Discussion paper to the Tuna RFMOs Kobe II bycatch workshop Brisbane June 23-25 2010.

CCAMLR Science Officer

Introduction

The objective of the CAMLR Convention is the conservation of Antarctic marine living resources (where conservation includes 'rational use'). This creates the need to address the effects of fisheries on dependent and related species. This includes invertebrates, fish, birds and marine mammals that are impacted by a fishery either because they are direct or indirect consumers of the target species or because they are subject to negative consequences (eg incidental mortality) arising from the activities of the fishery. CCAMLR has in place a range of measures to avoid, mitigate and limit the effects of fishing on non-target species; from marine benthos to seabirds. This paper presents the case-study of the approach taken by CCAMLR to address the issue of incidental mortality of seabirds as a result of longline fishing, as this is of the greatest direct relevance to the relationship between CCAMLR and the tuna RFMOs. The approach taken by CCAMLR in respect of seabirds reflects the general principles that it applies in its approach to managing other non-target catch issues.
The actions taken by CCAMLR in addressing seabird bycatch in longline fishing can be divided into four key stages, recognising that these are not simply sequential but that there is an essential feedback process to deliver continued improvement:

1. *Recognition of the issue*

Longline fishing for Patagonian toothfish (*Dissostichus eleginoides*) in the CAMLR Convention Area began in 1989. This was coincidentally at a time when it was becoming apparent that populations of albatrosses breeding in the Convention Area were in decline and that mortality associated with longline fishing (albeit outside the Convention Area) was a large contributory factor to this decline (Prince et al. 1998). Although, data with which to quantify the level of seabird mortality in its fisheries was very limited, CCAMLR recognised the need to take proactive and precautionary measures to address incidental mortality of seabirds in those longline fisheries carried out in the Convention Area.

2. *Development of effective bycatch related management measures*

By 1991, when the potential number of seabirds (Dalzeil and de Poorter (1993) being killed in its longline fishery became apparent, CCAMLR recognised the need for management measures to reduce bycatch as well as a mechanism to engage all stakeholders in a process to develop and improve the implementation of those measures. The first binding Conservation Measure (CM 29/X introduced in 1991 http://www.ccamlr.org/pu/e/e_pubs/cm/e-cons-meas-91-92.pdf), recognised that, even in the absence of a quantitative assessment, there were actions (based on the experience in tuna fisheries north of the Convention Area e.g. Brothers 1991) that could be taken by vessels to reduce the risk of seabird bycatch. In adopting CM 29/X CCAMLR also recognised that continued research into the effectiveness of different approaches to mitigation was required and in 1993 it established the Working Group on Incidental

Mortality Associated with Longline Fishing (WG-IMALF), a cross-sector stakeholder discussion/research forum. Participants in this working group have included fishers, fisheries managers, scientists and expert bodies such as ACAP and Birdlife International to provide practical and pragmatic approaches to finding effective mitigation. A key component of the development of effective bycatch management measures was the requirement, introduced in 1993, for all longline vessels to carry observers appointed as part of the CCAMLR Scheme of International Scientific Observation (see http://www.ccamlr.org/pu/e/e_pubs/cm/09-10/obs.pdf). This provided a mechanism to obtain accurate data on the level of non-target catches, including seabird bycatch, as well as to provide feedback on the technical details of mitigation measures being implemented.

3. *Process of adoption of those measures*

CCAMLR (the Commission) meets annually to set catch limits and agree other Conservation Measures to achieve its conservation aims based on the best available scientific evidence available. The Scientific Committee (SC-CAMLR) also meets annually prior to the Commission and provides a forum for consultation and co-operation concerning the collection, study and exchange of information on the marine living resource to which the Convention applies (CAMLR Convention Article XV). SC-CAMLR also considers the reports of its subsidiary working groups (including WG – IMALF which later became WG-IMAF to allow for consideration of other sources of incidental mortality) in preparing recommendations to the Commission. The substantive text of many of the seabird bycatch related Conservation Measures can be tracked from their genesis in the report of WG-IMALF, refined in the Scientific Committee and implemented by the Commission.

4. *Implementation and improvement of management measures*

Implementation - Since the first meeting of WG IMALF in 1993 it has been recognized that successful implementation of bycatch measures required outreach to vessels and fishers in order to ensure effective communication with those responsible for actually putting the mitigation into practice. This has included booklets and guides (e.g CCAMLR 1996, Onley and Bartle 1999) that have been made available in the official languages of the Commission and posters provided to vessels in the most commonly spoken languages of fishing vessel crews.

Improvements - In relation to the Conservation Measures addressing seabird bycatch there have been iterative improvements made as a results of the annual reviews and scientific consideration of WG IMAF. A key element of this process was the introduction of a risk assessment process, based on the spatio-temporal overlap between fisheries (based on the detailed data submitted to CCAMLR in notifications of intention to fish in the forthcoming season) and seabirds (based on advice from Birdlife International's Global Seabird Tracking database) (see Waugh et al. 2008). This provides a framework for proportionate management action to be implemented. This regular review by WG-IMAF, with recommendations passed to the Scientific Committee for consideration and thence to the Commission, has also allowed the development of gear-specific measures (e.g. suitable for Spanish system or autoline vessels) and in some cases

for the removal of mitigation requirements (for example in Conservation Measure 24-02 where vessels demonstrating required line sink rates are not restricted to setting lines only at night). There has also been a recognition that, in considering the reduction in seabird bycatch achieved by CCAMLR, it may not be possible to attribute a proportion of the reduction to individual components of the ensemble of measures that have together proved effective in reducing seabird bycatch to current low levels.

