

INCIDENTAL MORTALITY

5.1 The Scientific Committee reviewed the report of ad hoc WG-IMAF (Annex 6). It endorsed the report and its conclusions, and the plan of intersessional work (Annex 6, Table II.21) subject to the comments set out below.

5.2 The Scientific Committee invited Members to review the membership of ad hoc WG-IMAF and to facilitate the attendance of their representatives at its meetings, especially South American members. Further, where possible and appropriate, the attendance of technical coordinators would be beneficial to ad hoc WG-IMAF, WG-FSA and the general coordination of the observer program (Annex 6, paragraph I.1).

Incidental mortality of seabirds and marine mammals in fisheries in the Convention Area in 2006/07

5.3 The Scientific Committee noted that:

- (i) the total number of observed seabird mortalities in longline fisheries in 2006/07, except for in the French EEZs in Subarea 58.6 and Division 58.5.1, was zero. This compared to two birds estimated killed, except for in the French EEZs in Subarea 58.6 and Division 58.5.1, in 2005/06 (Annex 6, paragraph I.2). When seabird mortalities reported from the French EEZs in Subarea 58.6 and Division 58.5.1 are included, the total extrapolated seabird mortalities during longline fishing operations in 2006/07 were estimated to be 2 257. This estimate includes 313 birds in Subarea 58.6 and 1 944 birds in Division 58.5.1 (Annex 6, Table II.5) and represents a 13% decrease from the combined total estimated by-catch for Subarea 58.6 and Division 58.5.1 in the previous season (Annex 6, paragraph I.6 and Table II.6).
- (ii) for the second consecutive year, no albatrosses were observed captured in longline fisheries in the Convention Area (Annex 6, paragraph I.2) and for the first year, zero birds were observed captured in longline fisheries in the Convention Area aside from the French EEZs (Annex 6, Table II.2);
- (iii) in the Subarea 48.3 icefish trawl fishery, six seabirds, including both albatrosses and petrels, were observed killed and another three released alive and uninjured (Annex 6, paragraph I.11 and Table II.11). The rate of mortality in this subarea in 2007 was 0.07 birds per trawl compared to 0.07, 0.14, 0.37 and 0.20 in 2006, 2005, 2004 and 2003 respectively (Annex 6, paragraph I.11 and Table II.12);
- (iv) there were two seabird mortalities observed in the Division 58.5.2 trawl fishery, an increase from the zero mortality in 2006 but below the level observed in 2005 (Annex 6, Table II.12);
- (v) there were no seabird mortalities observed in the krill trawl fisheries in Area 48 (Annex 6, paragraph I.12) or any of the pot fisheries (Annex 6, paragraph I.13).

- (vi) three marine mammal mortalities in longline fisheries were reported in longline gear in 2006/07 compared to no reports of incidental mortality in 2005/06 and no marine mammals were reported entangled and released alive in longline fisheries this year, down from two in 2005/06 (Annex 6, paragraph I.14);
- (vii) no marine mammals were reported entangled or killed in the krill trawl fisheries in Area 48 in 2006/07 compared to 95 Antarctic fur seals (*Arctocephalus gazella*) in 2004/05 and one in 2005/06 (Annex 6, paragraph I.15);
- (viii) no marine mammals were reported entangled or killed in the finfish trawl fisheries in 2006/07, down from one that was caught and killed in the Division 58.5.2 toothfish trawl fishery in 2005/06, and no reports of incidental mortality of marine mammals in pot fisheries (Annex 6, paragraphs I.16 and I.17).

5.4 The Scientific Committee noted that 100% of reported seabird captures in the Convention Area, except for in the French EEZs in Subarea 58.6 and Division 58.5.1, were during longline hauling (Annex 6, paragraph I.3, Table II.1). Similar to the past two years, 32% of seabirds observed captured were caught alive in the French EEZs in Subarea 58.6 and Division 58.5.1 (Annex 6, paragraph II.15). This emphasises again this year a need to increase the focus on haul mitigation measures to reduce the remaining seabird by-catch in longline fisheries in the Convention Area (Annex 6, paragraph I.3).

5.5 The Scientific Committee noted the ongoing efforts to use and develop effective mitigation measures in the French EEZ fisheries and that France continues to reduce its total seabird by-catch (13% decrease from the previous season) (Annex 6, paragraphs I.4 to I.6). However, the seabird captures during longline fishing in the French EEZs are the only remaining substantial seabird by-catch in the Convention Area. The Scientific Committee recommended that France strive to eliminate the incidental mortality of seabirds in accordance with CCAMLR policies and practices (Annex 6, paragraph I.7).

5.6 With respect to the French EEZs in Subarea 58.6 and Division 58.5.1, the Scientific Committee recommended that France (Annex 6, paragraphs I.8 and I.9):

- (i) consider using observers to collect additional data describing fishing activity and mitigation measures (Annex 6, paragraph II.19);
- (ii) submit a detailed analysis of petrel population responses to fisheries and environmental factors for review to WG-SAM, and that WG-SAM report on the review to ad hoc WG-IMAF in 2008 (Annex 6, paragraph II.20);
- (iii) submit all relevant raw by-catch data in the appropriate format, as is done for other Convention Area subareas and divisions, to allow reporting on the total seabird by-catch for the entire Convention Area (Annex 6, paragraph II.21);
- (iv) conduct analyses to address high capture rates on a few vessels, specifically addressing operational problems in the fishery (Annex 6, paragraph II.22);
- (v) consider broadening the set of mitigation measures used, particularly during the haul (Annex 6, paragraphs II.25 to II.26);

