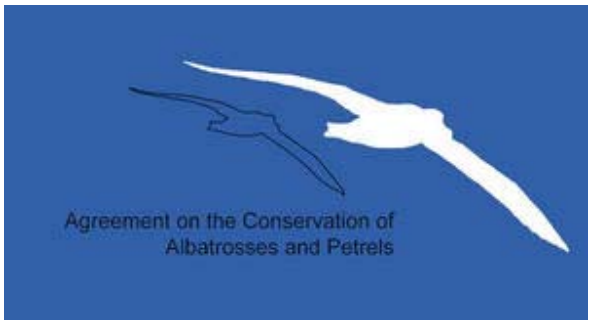

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CCAMLR and Seabirds in the Antarctic Marine Ecosystem

CCAMLR AND SEABIRDS IN THE ANTARCTIC MARINE ECOSYSTEM

CCAMLR SECRETARIAT[1]

ABSTRACT

This paper outlines the experiences of the 24-nation Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) in dealing with incidental mortality of seabirds (particularly albatrosses and petrels) during fishing in the Area for which it is responsible. Details of various mitigation measures are provided and the effect of such measures is evaluated.

(1) INTRODUCTION

The 1980 *Convention on the Conservation of Antarctic Marine Living Resources* (*CAMLR Convention*)[2] has among its key objectives the:

"Maintenance of ecological relationships between harvested, dependent and related populations of Antarctic marine living resources"

As well as:

"Prevention of changes or minimization of the risk of changes in the marine ecosystem which are not potentially reversible over two or three decades, taking into account the state of available knowledge on the direct and indirect impact of harvesting".

The Commission (CCAMLR) set up under Article VII of the *CAMLR Convention* is responsible under Article IX for giving effect to the objective and principles of the *Convention*. The tools for this task are outlined in paragraph (1).(f) of the latter Article as:

"Formulating, adopting and revising conservation measures on the basis of the best scientific evidence available".

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1 This paper was prepared by Denzil G.M. Miller (Executive Secretary), Eugene N. Sabourenkov (Science and Compliance Officer) and Eric Appleyard (Scientific Observer Data Analyst) of the CCAMLR Secretariat.

2 CCAMLR, *Basic Documents*. (CCAMLR, Hobart Australia, 2004): 127 p.

This paper outlines CCAMLR's efforts to address seabird by-catch in longline fisheries[3] for key species found within the *Convention Area*, particularly those falling under the *Agreement on the Conservation of Albatrosses and Petrels* (*ACAP*). It also considers other CCAMLR initiatives in respect of seabirds in general, given their status in the Antarctic marine ecosystem. Some of the information presented has been drawn from recent publications by CCAMLR Secretariat Staff[4]. It is also consistent with the 1999 *FAO International Plan of Action for Reduction of Incidental Catch of Seabirds in Longline Fisheries* (*IPOA-Seabirds*)[5] which highlights global concerns about the negative consequences of the fisheries-induced mortality on threatened seabird species/populations.

(2) RATIONALE UNDERLYING *CCAMLR* SEABIRD INCIDENTAL MORTALITY MITIGATION MEASURES

From *CCAMLR's* perspective, longline induced seabird by-catch has two important implications. First, many species (most notably albatrosses and petrels) breeding in the *Convention Area* (Fig. 1) have been detrimentally affected by longline fisheries during winter months outside and north of the *Area*[6]. Secondly, the emergence of longline fisheries in the *CCAMLR Area*, often close to seabird breeding sites, added urgency to *CCAMLR's* efforts to address the problem directly. By 1989, *CCAMLR* was one of, if not the first international organisation(s) to institute comprehensive incidental seabird mortality mitigation measures. Most of these measures, and *CCAMLR's* experiences therewith, were incorporated into the *IPOA-Seabirds* mentioned above.

