
**FIRST MEETING
OF THE
TECHNICAL AND COMPLIANCE COMMITTEE
OF THE COMMISSION FOR THE CONSERVATION AND MANAGEMENT
OF HIGHLY MIGRATORY FISH STOCKS IN THE WESTERN AND
CENTRAL PACIFIC OCEAN, POHNPEI, FEDERATED STATES OF
MICRONESIA,
5-9 DECEMBER 2005**

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**MORTALITY OF SEA BIRDS
AND POSSIBLE MITIGATION MEASURES**

Paper prepared by the Secretariat

Introduction

1. Annex II of the Summary Record of the First Session of the Commission held in Pohnpei, Federated States of Micronesia in December 2004 requested advice, for consideration at the Second Session, on *inter alia*:

1(d) *Estimates of the mortality of non-target species with an initial focus on seabirds, turtles and sharks.*

2. Further, Annex II proposes that the Commission will adopt, in accordance with Article 5 of the Convention, conservation and management measures necessary to address sustainability concerns. Measures may include, *inter alia*:

4. (e) *Mitigation measures to address the mortality of non-target species e.g. seabirds, turtles and sharks.*

3. In accordance with Article 6 of the Convention, Annex II stipulates that the precautionary approach will be applied (*sic.* to address sustainability concerns) and that the absence of scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.

4. This paper has been prepared to support discussion during the First Regular Session of the Technical and Compliance Committee on seabird mortality in the Convention Area. It is also to support the development of advice to the Second Annual Session of the Commission in relation to mitigation measures that may be adopted as part of efforts to reduce seabird mortality.

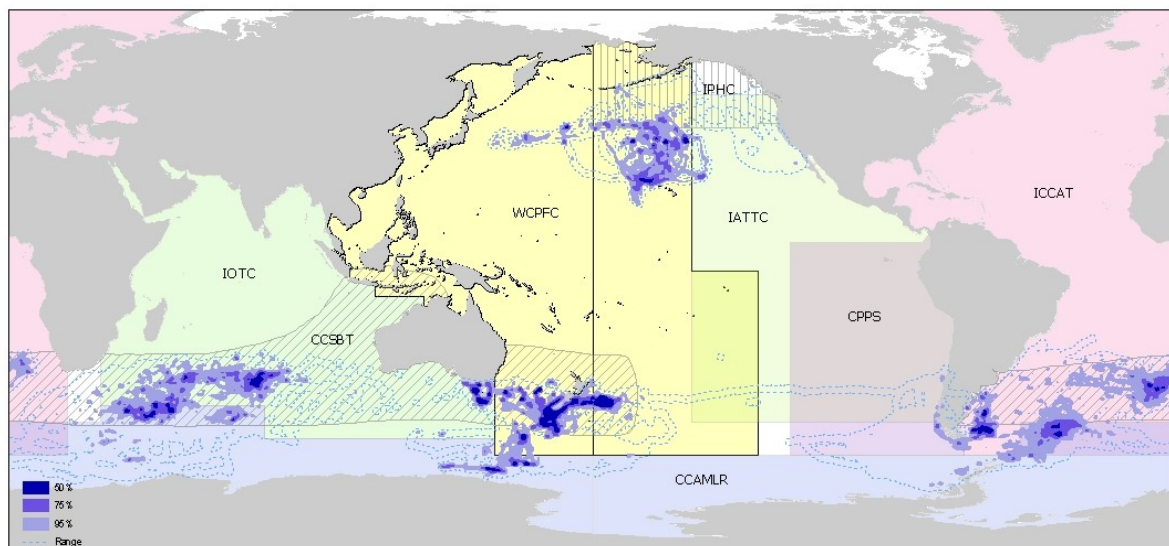
The problem and the significance of the WCPO Convention Area

5. Seabirds are becoming increasingly threatened largely due to threats to albatross and petrel populations as a result of being taken as by-catch in pelagic and demersal longline fisheries (Brothers, 1991; Gales, 1993; Weimerskirch *et al*, 1997). Albatross and petrel populations are long-lived and have low reproductive rates, meaning that they are highly vulnerable to increased adult mortality. Nineteen of the 21 species of albatross are currently under global threat of extinction (IUCN red list).