- (vi) work closely with ad hoc WG-IMAF participants to facilitate further research into the nature of seabird captures and consider experimental trials (Annex 6, paragraph II.27);
- (vii) utilise analyses of the factors that led to seabird by-catch within its EEZs to improve the direction of management actions intended to reduce seabird by-catch (Annex 6, paragraph II.29);
- (viii) urgently submit a strategic plan to eliminate seabird mortality which includes details of implementation targets for recommended mitigation devices, establishment of by-catch targets reducing each year to near-zero levels in less than three years, and the implementation of additional seasonal and area closures if targets are not met (Annex 6, paragraph II.30);
- (ix) submit a detailed paper describing the full set of regulatory instruments in place to reduce seabird mortality directly or indirectly (Annex 6, paragraph II.31).

5.7 Prof. Duhamel shared information about France's continuous efforts since 2001 to address reductions in seabird by-catch along with eliminating IUU fishing in the French EEZs which has resulted in an associated reduction of seabird by-catch. As in the rest of the Convention Area, albatross mortalities have been reduced to zero in the French EEZs. Based on an evaluation of fishery impacts on the petrel populations at Crozet and Kerguelen Islands (SC-CAMLR-XXVI/BG/22), the current incidental mortalities are not negatively impacting the petrel populations. France is not satisfied with these results and will pursue additional measures through an action plan it will implement. The action plan's objective is to reduce the current level of incidental mortality by a factor of two over the next three years. France will submit a report annually to ad hoc WG-IMAF on the progress and intermediate results of its action plan. The action plan items are as follows:

- (i) all relevant by-catch data in the CCAMLR format will be submitted in 2008;
- (ii) continue full implementation of CCAMLR conservation measures (sink rates of lines, streamer lines, setting at night, offal discharge);
- (iii) continue analysis of the causal links between fishing and incidental mortality, including new data collections concerning offal discharge, streamer line characteristics, line sink rates, use of other mitigation devices or practices, experience of the vessel master and key crew members, and condition of baits at the point of setting;
- (iv) consideration of new regulations based on new analyses;
- (v) use of real-time data to monitor individual vessels and implement current regulations that allow for moving a high by-catch vessel out of a zone or suspending its fishing;
- (vi) seasonal closure at Kerguelen Island during part of the breeding season;
- (vii) consider using practices similar to those by New Zealand's large autoline vessels outside the Convention Area;

- (viii) use of haul mitigation measures on all vessels;
- (ix) identify areas with particularly high concentrations of seabirds;
- (x) implement alternative gear types like pots that could contribute to reductions in seabird incidental mortality;
- (xi) these efforts will involve cooperation between managers, scientists, shipowners and fishers.

5.8 Many Members thanked France for its commitment and continued efforts to reduce seabird by-catch and to work jointly with ad hoc WG-IMAF and other Members which have effectively addressed this problem. Dr Constable encouraged France to attend WG-SAM as it considers the French analysis of fishery impacts on petrel populations. He noted that CCAMLR's practices have aimed for avoidance or mitigation of seabird by-catch and always strive for zero by-catch.

5.9 The Scientific Committee was encouraged by France's action plan and its agreement to submit the full suite of data in CCAMLR format, and recognised that full avoidance of fishing during the petrel's breeding season could result in substantial reductions in the by-catch, noting however some concerns of IUU fishing that might then occur. It also recognised that France will have the ability to monitor the performance of individual vessels, given that the vast majority of the by-catch is coming from specific vessels. Prof. Duhamel assured the Scientific Committee that France will examine those vessels and the skippers, as well as consider the fishing zone and a whole range of factors to identify all causal links associated with the by-catch.

5.10 Dr J. Pierre (New Zealand) was supportive of France's indication of continued and enhanced data collection and reporting and offered New Zealand's assistance with France's efforts in by-catch reduction. Prof. Duhamel appreciated this offer and thanked Dr S. Waugh (New Zealand) in particular for her assistance to France during the ad hoc WG-IMAF meeting.

5.11 The Scientific Committee looked forward to detailed submissions of information from France in 2008 to address its recommendations in paragraph 5.6.

5.12 The Scientific Committee noted that the continuing decreases in incidental mortality in the Convention Area were positive and in particular noted the significance of having no albatross mortality observed in the Convention Area longline fisheries in 2006/07. The by-catch in most areas is zero or near-zero and substantial reductions have occurred in the French EEZs. This accomplishment has resulted from the pioneering work of Prof. Croxall, the hard work of ad hoc WG-IMAF, and by the Members and fishers which have implemented the advice of WG-IMAF. All involved should be commended. The Scientific Committee's job will be to maintain this efficacy and diligence and to not become complacent in matters of seabird by-catch reduction.

5.13 The Scientific Committee noted the positive result this year with the reduction in marine mammal mortalities. However, whilst this is good news, the need for continued vigilance and monitoring of incidental mortality in fisheries was emphasised, recollecting that three years ago seal by-catch in trawl fisheries was a new and difficult issue. The Scientific

Committee further noted the need for improved reporting of the use of mitigation measures in all trawl fisheries so that the measures used successfully could be documented and made available more widely.