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3 Under Article IX of the CAMLR Convention (CCAMLR, *op. cit.* n. 2), the Commission adopts legally binding Conservation Measures to address various fisheries, or other, management issues. CCAMLR CMs are published in CCAMLR, *Schedule of Conservation Measures in Force 2003/04*. (CCAMLR, Hobart Australia, 2003): 156 p. Website: http://www.camlr.org.

4 E.N. Sabourenkov and D.G.M. Miller, "The management of transboundary stocks of Toothfish, *Dissostichus spp.*, under the Convention on the Conservation of Antarctic Marine Living Resources" in A.I.L. Payne, C.M. O'Brien and S.I. Rogers (eds.), *Management of Shared Fish Stocks*, (Blackwell, Oxford, 2004): p. 68-94 and D.G.M. Miller, E.N. Sabourenkov and D.C. Ramm, "Managing Antarctic marine living resources: The CCAMLR Approach", 2004.. *International Journal of Marine and Coastal Law*. 19.(3): 319-365.

5 FAO, *International Plan of Action for Reducing Incidental Catches of Seabirds in Longline Fisheries*, 1999. (FAO, Rome): 10 p.

6 See Annex E. in CCAMLR, *Report of the Eighth Meeting of the Commission (C-CAMLR-VIII)*. (CCAMLR, Hobart Australia, 1989): 133 p. and paragraph 7.3 in SC-CAMLR, *Report of the Ninth Meeting of the Scientific Committee (SC-CAMLR-IX)*. (CCAMLR, Hobart Australia, 1989): 345 p.

CCAMLR Convention Article II.(3).(c) clearly indicates the importance of assessing and avoiding incidental mortality of Antarctic marine living resources during harvesting activities (see above). As far back as 1984, the *Commission* requested *Members*[7] to document the number, species and, where appropriate, age, size, sex and reproductive status of any birds or marine mammals taken incidentally during fishing operations[8].

Demersal longlining was first introduced in the *Convention Area* during 1989. The fishery targeted Patagonian Toothfish (*Dissostichus eleginoides*) around South Georgia in the South Atlantic (*CCAMLR Statistical Subarea* 48.3). *CCAMLR* noted with concern experiences elsewhere with longlining. These indicated that considerable risks might be attached to this type of fishery given its potential to cause substantial seabird mortality during fishing operations. In the case of South Georgia, such risk is compounded by the relative proximity of fishing grounds to land-based, seabird breeding sites at crucial times[9].

Initially the number of albatrosses (most Sub-Antarctic species) being killed annually was estimated at 44 000 in tuna longline (i.e. pelagic) fisheries alone outside the *Convention Area*[10]. Although conservative, this estimate was sufficiently high to substantiate claims that serious declines observed in albatross populations breeding in the *CCAMLR Area* could be attributed to such fishing activity[11].

CCAMLR built on Australia and Japan's successes in reducing seabird by-catch in tuna longline fisheries. This entailed deployment of 'tori poles' or streamer lines to deter birds from taking baited hooks close to the surface, particularly during line setting in daylight hours. Being positioned to trail over the fishing line being set, streamer lines reduce the

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7 Under *CAMLR Convention* Article XII only *Commission Members* take part in decisions subject to the membership conditions set out in Article VII along with budgetary provisions in Article XIX (CCAMLR, *op. cit.* n. 2). This means that States may become party to the *Convention*, but may not necessarily be *Members* of the *Commission*.

8 See paragraph 21 in CCAMLR, *op. cit.* n. 6.

9 See paragraph 24 in CCAMLR, *op. cit.* n. 6.

10 N.P. Brothers, "Albatross mortality and associated bait loss in the Japanese longline fishery in the Southern Ocean", 1991. *Biological Conservation* 55: 255-268.

11 See paragraph 6.7 in SC-CAMLR, *Report of the Eighth Meeting of the Scientific Committee (SC-CAMLR-VIII)*. (CCAMLR, Hobart Australia, 1989): 354 p. and paragraph 7.3 in SC-CAMLR, *op. cit.* n. 6.

by-catch of seabirds significantly. Potential economic benefits include the reduction of bait loss and an associated improvement in fishing efficiency[12].