6. An analysis of the data consolidated by BirdLife International under the auspices of The Global Procellariiform Tracking Database highlights the importance of the Western and Central Pacific Ocean in terms of seabird interaction with tuna fisheries. The WCPFC has been assessed as the second most important Regional Fisheries Management Organisation (RFMO), after CCSBT, in terms of potential interaction between fisheries and threatened seabird populations – in particular albatross interaction (BirdLife, 2004). Its Convention Area coincides with the ranges of 16 of the 21 species of albatrosses, and it contains more than 45% of breeding albatross distribution.

7. In the WCPFC area the highest concentrations of albatross are between 30-50°S and above 20°N (Fig. 1). The southern WCPFC area contains 87-99% of the global breeding distributions of Antipodean, Buller's, Campbell, Chatham, and Northern and Southern Royal albatross. The northern area includes a high proportion of the breeding ranges of the three albatross species that breed in the northern hemisphere: the Laysan, Black-footed and Short-tailed albatrosses.

Fig. 1. Density distribution of breeding albatrosses in relation to the areas managed by selected RFMOs. Reproduced from Tracking Ocean Wanderers (BirdLife, 2004).



8. A substantial proportion of the albatross distribution is outside EEZs, i.e. on the High Seas, especially in the North Pacific. For example, 84% of the distribution of breeding Laysan albatrosses, and 66% of the distribution of breeding Black-footed albatrosses is on the High Seas (Fig.2).

Fig 2. Combined distribution of breeding Laysan albatross and Black-footed albatross in the northern part of the WCPFC area in relation to EEZs. Reproduced from Fig 5.15 *Tracking Ocean Wanderers* (BirdLife, 2004). Note that Short-tailed albatross are also distributed in the North Pacific, but no breeding distribution data were in the database at the time of analysis of *Tracking Ocean Wanderers* report (BirdLife, 2004).

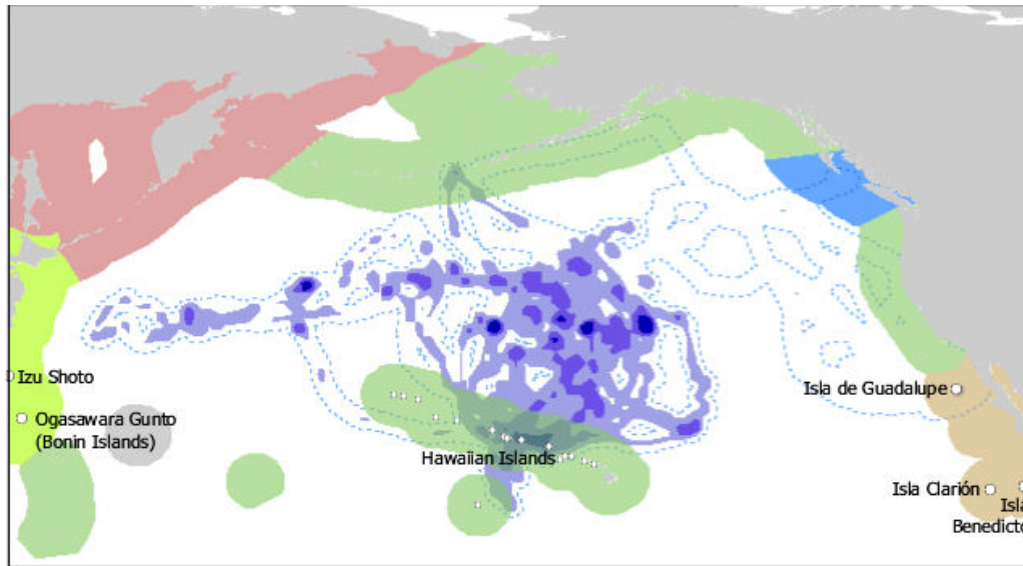
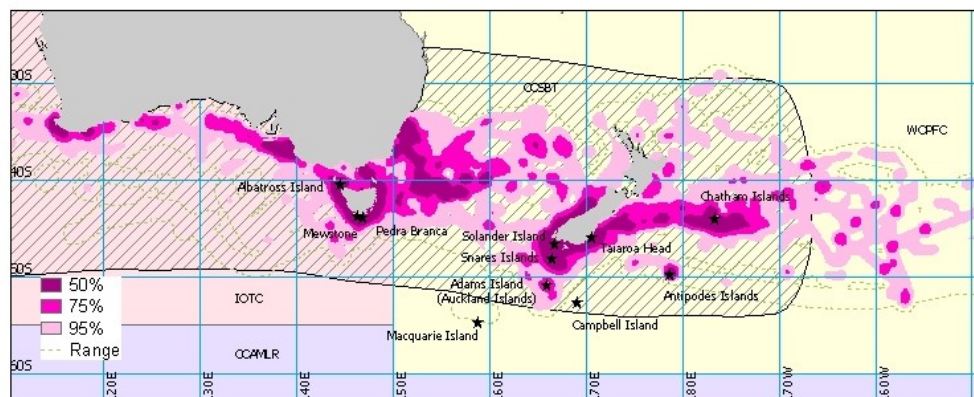