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

5.14 The Scientific Committee noted that this year the level of reported performance was improved with 100% implementation for nearly all measures (Annex 6, paragraph I.18). The reported implementation of Conservation Measures 26-01, 25-02 and 25-03 is summarised as follows:

- (i) With respect to Conservation Measure 26-01, observer reports indicated 100% implementation of this measure (Annex 6, paragraph I.23).
- (ii) With respect to Conservation Measure 25-02 –
 - (a) line weighting (Spanish system) – 100% reported implementation in all subareas and divisions (Annex 6, paragraph I.18(i) and Table II.16);
 - (b) line weighting (autoline system) – all vessels in high-latitude areas fishing in daylight met the requirement to achieve a consistent minimum line sink rate as described in Conservation Measure 24-02. Only one vessel using a variation on the autoline method used clip-on weights to achieve its sink rate requirements. All autoline vessels are now using IWLs. The vessel using a trotline system met the sink rate requirements in Subarea 48.6 (Annex 6, paragraph I.18(ii));
 - (c) night setting and offal discharge – 100% reported implementation with night setting, and also for control of offal discharge in all areas where this was required (Subareas 48.3, 48.4, 58.6 and 58.7) (Annex 6, paragraph I.18(iii) and Table II.16). In areas where offal retention is required (Subareas 48.6, 88.1 and 88.2, Divisions 58.4.1, 58.4.2, 58.4.3a, 58.4.3b and 58.5.2), all but two vessels implemented fully (Table II.16). The *Tronio*, fishing in Divisions 58.4.1 and 58.4.3b, discharged offal on seven occasions due to mechanical problems. The *Ross Mar*, fishing in Subarea 88.1, was observed discarding offal during one haul (Annex 6, paragraph II.50);
 - (d) discard of hooks – hooks were present in discards on 3 of 39 longline cruises; on two of these this was reported as a rare event. However, the observer on board the *Insung No. 22* in Subarea 48.3 reported there was no system in place for removing hooks from discards and the discarding of offal with hooks present was a daily occurrence (Annex 6, paragraph I.18(iv); WG-FSA-07/8 Rev. 1, Table 1);
 - (e) streamer lines – the number of cruises complying with streamer line specifications has increased from 80 to 87% this year (Annex 6, paragraph I.18(v) and Table II.16). However, most of the non-compliant

vessels had only minor deviations from the requirement. The cruises where streamer lines did not comply failed on streamer lengths (3 cruises), total streamer line length (1 cruise) and branched streamer spacing (1 cruise). One of these vessels, the *Viking Sur*, also failed on two specifications in 2005/06. There was 100% compliance with attachment height (Annex 6, paragraph I.18(v) and Table II.16);

- (f) haul-scaring devices – one vessel in Subarea 48.3 (*Insung No. 22* (87%)), and one vessel in two cruises in Subareas 58.6 and 58.7 (*Ross Mar* (0%)) did not use haul-scaring devices on all hauls. In all other areas there was 100% compliance (Annex 6, paragraph I.18(vi) and Table II.16).

(iii) With respect to Conservation Measure 25-03 –

- (a) a range of mitigation measures were used on board icefish vessels in Subarea 48.3 and Division 58.5.2 (Annex 6, paragraph I.24);
- (b) compliance with Conservation Measure 25-03 was generally good with an exception that two vessels were reported as having used net sonde cables (Annex 6, paragraphs I.24 and I.25).

5.15 The Scientific Committee noted the low number of bottle tests for some vessels (Annex 6, paragraph I.20) and reported further increases in the discharge of gear debris, which occurred on five vessels and included the discharge of oil from the *Insung No. 1* (Republic of Korea) and *Ross Star* (Uruguay), the discharge of gear debris from the *Insung Ho* (Republic of Korea) and *Antartic II* (Argentina), and the discharge of inorganic garbage from the *Insung Ho* (Republic of Korea), *Ross Mar* (South Africa) and *Antartic II* (Argentina). This included fishing gear, small sections of line, snoods and plastics (Annex 6, paragraph I.21).

5.16 The Scientific Committee noted that although implementation of these conservation measures is improving, there are still some instances of non-implementation (streamer line design and use, discard of offal, discard of hooks, line-weighting bottle tests, discharge of gear debris and use of net sonde cables (Annex 6, paragraphs I.18 to I.21 and I.25). The Scientific Committee expressed concern as it did last year (SC-CAMLR-XXV, paragraph 5.16) at the reported discarding of hooks in offal, given the reports that nest surveys had found a high and increasing level of hooks around nests of wandering albatrosses (Annex 6, paragraph I.19). Dr Constable noted that non-implementation of measures poses the greatest challenge in maintenance of highly effective measures at reducing seabird by-catch. The loss of hooks, both inside and outside the Convention Area, is very important in terms of the potential impacts to Convention Area seabirds. The Scientific Committee recommended that at its meeting in 2008, ad hoc WG-IMAF consider the issue of hook loss and possible ways to reduce this loss, particularly if the problem is related to when the gear is being hauled and the fish retrieved.

Incidental mortalities of seabirds during fishing outside the Convention Area

5.17 The Scientific Committee noted a verbal report to ad hoc WG-IMAF on new information about documented high levels of mortality of Convention Area seabirds in pelagic longline fisheries in southern African waters (Annex 6, paragraph I.27). The Scientific Committee further noted that, when coupled with the levels of mortality reported in 2006 for the South African deep-water hake trawl fishery, it is of great concern that many thousands of albatrosses are estimated to be killed annually in these fisheries, including ca. 5 000 (95% CI 3 000–12 500) black-browed albatrosses, thought to predominantly be from the population breeding at South Georgia (SC-CAMLR-XXV, Annex 5, Appendix D, paragraph 68).