It was therefore agreed that all *CCAMLR*-sanctioned longline fisheries should be regulated to minimize incidental seabird mortality[13]. In 1989, *CCAMLR* adopted *Resolution* 5/VIII followed by *CM* 29/X the next year. The latter, in substantially revised form, endures as *CM* 25-02[14]. Its key revisions are outlined in Table 1, which has been adopted from Miller *et al.*[15]. It should be noted that *CM* 25-02 strives to ensure quick sinking of longlines during setting by providing adequate weighting of the lines.

CCAMLR also estimates and regulates potential seabird by-catch in proposed new and exploratory fisheries, and monitors such by-catch in trawl fisheries[16].

(3) EVALUATION OF *CCAMLR* SEABIRD INCIDENTAL MORTALITY MITIGATION MEASURES

Over the past five years, seabird by-catch in regulated fisheries in the *CCAMLR Area* has been notably reduced. For four successive years since 2001, levels of by-catch in regulated longline fisheries in the *CCAMLR Area* were negligible in *Statistical Subarea* 48.3, low in the South African EEZ in Subareas 58.6 and 58.7 and non-existent in Subareas 88.1 and 88.2. In 2002, the *Scientific Committee* noted from reported data that seabird by-catch levels in the *CCAMLR Area* were the lowest ever recorded[17] (Fig. 2); a trend also reflected in the reduction in the catches of a number of key species (Fig. 3). These successes were largely attributable to a combination of improved compliance with

12 See paragraph 7.5 in SC-CAMLR, *op. cit.* n. 6.

13 See paragraph 5.3 in CCAMLR, *op. cit.* n. 6.

14 See CCAMLR, *op. cit.* n. 3. Website: http://www.ccamlr.org.

15 D.G.M. Miller *et al.*, *op. cit.*. n. 4.

16 For example see paragraph 9.19 in CCAMLR, *Report of the Twenty-First Meeting of the Commission (CCAMLR-XXI)*. (CCAMLR, Hobart Australia, 2002): 205 p.

17 See paragraph 5.3 in SC-CAMLR, *Report of the Twenty-First Meeting of the Scientific Committee (SC-CAMLR-XXI)*. (CCAMLR, Hobart Australia, 2002): 524 p.

by-catch measures and delaying commencement of fishing until the end of the breeding season for most albatross and petrel species[18].

However, *CCAMLR* has recently reaffirmed that *IUU* (illegal, unreported and unregulated) fishing in the *Convention Area*, in combination with seabird by-catch in fisheries adjacent to the *Convention Area,* continue to constitute the main threats to many seabird populations in the Southern Ocean[19]. Estimates of potential by-catch levels associated with *IUU* fishing in each of the past seven years are also shown in Fig. 2. Since many albatrosses, giant petrels and White-chinned Petrels breeding in the *Convention Area* are declining at rates where extinction is a possibility[20], *CCAMLR* remains gravely concerned with the present circumstances - a compelling incentive for stricter measures to combat *IUU* fishing[21]. From Fig. 2, it can also be seen that there appears to have been a noticeable decline in the take of birds by the *IUU* fishery in the 2002/03 season. In the absence of clear information on the extent of mitigation being practiced by that fishery, it is only possible to conclude that the encounter probability between birds and fishery has declined. This is most probably as a result of the fishery having moved its location to areas more remote from bird feeding grounds; an explanation enhanced by recent trends in the *IUU* fishery, particularly in the Indian Ocean, over the past year or so (see Fig. 4).

(4) FUTURE DEVELOPMENT OF *CCAMLR* SEABIRD MITIGATION MEASURES

No single mitigating measure is likely to eliminate **all** seabird mortality during longlining. However, it is crucial that lines be set so as to minimize visual detection by foraging birds and to prevent their feeding on the bait. *CCAMLR* strives to ensure that fishers comply fully with what are essentially straightforward measures, such as

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18 K-H. Kock, "The direct influence of fishing and fishery-related activities on non-target species in the Southern Ocean with particular emphasis on longline fishing and its impact on albatrosses and petrels – A review", 2001. *Reviews in Fish Biology and Fisheries,* 11: 31-56.