Fig 3. Distribution of (a) breeding and (b) non-breeding albatrosses from Australia and New Zealand. Breeding data from 9 species of albatross, non-breeding data from 7 species of albatross. Reproduced from Figures 4.4 and 4.5 from *Tracking Ocean Wanderers* (BirdLife, 2004).

(a) Breeding



(b) Non-breeding



9. Fewer tracking data are currently available for distribution of albatrosses and petrels during the non-breeding season, when birds are less tied to proximity to breeding colonies and therefore may roam further. For some species, this is likely to result in a greater overlap with pelagic longline fisheries. Figure 3 compares the distributions of breeding and non-breeding albatrosses in the south-west part of the WCPFC area.

Overview of international and national responses to seabird by-catch concerns

10. Since 1992, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) has adopted a range of mitigation measures to reduce incidental catch of seabirds in the Southern Ocean. These include a comprehensive system for collection of bycatch data within the regional observer program, mitigation measures including use of line weighting measures, bird scaring lines, night setting and time-area closures, and systems for review of the effectiveness of these measures. Since 1994, under the auspices of the Commission for the Conservation of Southern Bluefin Tuna (CCSBT), Australia, Japan and New Zealand have studied and subsequently applied seabird mitigation measures in their southern bluefin tuna longline fisheries. In 1995 CCSBT adopted a recommendation requiring use of bird scaring lines (tori poles) below 30°S. More recently, ICCAT, IATTC and IOTC have also adopted Seabird Resolutions requesting members to collect and submit seabird bycatch data and to implement NPOAs, though without specific requirements for mitigation measures. Links to these Resolutions are identified at Attachment A.

11. Mitigation measures which are considered effective at reducing seabird bycatch include:

- line-weighting to make hooks (or nets) sink more rapidly underwater;
- below-the-water setting chute, capsule, or funnel;
- bird-scaring line/curtain positioned over or in the area where baited hooks enter the water, and where lines are hauled;
- setting lines at night
- bait casting machine;
- regulation of the way in which fish offal and discards are disposed of during fishing;
- release of live birds;
- preferential licensing to vessels that use mitigation measures that do not require compliance monitoring;
- water cannon;
- area and seasonal closures; and
- reduce visibility of bait - dyeing bait to make it less attractive to birds.

The International Plan of Action for reducing incidental catch of seabirds in longline fisheries (IPOA-SEABIRDS)

12. Noting an increased awareness about the incidental catch of seabirds in longline fisheries and its potential negative impacts on seabird populations, a proposal was made at the Twenty-second Session of the Committee on Fisheries (COFI) in March 1997 that FAO organize an expert consultation to develop Guidelines leading to a Plan of Action to be submitted at the next Session of COFI aiming at a reduction in such

incidental catch. The IPOA-SEABIRDS was developed by a Technical Working Group in Tokyo 25-27 March 1998 and the Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries held 26-30 October 1998 and its preparatory meeting held in Rome 22-24 July 1998.