5.18 Given that considerably greater levels of mortality of Convention Area seabirds occur in areas north of the Convention Area, compared to levels within the Convention Area, the Scientific Committee reminded Members of the importance of the standing request to report on seabird mortality for Convention Area species arising from fisheries conducted outside the Convention Area (Annex 6, paragraph I.28; SC-CAMLR-XXV, Appendix D, Table 20, item 3.2).

Incidental mortality of seabirds during unregulated longline fishing in the Convention Area

5.19 The Scientific Committee noted that the overall estimated total for the whole Convention Area in 2006/07 indicates a potential seabird by-catch in the unregulated fishery of 8 212 (95% CI 6 730–21 926) seabirds (SC-CAMLR-XXVI/BG/32; Annex 6, paragraph I.29 and Table II.18).

5.20 In comparison with estimates for previous years, calculated in identical fashion, the value for 2006/07 is broadly similar to the values estimated for the last three years (SC-CAMLR-XXVI/BG/32). These are the lowest reported values since estimates started in 1996. This may appear paradoxical since IUU fishing has increased in the last three years (Annex 5, Table 3). However, the Scientific Committee noted that although IUU levels have increased, these catches have been taken in more southerly areas than previously, where the probability of encountering birds is reduced. This has resulted in an overall decrease in estimated seabird by-catch.

5.21 As in previous years, it was emphasised that these are very approximate estimates (with potentially large errors). The estimates should only be taken as indicative of the potential levels of seabird mortality occurring in the Convention Area due to unregulated fishing and should be treated with caution. In particular, changes in gear type seen in the regulated fishery would undoubtedly have flowed through to IUU vessels. These gear changes, together with the use of gillnets by IUU vessels, will affect the levels of IUU fisheries-related by-catch, but are not reflected in the assumptions used to develop these estimates (Annex 6, paragraph I.32).

5.22 Nevertheless, the Scientific Committee reiterated its conclusions of recent years that even these levels of incidental mortality of seabirds arising from IUU fishing were of

substantial concern and likely unsustainable for some of the populations concerned (Annex 6, paragraph I.33). The Commission was encouraged to continue to take action in respect of incidental mortality of seabirds caused by IUU fishing.

Research into and experience with mitigation measures

5.23 The Scientific Committee noted:

- (i) the success to date within the Convention Area in reducing seabird by-catch, but that the mitigation measures used continue to require refinement to potentially allow for fishing at any time of day without seasonal closure of fishing grounds (Annex 6, paragraph I.34);
- (ii) as CCAMLR mitigation measures and practices have been held up as a role model outside the Convention Area, and successfully exported to some of those fisheries, research into mitigation measure refinement remains a priority to support the export of best-practice mitigation (Annex 6, paragraph I.34);
- (iii) a modification of the Spanish longline system (trotline/net system) being used extensively throughout South American fisheries that sinks gear quickly beyond the range of foraging seabirds and is reported to eliminate seabird by-catch and significantly reduce whale depredation with no loss in toothfish CPUE when compared to the Spanish longline system (Annex 6, paragraph I.35);
- (iv) plans to conduct a trial inside the Convention Area to compare the effectiveness of the trotline/net system with the traditional Spanish system in reducing fish loss to toothed whales (Annex 6, paragraph I.36);
- (v) that potential options for discharge management in trawl fisheries, such as underwater discharge and maceration, had not been tested to their full potential either inside or outside the Convention Area (Annex 6, paragraph I.42).

5.24 Based on the results of trials that examined the sink rate relationships between traditional Spanish system weights (netting bags of rocks) and elliptical, or torpedo-shaped, steel weights (Annex 6, paragraph I.37), the Scientific Committee recommended that Conservation Measure 25-02 be modified to provide Spanish longline-system vessel operators the option of using either traditional weights (netting bags of rocks) under the current two mass/spacing regimes or, steel weights (solid steel and not chain links) under a mass spacing regime of ≥ 5 kg mass spaced at intervals of no more than 40 m. The revision would also mean renumbering the existing footnotes 4 to 6 as 6 to 8. Paragraph 3 of Conservation Measure 25-02 would be revised to read as follows:

- (i) Vessels using the Spanish method of longline fishing should release weights before line tension occurs; traditional weights⁴ of at least 8.5 kg mass shall be used, spaced at intervals of no more than 40 m, or traditional weights⁴ of at least 6 kg mass shall be used, spaced at intervals of no more than 20 m, or solid steel weights⁵ of at least 5 kg mass shall be used, spaced at intervals of no more than 40 m.

- (ii) Footnotes 4 and 5 would read: ⁴ Traditional weights are those made from rocks contained within a net bag; ⁵ Solid steel weights shall not be made from chain links. They should be made in a hydrodynamic shape designed to sink rapidly.

5.25 Dr Holt noted some concern for a new gear type, trotline/net, in that it was essential to collect information about its characteristics and fully understand its impacts on seabirds and other taxa. Mr Smith noted the ad hoc WG-IMAF advice in Annex 6, paragraph I.46. Prof. Moreno highlighted the extensive and rigorous testing that has already occurred for this new trotline/net system in areas of high albatross abundance (WG-FSA-07/14). Experiments with over 4 million hooks resulted in zero bird mortalities. This is not actually a new gear type but rather a modification of one already used in Chile. The gear exhibits sink rates that quickly sink the gear to depths where birds cannot reach the baited hooks. Several other South American countries began to use this gear in demersal fisheries in areas adjacent to the Convention Area during times when seabird abundance was high. It will be important to undertake a comparison between the traditional Spanish longline system and this trotline/net system. Mr Smith noted that these comparisons would need to include consideration of impacts on other taxa besides seabirds and cetaceans.

5.26 Prof. O. Pin (Uruguay) noted the use of this gear system by Uruguayan vessels and an analysis conducted to measure the sink rate of this gear and its impacts on seabirds (WG-FSA-07/23). The Scientific Committee appreciated these efforts and hoped to have South American colleagues join in the meetings of ad hoc WG-IMAF and WG-FSA.

5.27 Dr Constable concurred that information on use and impacts of new gear types is essential and hoped that the collection of vessel and technical gear information directly from the vessels would assist with future gear issues.

5.28 The Scientific Committee recommended that the Secretariat obtain data and details from Members on vessels, gear type, method of deployment and mitigation measures. Ideally this information could be archived at CCAMLR.

5.29 With respect to future improvements to Conservation Measures 24-02 and 25-02, the Scientific Committee recommended:

- (i) testing the efficacy of the new trotline/net longline system line-weighting regime as a seabird deterrent and for operational characteristics (Annex 6, paragraph I.40);
- (ii) expanding any trials inside the Convention Area to include as many Spanish longline vessels as possible to increase the data acquisition rate on the trotline/net method and enable CCAMLR to quickly understand the comparative effects of the two gear types (Annex 6, paragraph I.36);
- (iii) that any use of the new trotline/net longline system in the Convention Area should comply with all requirements of Conservation Measure 25-02 (Annex 6, paragraph I.35);
- (iv) testing the effectiveness of paired streamer lines in Southern Ocean conditions with common seabird assemblages (Annex 6, paragraph I.40);

- (v) testing the utility of net binding as appropriate in Convention Area pelagic finfish trawl fisheries (Annex 6, paragraph I.44);
- (vi) that CCAMLR produce a poster instructing crews to remove hooks from all landed fish and hauled baits. The estimated cost of the production of such posters is AU\$5 000 (Annex 6, paragraph I.38).

5.30 Having expressed concern about UK reports that nest surveys had found a high and increasing level of hooks around nests of wandering albatrosses and embedded in wandering albatrosses (paragraph 5.16), the Scientific Committee strongly encouraged the UK and others to present papers to ad hoc WG-IMAF on survey work and, in particular, hook ingestion and hook body piercing, to its 2008 meeting (Annex 6, paragraph I.38).

5.31 The Scientific Committee, recognising the financial implications of producing a poster, recommended that (Annex 6, paragraph I.39):

- (i) CCAMLR produces the A3 poster in colour, in all CCAMLR languages, as well as Indonesian, Korean and Japanese. It should be waterproof and on plastic for display in wet areas on vessels;
- (ii) the Secretariat distributes the poster via technical coordinators to all longline vessels operating in the Convention Area early in the 2008 season as a priority;
- (iii) the Secretariat, via technical coordinators, instructs vessel operators to display a poster in at least four strategic locations on vessels, including in fish processing factories, in line hauling bays in easy view of crews hauling gear, and in areas inboard of hauling areas where crews process hauled baits/hooks;
- (iv) scientific observers be instructed to report on whether the poster is displayed on vessels and reminded of the need to monitor hook removal;
- (v) Members operating the Spanish method of longlining (both traditional and trotline methods) outside the Convention Area adopt the use of the poster and provide posters to their longline vessels for on-board display (Annex 6, paragraphs II.94 and II.95).

5.32 Dr Agnew supported the poster proposal and noted its utility especially for Members fishing outside the Convention Area where Convention Area seabirds are being encountered. Given the reports of documented by-catch of sub-Antarctic seabirds from the Convention Area in fisheries in the Benguela Current and associated seabird population declines (Annex 6, paragraphs II.63 and II.64), South Africa and Namibia would be in a good position to share this poster with the Angolan longline fleet.

Observer data collection

5.33 The Scientific Committee supported the proposal of the Secretariat that Members (Annex 6, paragraph I.45):

- (i) develop a standard set of training and educational standards to augment current domestic training programs;
- (ii) consider the feasibility of developing a process whereby national observer programs are accredited to consistent international standards;
- (iii) encourage and support national technical coordinators to attend WG-FSA and ad hoc WG-IMAF meetings and consider maximising such opportunities by convening training workshops for coordinators.

5.34 The Scientific Committee reviewed data collection needs relative to several areas of seabird and marine mammal interaction and mitigation and recommended additions or changes to logbooks and cruise reports, including:

- (i) improved reporting on the use of net sonde cables (Annex 6, paragraph II.60);
- (ii) net binding (Annex 6, paragraph II.117);
- (iii) distinguishing which of the three longline fishing methods, or combination of, was in use on a vessel, either the Spanish system, autoline system or the trotline system (paragraph 13.12; Annex 6, paragraph II.11);
- (iv) improved reporting on the warp-strike protocol (Annex 6, paragraphs II.120, II.123 and II.125);
- (v) information on haul mitigation devices used in the Convention Area (Annex 6, paragraphs II.108 and II.109).

5.35 The Scientific Committee reiterated its 2006 recommendation that coverage of the krill fishery be increased to allow for adequate and representative sampling across all trawl fisheries for monitoring of by-catch and efficacy of mitigation measures (Annex 6, paragraph I.10).