19 For example see paragraph 6.8 in CCAMLR, *op. cit.* n. 16.

20 See paragraph 6.98 in Annex 5 of SC-CAMLR, *op. cit.* n. 17.

21 K-H. Kock, *op. cit.* n. 18.

regulation of offal discharge, streamer line deployment and night setting. Refining, and enhancing compliance with, the specified line-weighting regime for the Spanish longline system remains a priority[22]. In 2003, line-weighting requirements for the Norwegian Autoline system were incorporated into *CM 25-02* (Table 1). *CCAMLR* continues to encourage development of appropriate, and mandatory, line-weighting requirements[23], while the search continues for improved ways to mitigate seabird by-catch[24]. *CCAMLR* has drawn its *Members'* attention to considering design modifications for new, or replacement, vessels, especially in respect of underwater line setting[25]. Finally, *CCAMLR* annually reviews its seabird by-catch mitigation measures to stay abreast of international best practice.

(5) OTHER CONSIDERATIONS

CCAMLR actively co-operates with a number of *Regional Fisheries Management Organisations*, particularly those managing fisheries in waters adjacent to the *Convention Area*, such as the *International Commission for the Conservation of Atlantic Tuna* (*ICCAT*), the *Indian Ocean Tuna Commission* (*IOTC*) and the *Commission for the Conservation of Southern Bluefin Tuna* (*CCSBT*)[26]. This includes the exchange of information on *IUU* fishing on the high seas, and on efforts to combat its effects. It also includes consideration of incidental seabird mortality during longline fishing at a global level in relation to species of interest to *CCAMLR*.

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22 See paragraph 6.11.(i) in CCAMLR, *op. cit.* n. 16.

23 See paragraph 6.16.(iii) in CCAMLR, *op. cit.* n. 16.

24 IFF, "Second International Fishers Forum*"* 2002, *SPC Fisheries Newsletter,* 103: 32 p.

25 See paragraph 6.84 in Annex. 5 of SC-CAMLR, *Report of the Nineteenth Meeting of the Scientific Committee (SC-CAMLR-IX)*. (CCAMLR, Hobart Australia, 2000): 518 p.

26 The annual *CCAMLR* meeting considers co-operation with other international organisations in a standing agenda item when acting on advice from its subsidiary bodies, especially the *Scientific Committee* and particularly in relation to seabird incidental mortality. Such advice has its origins in work carried out by an *Ad Hoc Working Group on Incidental Mortality in Fisheries* (*Ad Hoc WG*-IMAF) set up under the *Committee* and attached to the *Working Group on Fish Stock Assessment* which is responsible for scientific assessment of *CCAMLR*-managed fisheries.

As part of its *Ecosystem Monitoring Programme* (*CEMP*), the *CCAMLR Scientific Committee* periodically reviews (about every five years) the status and trends of marine mammals and seabirds found in the *CCAMLR Area*. In carrying out this task, the *Committee* draws heavily on information provided by the *SCAR Sub-Committee on Bird Biology* (now the *SCAR Group of Experts on Birds*). The outcomes of such review are also used by the *Scientific Committee* to assess the potential threat to seabirds associated with the prosecution of new and exploratory longline fisheries in the *CCAMLR Area*. In addition CCAMLR, through its *Ad Hoc WG-IMAF,*, maintains databases on the population status of albatrosses, giant and Procellaria petrels breeding in the Convention Area and on the at-sea distribution of these species in relation to FAO Statistical Areas, Subareas and Divisions within the *Convention Area*.

(6) CONCLUSIONS

It is hoped that the information presented in this paper will serve to emphasize some of the common concerns which the *ACAP Meeting of Parties* and *CCAMLR* share in relation to albatross and petrel species found in the *CCAMLR Area*. There appears to be merit in considering ways in which the two organizations could work together to address these concerns within their respective mandates. Specific issues requiring consideration could include exchange of information and the setting up of formal procedure to facilitate and promote communication of key information.

(7) ACKNOWLEDGEMENTS

This paper was prepared with the kind assistance of Prof. J.P. Croxall (Convener CCAMLR *Ad Hoc* WG-IMAF.

TABLE 1: **Key features and development of *CCAMLR Conservation Measures* (CM) 25-02 to mitigate incidental seabird catch during longline fishing in the *Convention Area* (from Miller *et al.*, *op. cit.* n. 4) .**

Measure Component	CM 29/X (1991)	CM 29/XI (1992)	CM 29/XII (1993)	CM 29/XIII (1994)	CM 29/XIV (1995)	CM 29/XV (1996)	CM 29/XVI (1997)	CM 29/XIX (2000)	CM 25-02 (2002)	CM 25-02 (2003)
Line Weighting	General provision for quick sinking	No change	No change	No change	Specify weight for Spanish system (6 kg @ no more than 20 m spacing). Weight release before line tenses	No change	No change	Revise Spanish line weighting (option for 8.5 kg @ no more than 40 m spacing)	No change	Specify weight for *Autoline* system (5kg @ 50-60 m spacing) or integrated weight of 50 g/m
Bait	-	-	Only thawed bait to be used	No change	No change	No change	No change	No change	No change	Abolished Frozen bait no longer seen to affect sinking rates with current weightings
Night Setting	Mandatory with minimum ship lighting	No change	No change	Night qualified as darkness between nautical twilight	Line setting at least 3 hrs before dawn to minimize White Chinned Petrel mortality	Reference to exact time of nautical twilight. Term "sunrise" replaced with "dawn"	Reference to *Nautical Almananc* to get time of nautical twilight	Exemption to allow daylight setting subject minimum sink rate of 3m/sec determined according to CM 216/XX	No change. Cross-reference to CM 25-01 as CM 216/XX in 2000	No change

TABLE 1Cont.

Measure Component	CM 29/X (1991)	CM 29/XI (1992)	CM 29/XII (1993)	CM 29/XIII (1994)	CM 29/XIV (1995)	CM 29/XV (1996)	CM 29/XV1 (1997)	CM 29/XIX (2000)	CM 25-02 (2002)	CM 25-02 (2003)
Trash/Offal Dumping	Prohibition during longlining	No change	No change	Unavoidable dumping only on side farthest from line set/haul area	Clarification. Unavoidable dumping only on "opposite side" of vessel to where lines set/hauled	No change	Revision prohibiting dumping during setting. Unavoidable dumping now only during hauling	Fishing only authorized if vessels able to process offal or discharge it on opposite side of vessel to line set/haul area	Request to remove hooks from fish heads & offal prior to discarding	Changes to request to remove hooks from fish heads & offal
Handling Caught Birds	-	-	-	Request all effort to release birds alive & remove hooks	No change	No change	No change	No change	No change	No change
Streamer Line Use	Request streamer line use during daylight setting	Streamer deployed during longline deployment	Slightly more flexibility allowed for swivel placement	Details of devices to create streamer line tension – may vary	More flexibility in streamer line tension device	No change	No change	No change	No change	Vessels encouraged to use two streamer lines not one
Streamer Line Specification	Specifications of streamer line & deployment	No change	No change	Conditions for testing streamer lines	Further clarification of conditions for testing streamer lined	No change	No change	No change	No change	Revised streamer line specification

FIGURE 1: **The *CCAMLR Area* showing various *Statistical Areas* and the *Antarctic Convergence* (*Polar Front*).**

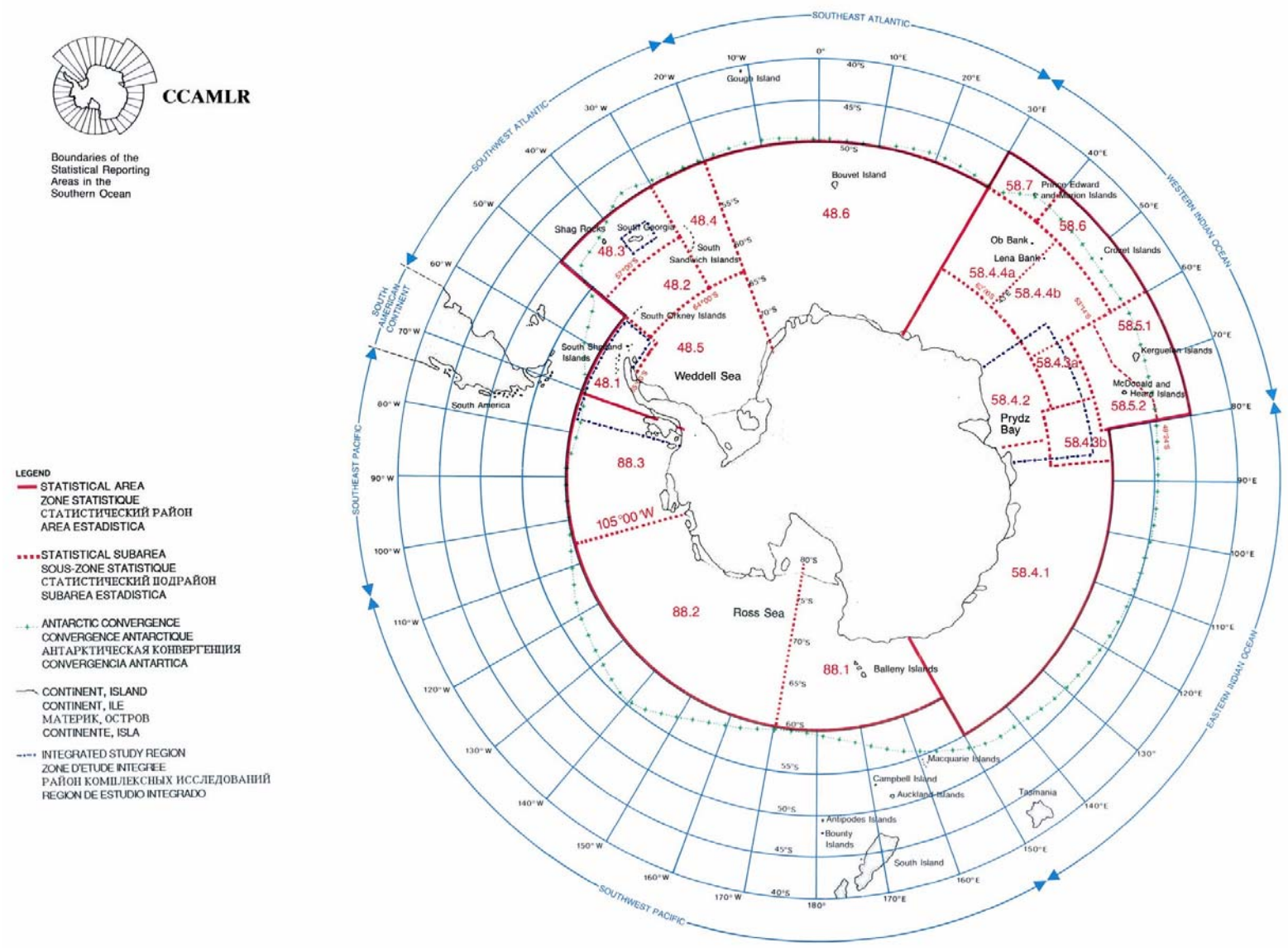

FIGURE 2: Estimated seabird by-catch in *CAMMLR* Regulated and Unregulated longline fisheries in *CCAMLR Convention Area*.