13. The IPOA-SEABIRDS is a voluntary instrument that applies to all States whose fishermen engage in longline fisheries. The text sets out a set of activities which implementing States are expected to carry out, including an assessment of whether a problem exists with respect to the incidental catch of seabirds in its longline fishery, adopting a National Plan of Action for reducing the incidental catch of seabirds in longline fisheries (NPOA-SEABIRDS), as well as procedures for national reviews and reporting requirements. The calendar years by when these actions preferably should have been taken, are indicated.

14. Members of the WCPFC that have developed NPOAs consistent with the IPOA-SEABIRDS include Japan, New Zealand and the United States. Others, including Australia¹ and Chinese-Taipei are in the process of completing their NPOAs. The European Community has stated its intention of developing a POA.

15. The United States of America, for example, has adopted, by regulation, measures for reducing incidental catch of seabirds for its groundfish longline fisheries in 1996. Similar regulations were instituted for seabirds incidentally caught in various commercial longline fisheries in the Bering Sea/Aleutian Islands and Gulf of Alaska in 1997, and for its halibut fishery in 1998. The United States is currently developing measures to mitigate the incidental catch of seabirds in the Hawaiian pelagic longline fisheries.

16. The IPOA-SEABIRDS also encourages RFMOs to adopt a regional Plans of Action.

The 2004 Agreement on the Conservation of Albatrosses and Petrels (ACAP)

17. Development of the Agreement, under the auspices of the Convention on the Conservation of Migratory Species of Wild Animals (CMS), commenced in 1999. It was concluded rapidly with only two meetings required to agree the text. These meetings, held in Hobart, Australia, and Cape Town, South Africa, were attended by 16 countries and five international organizations. ACAP was opened for signature in June 2001 in Canberra, Australia. To date there are 11 signatories - Argentina, Australia, Brazil, Chile, Ecuador, France, New Zealand, Peru, South Africa, Spain and the United Kingdom. Of these, Australia, Ecuador, France, New Zealand, Peru, South Africa, Spain and the United Kingdom have also ratified ACAP.

18. An Action Plan, Annex 1 of the Agreement, provides a framework for implementation of effective conservation measures for albatrosses and petrels.

¹ In relation to Australia, the NPOA for seabirds is awaiting the completion of the Threat Abatement Plan (TAP) for seabirds under the Commonwealth's Environment Protection and Biodiversity Conservation Act. The TAP is expected to have completed its formal rounds of consultation and to have approval from the States and Northern Territory in early 2006. If that is achieved, as expected, the NPOA for seabirds should be completed and lodged around the middle of 2006.

19. In relation to the Agreement for the Conservation of Albatross and Petrels, as noted above, WCPFC Members having signed the Agreement include Australia, France and New Zealand.

Commission response to date: The First Regular Session of the Scientific Committee, 8-19 August 2005

20. The Scientific Committee received estimates of the total numbers of individuals captured and the total number of mortalities of birds (and other by-catch taxa including turtles, marine mammals and sharks) for the central region (15°N to 31°S) of the Convention Area (SC1_EB_WP.1²).

21. While abundant logsheet data exist, the reporting rates for seabirds (and turtles and sharks) on logsheets are relatively low. As a result, observer data, held at the Secretariat of the Pacific Community (SPC), were used in order to generate estimates. Observer coverage of the WCPFC region varies among flags, fleets and areas, and observer data for the WCPFC region is not centrally available from a single location.

22. Four fisheries were defined for the region of the WCPFC between 15°N–31°S, tropical shallow longline (TSL, 15°N–10°S, less than 10 hooks between floats (HBF)), tropical deep longline (TDL, 15°N–10°S, 10 or more HBF), temperate albacore longline (TAL, 10°S–31°S) and a single purse-seine fishery. Annual catches and mortality of turtles, seabirds and sharks for each of the four fisheries were estimated and raised by the estimated total effort in these fisheries to generate total annual catches and mortalities for each taxa.

23. Results indicated that low records of seabird bycatch in the central WCPFC area, although the confidence intervals for bycatch estimates are currently large (0 – 10,307 birds killed per annum), and birds are rarely identified to species level, raising the possibility that some species may be being impacted by these bycatch rates. Most of the observed bycatch within the central WCPFC region was within the TAL fishery.

24. Increasing observer coverage rates for all fleets would result in more robust estimates of catches and mortalities. More observer data are crucially needed, particularly within the northern and southern parts of the western Pacific, which were not covered in SC1_EB_WP.1, and in which WCPFC longline fisheries overlap with albatross and petrel distribution. Additionally, improving the rate of identification to the level of species and increasing the rates of observers reporting condition and fate of captured animals would also assist in the generation of more robust estimates of mortality. Centralising all observer data would provide a larger dataset in order to better estimate total catches and mortalities of all taxa.

25. Current observer programmes are primarily designed to record information on tuna catches. In future, specific observer programmes should be designed to address specific catch and by-catch issues, as has been done in other areas. For example, specific observer programmes could be designed to address the issues of interactions between birds, mammals and turtles and the newly developed shark and swordfish

² Molony, B. *Estimates of the mortality of non-target species with an initial focus on seabirds, turtles and sharks*. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. 84 pages.

fisheries within the Convention Area. Standardisation of methods to collect such data across observer programs is a highly valuable means to ensure that data can be compared across the region.

26. The recommendations of the Scientific Committee were:
- Improvement of observer coverage of Western and Central Pacific pelagic fisheries by increasing coverage rates, centralizing and expanding observer data collection, designing specific observer programs to address specific objectives, and improving the identification and reporting of catch to species level and recording of fate and condition;
 - Carry out an ecological risk analysis in order to prioritise species of sea turtles, sharks and seabirds and non-target fish species for future research; and
 - Study interactions between newly developing fisheries and seabirds (and sharks, mammals and turtles)

Possible WCPFC Action

27. The FAO has called upon RFMOs to view the new fishery instruments as checklists that will enable them to fulfil the obligations enshrined in the 1995 UN Fish Stocks Agreement and the 1995 FAO Code of Conduct for Responsible Fisheries (Lugten, 1999). BirdLife International has recommended that each RFMO assess its performance in relation to seabird by-catch mitigation, particularly in relation to:

- Albatrosses, by assessing the distribution of albatrosses and other birds within RFMO areas of competence; and
- assessing the extent to which each RFMO has established mitigation measures to reduce incidental mortality of albatrosses and other seabird species (See Appendix B after Small, 2005).

28. The WCPFC Convention includes extensive commitments to minimising by-catch of fish and non-fish species, and to adopting measures to minimise waste, discards, catch by lost or abandoned gear and pollution. These commitments are drawn from Article 5(f) of the UN Fish Stocks Agreement. In addition, Articles 5 and 6 of the WCPFC Convention state that the Commission will collect data on by-catch, and that it will develop monitoring and research programmes to assess the impact of fishing on non-target species. Progress towards addressing by-catch issues within the Commission has mainly been through the establishment of the Ecosystem and By-catch Specialist Working Group that meets during the Scientific Committee.

29. Members are invited to consider the development and adoption of a Resolution, in accordance with Article 5 of the Convention, which describes measures to mitigate the mortality of seabirds in the Convention Area. Members may wish to consider:

- Systems for collecting data on bycatch, for example through the WCPFC regional observer program;
- Mechanisms for monitoring compliance with, and effectiveness of, bycatch mitigation measures;
- Establishing standardised methodologies for recording bycatch data within the WCPFC observer programmes;
- Requirements for use of mitigation measures which can effectively reduce seabird bycatch, and which can be used as part of a precautionary approach;

- Mitigation measures require little or no compliance monitoring, or for which compliance can be monitored remotely; and
- the development of national or regional POA–SEABIRDS in situations where incidental seabird catch might be an issue.

30. In addition, seabird distribution extends beyond the WCPFC Convention Area boundaries. On the basis that the objectives of the respective RFMOs, in terms of mitigating the impacts of fisheries on seabirds, are shared, it will be in the best interests of the Commission to work closely with RFMOs sharing the seabird populations of the WCPFC Convention Area – CCAMLR, CCSBT and IATTC (and possibly the Galapagos Agreement once that becomes operational).

Appendix A

Resolutions or Conservation Measures relating to seabirds adopted by CCAMLR, IATTC, and ICCAT.

Refer to:

For IATTC: <http://www.iattc.org/PDFFiles2/C-05-01-Seabirds.pdf>

For CCAMLR: www.ccamlr.org

For ICCAT: [<http://www.iccat.int/Documents/Recs/compendiopdf-e/2002-12-e.pdf>]

For IOTC: see Resolution 05/19, www.iotc.org

Appendix B

Measures of commitment to reducing impact of fisheries on non-target, associated or dependent species [after Small, 2005]

Obligation	Source
Does the RFMO include non-target species within its mandate (including non-target fish, elasmobranchs, turtles, marine mammals and seabirds)?	Articles 6.2, 7.2.2 Code; Article 5f and 10d of UNFSA.
Has the RFMO committed itself to reducing by-catch?	Articles 6.6, 7.2.2 Code.
Is there a sub-group of the Scientific Committee that addresses issues concerning non-target, associated or dependent species (including by-catch and other incidental mortality)?	
if the RFMO has established a group which considers a limited number of the non-target, associated and dependent species affected by the fishery; does this group meet regularly?	
Are data on levels of by-catch and/or discards available to the public?	Articles 7.1.9, 7.4.2, 7.4.7 Code; Article 12.1 of UNFSA.
Has the RFMO established systems to monitor dependent/ecologically-related species on which fishing is likely to have an impact?	Article 7.2.2 Code; Articles 6.5, 10 UNFSA.
Has the RFMO established measures to minimise pollution, waste and lost gear?	Articles 6.6, 6.7, 7.2.2g Code. Also Articles 8.5.1, 8.7.1, 8.7.2, 8.7.4 Code and Article 5f of UNFSA in terms of responsibility of States.
Does the RFMO organise or require an education programme for fishers, in relation to reducing impacts on non-target, associated and dependent species (e.g. reducing by-catch/discards)?	Articles 7.1.10, 7.6.9, 8.1.10 Code. Also 6.16, 8.5.1 of Code in terms of responsibility of States.
Has the RFMO taken practical measures to incorporate FAO's IPOA-Seabirds?	
Has the RFMO requested/required States to collect data on by-catch/discards of (target fish, non-target fish, elasmobranchs, turtles, mammals, seabirds) e.g. through observer programmes, or has the RFMO organised the collection of this data through its independent observer programme?	Articles 8.4.3, 12.4 Code; Article 10d, Annexe I Article 1.1 of UNFSA.
Do the States provide observer by-catch/discards data on (target fish, non-target fish, elasmobranchs, turtles, mammals, seabirds)?	Articles 8.4.3, 12.4 Code. Also Articles 5j, 6.3d and 18.3e Code and Annexe I Article 1.1 of UNFSA in terms of responsibility of States.
Has the RFMO conducted/coordinated research on the impact of fisheries on population sizes of	Article 7.2.2 Code; Article 10d of UNFSA. Also, Articles 6.3d of

(juvenile target fish, non-target fish, elasmobranchs, turtles, mammals, seabirds)?	UNFSA in terms of responsibility of States.
Has the RFMO initiated, or coordinated, research on the impact of gear and fishing practices on the by-catch of (juvenile target fish, non-target fish, elasmobranchs, turtle, mammal, seabird), including research on measures to reduce by-catch?	Articles 6.6, 7.6.4, 7.6.9, 8.4.8, 8.5.4 Code; Article 10d of UNFSA. Also 12.10 in terms of responsibility of States.
Has the RFMO established measures (or is co-ordinating research) to monitor compliance with by-catch/discard-reducing measures?	Articles 6.10. 8.1.4 Code; Article 10h of UNFSA. Also 7.1.7 Code and Articles 5(l) and 18.1 of UNFSA in terms of responsibility of States.
Has the RFMO established research to monitor the effect of by-catch/discard-reducing measures?	Rome Consensus on World Fisheries, 1995. Article 7.6.8 Code; Article 6.5 of UNFSA. Also 8.5.1 Code for feedback.
Has the RFMO made recommendations on fishing gear and fishing practices, in relation to reducing by-catch of (juvenile target fish, non-target fish, elasmobranchs, turtles, mammals, seabirds)?	Articles 6.6, 7.2.2, 7.6.9 Code; Article 6.3d and Annexe II.4 of UNFSA
Has the RFMO established by-catch limits?	
Has the RFMO established/coordinated incentives or penalties for vessels/individuals (i.e. boat captains, fishers) to comply with by-catch measures (e.g. technical or financial assistance, or list of authorised captains, vessel by-catch limits with observers)	General requirement for control schemes outlined in Article 7.7.3 Code and Article 20.1 of UNFSA; State responsibilities for sanctions outlined in Articles 7.7.2, 8.2.7 and 19 of Code

Literature cited

BirdLife International, 2004. Tracking Ocean Wanderers: the global distribution of albatrosses and petrels. Results from the Global Procellariiform Tracking Workshop, 1-5 September 2003, Gordon's Bay, South Africa. Cambridge, UK, BirdLife International.

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

Brothers, N.P.; Cooper, J.; Løkkeborg, S. 1999. *The incidental catch of seabirds by longline fisheries: worldwide review and technical guidelines for mitigation*. FAO Fisheries Circular. No. 937, Rome, FAO. 1999. Available at www.fao.org.

Crowder, L.B. and Myers, R.A. 2001. *A comprehensive study of the ecological impacts of the worldwide pelagic longline industry*. First Annual Report to the Pew Charitable Trust. Available at moray.ml.duke.edu/faculty/crowder/research/

FAO, 1998. *Report of the FAO Technical Working Group Meeting on Reduction of Incidental catch of Seabirds in Longline Fisheries*. Tokyo, Japan, 25-27 March 1998. FAO Fisheries Report No. 585.

FAO, 1998. *Report of the Preparatory Meeting for the Consultation on the Management of Fishing Capacity, Shark Fisheries and Incidental Catch of Seabirds in Longline Fisheries*. Rome, Italy, 22-24 July 1998. FAO Fisheries Report No. 584.

FAO, 1999. *International Plan Of Action For Reducing Incidental Catch Of Seabirds In Longline Fisheries*, Rome, Italy.

http://www.fao.org/documents/show_cdr.asp?url_file=/docrep/006/x3170e/x3170e02.htm

Gales, R., 1993. Cooperative mechanisms for the conservation of the albatross. Australian Nature Conservation Agency Review. Tasmanian Government Printer, Hobart.

Lugten, G. 1999. *A Review of Measures Taken by Regional Marine Fishery Bodies to Address Contemporary Fishery Issues*. FAO Fisheries Department, 1999. Available at www.fao.org

Molony, B. *Estimates of the mortality of non-target species with an initial focus on seabirds, turtles and sharks*. Oceanic Fisheries Programme, Secretariat of the Pacific Community, Noumea, New Caledonia. 84 pages.

Small, C.J. 2005. *Regional Fisheries Management Organisations: their duties and performance in reducing bycatch of albatrosses and other species*. Cambridge, UK: BirdLife International. 98 pages.

Weimerskirch, H., Brothers, N., Jouventin, P., 1997. Population dynamics of Wandering Albatross *Diomedea exulans* and Amsterdam Albatross *D.*

amsterdamensis in the Indian Ocean and their relationships with long-line fisheries: conservation implications. *Biological Conservation* 79: 257-270.