5.36 The Scientific Committee noted concern that the reported percentage of hooks observed fell below the recommended minimum of 20% on several vessels in 2006/07 (as low as 0%) (Annex 6, paragraph I.47). The Scientific Committee also noted that vessels are capable of having 100% of hooks observed, as demonstrated by the *Antillas Reefer* (Annex 6, Table II.1).

5.37 The Scientific Committee recognised that a careful balance is needed when tasking observer duties; accordingly, priorities must be identified and established. In making the recommendations in paragraph 5.34, the Scientific Committee noted the general review of the implementation of the observer program (Annex 5, paragraph 11.11).

Assessment of risk in CCAMLR subareas and divisions

5.38 The assessment of potential risk of interactions between seabirds and fisheries for all statistical areas in the Convention Area was reviewed, revised and provided as advice to the Scientific Committee and Commission (SC-CAMLR-XXVI/BG/31). There were no changes to levels of risk this year (Annex 6, paragraph I.51).

5.39 The Scientific Committee noted a tabled description of the ad hoc WG-IMAF risk assessment (WG-FSA-07/P2) and recommended that the Secretariat assist in the dissemination of this paper, including to other RFMOs which could consider the experience of CCAMLR when developing approaches to minimising by-catch in their own fisheries (Annex 6, paragraph I.52).

5.40 The Scientific Committee noted the revised risk assessment, originally confined to longline fisheries, was extended to trawl fisheries this year following a request last year from the Commission (Annex 6, paragraph I.53; CCAMLR-XXV, paragraphs 5.21 to 5.24). The assessments now incorporate advice on operational measures that should be applied to pelagic trawling operations for all CCAMLR statistical subareas and divisions to minimise by-catch (Annex 6, paragraph I.54 and Table II.19; SC-CAMLR-XXVI/BG/31).

5.41 The Scientific Committee noted the advice of ad hoc WG-IMAF (Annex 6, paragraphs I.53 to I.55 and Table II.19) about a suite of best-practice mitigation measures known to assist in reducing seabird by-catch in pelagic finfish trawl fisheries to a best-practice outcome of zero. The Scientific Committee noted that the individual effect of each mitigation measure is not known and that existing fisheries have achieved zero or near-zero seabird by-catch by effectively using differing combinations of mitigation measures as contained in Annex 6, Table II.19. The Scientific Committee recognised that, by virtue of their current by-catch levels, those fisheries are already achieving a best-practice outcome and endorsed the advice of WG-IMAF that there was no need for additional mitigation for these fishing operations.

5.42 The Scientific Committee endorsed the view that best-practice for new entrants to existing fisheries and for new pelagic finfish trawl fisheries would be to apply the full suite of mitigation measures identified in Annex 6, Table II.19, unless it could be demonstrated that individual measures are not needed to achieve zero or near-zero seabird by-catch. It also noted the advice of ad hoc WG-IMAF that there may be operational and management considerations in different fisheries that preclude the use of one or more measures and others may need to be used in their place to achieve the same outcome.

5.43 The Scientific Committee noted that, with respect to pelagic trawling gear for krill and demersal trawling gear targeting finfish where offal retention occurs, no clear evidence is available to suggest that these methods pose a serious risk to seabirds in the Convention Area at this stage (Annex 6, paragraph I.56). For this reason, mitigation measures additional to those required by Conservation Measure 25-03 are not considered necessary at present for these gear types.

5.44 The Scientific Committee noted ad hoc WG-IMAF's advice that a proposed relaxation of the limitation of icefish catch that may be taken between 1 March and 31 May in Subarea 48.3 and the requirement to undertake research trawls in this period is unlikely to lead to an increased risk to seabirds from this fishery, provided that the best-practice mitigation measures are used year-round (Annex 6, paragraph I.57).

5.45 The Scientific Committee endorsed WG-IMAF's advice on a proposed season extension in Division 58.5.2 (season is currently 1 May to 31 August), with the following caveats (Annex 6, paragraph I.58):

- (i) 1 to 14 September could be included in the core season and not subject to the three-seabird by-catch limit;
- (ii) the three-seabird by-catch limit should continue to apply to fishing during the periods from 15 to 30 September and 15 to 30 April;
- (iii) the season extension can extend from 1 to 31 October, subject to a three-seabird by-catch limit.

Incidental mortality of seabirds in relation to new and exploratory fisheries

5.46 The Scientific Committee noted that:

- (i) of the 41 applications for exploratory longline fisheries for 2006/07, 28 were undertaken (Annex 6, paragraph I.59). No incidental seabird mortality was observed;
- (ii) the 44 proposals by 12 Members for exploratory fisheries in seven subareas/divisions of the Convention Area in 2007/08 were addressed in relation to the advice in Annex 6, Figure II.2 and Table II.20 and SC-CAMLR-XXVI/BG/31. The results, summarised in Annex 6, paragraphs II.158 to II.160, involve two categories: those that provide sufficient information and are assessed as conforming with advice relating to incidental mortality of seabirds (Annex 6, paragraph II.158), and those that contain insufficient information to be certain that they conform with advice relating to incidental mortality of seabirds (Annex 6, paragraph II.159). Applications by the Republic of Korea (CCAMLR-XXVI/16) and Uruguay (CCAMLR-XXVI/24) fall into the latter category. The Scientific Committee noted that as for last year (SC-CAMLR-XXV, paragraph 5.36(iii)) these inconsistencies should be able to be resolved easily, but suggested this was a task for SCIC (Annex 6, paragraph I.60).