Discussion questions for the Kobe II bycatch workshop

In respect of three key questions presented for discussion at the Kobe II ERS meeting:

1. How can tuna RFMOs better assess bycatch?

2. How can tuna RFMOs improve mitigation of bycatch?

3. How can tuna RFMOs better cooperate and coordinate to address bycatch?

The answers provided here are provided as if they were framed as 'how would/does CCAMLR do this' We have taken this approach in order not to foreshadow discussion at the workshop but also recognising that the read-across to the tuna RFMOs will hopefully provide support for the discussion at the workshop

1. How can tuna RFMOs better assess bycatch?

The collection of bycatch data through the CCAMLR Scheme of International Scientific Observation, where data are collected under an agreed data collection protocol that allows fishery-wide extrapolation of bycatch (with associated confidence intervals), was seen by CCAMLR as a basic requirement to assess seabird bycatch by longlines. It is essential to correctly identify the bycatch species involved. For example, in the case of bird species specific foraging characteristics, including day/night and diving capabilities as these are likely to influence potential bycatch mitigation measures. This species identification is also essential given the different conservation status of many of the taxa involved and the consequential priorities for action.

2. How can tuna RFMOs improve mitigation of bycatch?

A generic approach was taken by CCAMLR to reduce bycatch through a hierarchical strategy of avoidance, mitigation and limitation. Avoidance entails separating fisheries from areas or times of greatest seabird density through seasonal and/or area closures. Mitigation describes measures taken on the vessel to reduce bycatch; for example to reduce the attraction of seabirds to the vessel (e.g. through offal discharge management) and to reduce access to baited hooks through line weighting and/or the use of streamer lines. Limitation provides for fisheries or vessel-specific bycatch limits that trigger specific management action; the use of limits in association to preferential access to

fisheries has provided a stimulus to fisher-driven mitigation approaches and technologies that have subsequently been applied more broadly.

In respect of the detailed types of mitigation measures that are available the FAO 'Best practices to reduce incidental catch of seabirds in capture fisheries' (FAO 2009) provides a well articulated basis for an effective approach to reducing bycatch. In particular that document refers to proven measures that have been shown to reduce seabird byctach and should be implementable in a range of fisheries. Many of the recommendations in the FAO guidelines have their origins in the experience of CCAMLR in successfully reducing seabird bycatch in its longline and trawl fisheries. The FAO guidelines specifically recognise the process of review of the effectiveness of measures by WG IMAF in developing a clear set of effective measures for CCAMLR fisheries.

3. How can tuna RFMOs better cooperate and coordinate to address bycatch?

Notwithstanding the reduction in incidental mortality of seabirds in CCAMLR fisheries fishery-related mortality of seabirds which breed in the CAMLR Convention Area through interaction with fisheries operating outside still pose a significant conservation threat to those species (Croxall 2008). Article XXIII of the CAMLR Convention encourages the development of working relationships with inter-governmental organisations which could contribute to the work of CCAMLR; this is reflected in the content of CCAMLR's Resolution 22/XXV that seeks engagement with RFMO's that have relevance to the conservation of Southern Ocean seabirds. This Resolution encourages Parties to CCAMLR that are also Members of those RFMOs to encourage those bodies to address issues of seabird bycatch and identify where such bycatch might involve birds that breed in the CAMLR Convention Area.
Recognising the importance of data sharing and cooperation CCAMLR has an arrangement for data sharing with WCPFC (since 2008), and has an MOU with ACAP (since 2010) to exchange information on seabird bycatch in fisheries adjacent to the CCAMLR area and to develop cooperation on other areas relevant to albatross and petrel conservation. Recently CCAMLR has also been working with CCSBT on education and outreach material related to the identification of seabirds caught in CCSBT fisheries.
In addition to the benefits of direct cooperation between RFMOs CCAMLR has also benefited from interaction with expert bodies, such as ACAP and Birdlife International – both of whom are invited experts to CCAMLR's WG-IMAF - in providing the best available information for consideration of seabird mitigation issues including the status and trends and distribution of potential bycatch species.

Acknowledgements
This discussion paper reflects the work of a large number of people involved in the work of CCAMLR in particular the current co-conveners of WG-IMAF, Kim Rivera and Nathan Walker, provided expert input into this paper. For further details of the work of WG-IMAF see
http://www.ccamlr.org/pu/e/sc/imaf/docs/CCAMLR_elimination%20of%20IMAF.pdf

References

Brothers N (1991) Albatross mortality and associated bait loss in the Japanese Longline Fishery in the Southern Ocean. Biol Conserv 55:255–268

CCAMLR (1996) Fish the sea not the sky. CCAMLR, Hobart. - http://www.ccamlr.org/pu/e/e_pubs/ftsnts.pdf

Croxall, J.P. (2008) The role of science and advocacy in the conservation of Southern Ocean albatrosses at sea. Bird Conservation International. 18:S13–S29

Dalziell J and de Poorter M (1993) Seabird mortality in longline fisheries around South Georgia. Polar Rec 29:143-145

FAO (2009) Fishing operations 2. Best practices to reduce incidental catch of seabirds in capture fisheries. *FAO Technical Guidelines for Responsible Fisheries No1 Suppl 2.* FAO Rome 49pp

Onley, D and Bartle, S (1999) