waluda (United Kingdom)
WG-IMAF-09/10	Ingestion of fishing gear and entanglements of seabirds: implications for monitoring and management R.A. Phillips, C. Ridley, N. Harrison (United Kindom), K. Reid (Secretariat), G.N. Tuck (Australia) and P.J.A. Pugh (United Kingdom)

WG-IMAF-09/11	Proposal to move the start date of the fishery for *Dissostichus eleginoide*s in Subarea 48.3 Delegation of the United Kingdom
WG-IMAF-09/12	Interactions of Patagonian toothfish fisheries with killer and sperm whales in Crozet Exclusive Economic Zone: an assessment of depredation levels and insights on possible mitigation solutions P. Tixier, N. Gasco, G. Duhamel and C. Guinet (France) (*CCAMLR Science*, submitted)
WG-IMAF-09/13	BirdLife International Global Procellariforme Tracking Database – 2008 update B. Sullivan (BirdLife International)
WG-IMAF-09/14	Mitigation of seabird captures during hauling in CCAMLR longline fisheries E. Reid, B. Sullivan (BirdLife International), K. Reid (Secretariat) and J. Clark (United Kingdom) (*CCAMLR Science*, submitted)
WG-IMAF-09/15	Development of effective mitigation to reduce seabird mortality in the icefish (*Champsocephalus gunnari*) trawl fishery in Subarea 48.3 B. Sullivan (BirdLife International), J. Clark (United Kingdom), K. Reid (Secretariat) and E. Reid (BirdLife International)
WG-IMAF-09/16	Update on items of interest to WG-IMAF N. Walker (New Zealand)
WG-IMAF-09/17	Agreement on the Conservation of Albatrosses and Petrels – Report to ad hoc WG-IMAF Submitted by ACAP