5.47 The Scientific Committee welcomed improvements in notifications this year and requested that Members take greater care in future submissions to ensure the intent to comply with relevant seabird by-catch measures was clear (Annex 6, paragraph I.61).

5.48 The Scientific Committee was pleased with the number of Members that utilised the checklist and encouraged those that did not do so (Republic of Korea and South Africa), or altered the checklist without explanation (Uruguay), to use the pro forma and checklist in full in future notifications. The Scientific Committee noted that as the notification from Uruguay (CCAMLR-XXVI/24) had not been translated, it was uncertain whether the relevant information was contained within the document (Annex 6, paragraph I.62).

5.49 The Scientific Committee reiterated its recommendation that any vessel operating under the provisions of Conservation Measure 24-02, and which catches a total of three (3) seabirds, as defined in SC-CAMLR-XXII, Annex 5, paragraphs 6.214 to 6.217, shall revert to night setting in accordance with Conservation Measure 25-02 (Annex 6, paragraph I.63).

5.50 The Scientific Committee noted CCAMLR-XXVI/27 proposing improvements to line sink rate monitoring and reporting and noted that, as the proposal had no technical implications for the work of ad hoc WG-IMAF, it was a matter for SCIC (Annex 6, paragraph I.64).

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

5.51 The Scientific Committee noted reports on current international initiatives under the auspices of:

- (i) ACAP – items of particular relevance to CCAMLR including ACAP’s newly formed Seabird Bycatch Working Group (Annex 6, paragraphs II.166 to II.168);
- (ii) FAO (IPOA-Seabirds) – noting COFI’s agreement (pending cost considerations) to develop best-practice technical guidelines for NPOA-Seabirds and RFMOs, that the guidelines should extend to other relevant fishing gears, and that FAO could undertake this work through an expert consultation and in cooperation with CCAMLR, ACAP and BirdLife International (Annex 6, paragraph II.169);
- (iii) Joint meeting of tuna RFMOs – Secretariat-provided information on CCAMLR’s processes in developing its seabird by-catch mitigation measures (Annex 6, paragraphs II.171 to II.174);
- (iv) RFMOs – no responses received to CCAMLR Resolution 22/XXV but updates on WCPFC, ICCAT, CCSBT, IOTC and IATTC (Annex 6, paragraphs II.175 to II.187).

5.52 The Scientific Committee encouraged Members to use and promote ACAP resources, as appropriate (species assessments and research plan for pelagic longline mitigation technologies). This technical information from ACAP is of utility as RFMOs consider seabird assessments and seabird by-catch mitigation measures (Annex 6, paragraph I.66).

5.53 The Scientific Committee reiterated its support for the development of FAO best-practice technical guidelines for the development of NPOA-Seabirds (SC-CAMLR-XXV, paragraph 5.44), to be used by countries and RFMOs and to include other relevant gear types. This effort is important where RFMOs manage fisheries in waters adjacent to the Convention Area, particularly where seabird species which breed and forage in the Convention Area may be distributed (Annex 6, paragraph I.67).

5.54 Consistent with CCAMLR Resolution 22/XXV, the Scientific Committee recommended the Commission extend an offer of technical assistance and/or information sharing on conducting seabird risk assessments to other RFMOs that may have fisheries that take CCAMLR Convention Area seabirds. The Scientific Committee stressed the need for assessing risk to seabird populations and for mitigating such risks via adaptive and precautionary decision-making, including the use of adequate levels of observer coverage and detailed reporting of implementation of conservation measures to truly achieve reductions in seabird by-catch (Annex 6, paragraph I.69).

5.55 With regard to the effectiveness of Resolution 22/XXV, the Scientific Committee:

- (i) was encouraged by progress at WCPFC and ICCAT, but expressed concern at the general lack of progress in RFMOs (Annex 6, paragraphs I.68 and II.194);
- (ii) encouraged the Secretariat and Contracting Parties to diligently implement all aspects of Resolution 22/XXV (Annex 6, paragraph II.195).

5.56 The Scientific Committee extended a standing invitation to ACAP and BirdLife International to participate in future meetings of ad hoc WG-IMAF as invited experts (Annex 6, paragraph I.71).

Streamlining the work of the Scientific Committee

5.57 The Scientific Committee noted that the process of updating fishery reports with information relating to the by-catch of seabirds and marine mammals contributed to streamlining the work of the Scientific Committee's working groups.

5.58 The Scientific Committee noted the continued very positive results again this year with respect to seabird and marine mammal by-catch throughout the Convention Area and highlighted an increasing need to focus on the by-catch of Convention Area seabirds outside the Convention Area given CCAMLR's responsibility for these Antarctic marine living resources (Convention Article I). Continued vigilance in the monitoring of by-catch and the implementation of conservation measures is needed to continue to strive to minimise seabird and marine mammal by-catch in all Convention Area fisheries and to avoid time delays in responding to changing fishery dynamics and by-catch rates which could have serious consequences for the conservation of seabirds and marine mammals. The Scientific Committee endorsed ad hoc WG-IMAF's recommendation that its annual meetings continue for the time being (Annex 6, paragraph I.75).