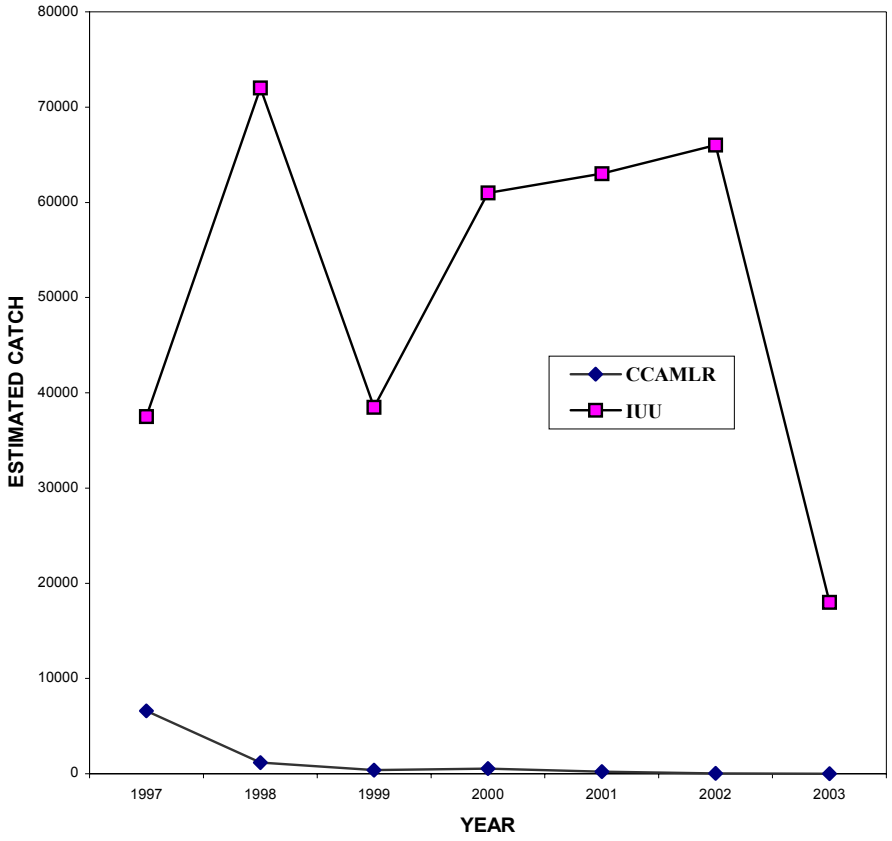

FIGURE 3: Estimated seabird species and numbers taken as incidental mortality during longlining in the *CCAMLR Area*, 1997-2003.

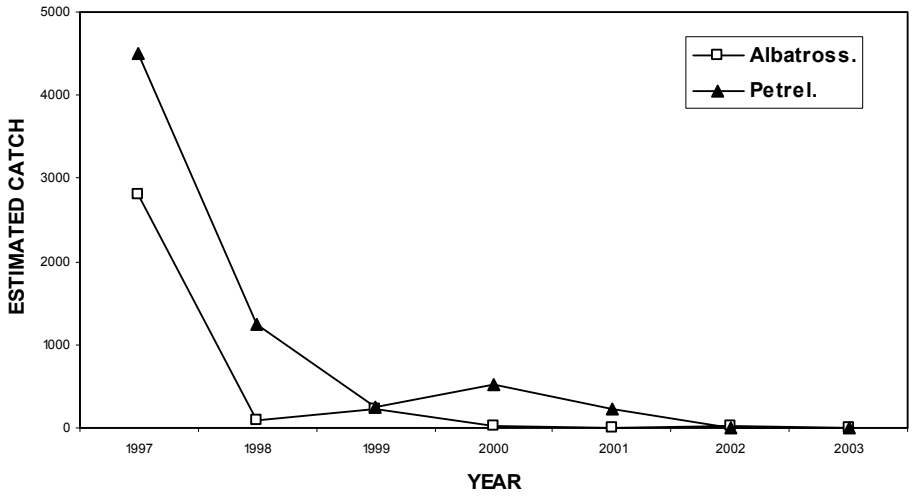

FIG. 4: **Development of *IUU* fishing in the *CAMLR Convention Area* Update from figure in Sabourenkov and Miller, *op. cit.* n. 2.**