5.59 The Scientific Committee endorsed ad hoc WG-IMAF's recommendation for a one-day workshop immediately prior to WG-IMAF in 2008 and endorsed the following proposed terms of reference (Annex 6, paragraph I.76):

- (i) review and recommend revisions to the terms of reference for ad hoc WG-IMAF;
- (ii) develop short- and medium-term work plans for ad hoc WG-IMAF, particularly considering the work plan of WG-FSA for dealing with mitigation of the by-catch of fish and invertebrate by-catch, the work plan of the Scientific Committee and developments in other international bodies concerned with the interaction of fisheries and Convention Area birds or mammals;
- (iii) review the frequency of meetings of ad hoc WG-IMAF. In particular:
 - (a) consider the conditions under which a change in meeting frequency could take place and catalogue the advantages and disadvantages of such change;

- (b) examine in detail the consequences of decreasing the frequency of ad hoc WG-IMAF meetings on the work of WG-IMAF and the advice that it is able to provide WG-FSA, the Scientific Committee and the Commission;
- (c) consider mechanisms that could be put in place to minimise the risk of impacting significantly on the work of WG-FSA, the Scientific Committee and Commission were the ad hoc WG-IMAF meeting frequency to be reduced.

Other business

5.60 The Scientific Committee noted WG-IMAF's concern that its ability to adequately and effectively address some topics was hampered by the lack of translated working group documents, particularly its future efforts to assist with seabird by-catch reductions in the French EEZs, the last remaining area of substantial seabird by-catch in the Convention Area (Annex 6, paragraph I.77). Several Members highlighted the need for these translated documents and supported WG-IMAF's request for a case-by-case consideration. The Secretariat reminded the Scientific Committee that the agreed working language of the working groups was English.

5.61 Dr Agnew requested the Secretariat to provide cost details on paper translations, asking if there was a cost differential depending on how early a paper was submitted. Dr Constable suggested that resources permitting, consideration be given to papers of high priority or novel importance.

Advice to the Commission

5.62 This section attempts to distinguish between general advice (which the Commission may wish to note and/or endorse) and specific advice which includes requests to the Commission for action.

General advice

5.63 The Commission was requested to note:

- (i) the continuing low levels of incidental mortality of seabirds in regulated longline fisheries in most parts of the Convention Area in 2007 and that, for the first time, no birds were reported taken in regulated longline fisheries except for the French EEZs and no albatross mortalities were observed in the Convention Area longline fisheries for a second consecutive year (paragraph 5.3);
- (ii) that effort is required on mitigating incidental mortality of seabirds during the haul of longlines (paragraph 5.4);

- (iii) the reduced levels of seabird and marine mammal incidental mortality in trawl fisheries in the Convention Area in 2007 (paragraph 5.3);
- (iv) improved data collection and reporting by France and continued efforts to reduce seabird by-catch (paragraph 5.5);
- (v) the assessment of implementation of relevant conservation measures, including improved performance with 100% implementation for nearly all measures (paragraph 5.14);
- (vi) need for improved reporting of the use of mitigation measures in all trawl fisheries so that the successful measures used could be documented and made available more widely (paragraph 5.13);
- (vii) the concern that discarding of hooks in offal may have adverse impacts on bird populations (paragraph 5.16);
- (viii) a reminder to Members to report on seabird mortality for Convention Area seabirds arising from fisheries conducted outside the Convention Area (paragraph 5.18);
- (ix) revisions to the assessment of risk of interactions between seabird and fisheries for all statistical areas in the Convention Area now includes a trawl gear assessment (paragraph 5.40);
- (x) a proposed relaxation of the limitation of icefish catch in Subarea 48.3 is unlikely to lead to an increased risk to seabirds, provided that the best-practice mitigation measures are used year-round (paragraph 5.44);
- (xi) the Scientific Committee will extend a standing invitation to ACAP and BirdLife International to attend WG-IMAF meetings as invited experts (paragraph 5.56).

5.64 The Commission was requested to endorse:

- (i) a series of recommendations and requests to France to assist in the effort to further reduce seabird by-catch in the French EEZs to near-zero levels (paragraph 5.6);
- (ii) a request to ad hoc WG-IMAF to consider the issue of hook loss and possible ways to reduce this loss (paragraph 5.16);
- (iii) the research and items to further improve Conservation Measures 24-02 and 25-02 (paragraph 5.29);
- (iv) recommended changes to logbooks and cruise reports (paragraph 5.34);
- (v) the Secretariat's assistance in the dissemination of a paper describing the CCAMLR risk assessment of fisheries to bird by-catch (paragraph 5.39);

- (vi) that best practice for new entrants to existing fisheries and for new pelagic finfish trawl fisheries would be to apply the full suite of mitigation measures identified in Annex 6, Table II.19 (paragraph 5.42);
- (vii) the advice on a proposed season extension in Division 58.5.2 for longline vessels (paragraph 5.45);
- (viii) its continued support for the development of FAO best-practice technical guidelines for seabird mitigation measures (paragraph 5.53);
- (ix) an ad hoc WG-IMAF workshop in 2008 and its terms of reference to consider a future focus of work (paragraph 5.59).

Specific advice

5.65 The Commission was requested to consider taking action in respect of:

- (i) production and distribution of a CCAMLR poster to instruct crews to remove hooks from all landed fish and hauled baits (paragraphs 5.29(vi) and 5.31);
- (ii) suggested revisions to Conservation Measure 25-02 (paragraph 5.24);
- (iii) continued action in respect of seabird mortality caused by IUU fishing (paragraph 5.22);
- (iv) increasing observer coverage of the krill fishery (paragraph 5.35);
- (v) translation of certain working group papers, on a case-by-case basis, for high-priority issues such as the further reduction of seabird by-catch in the French EEZs (paragraphs 5.60 and 5.61).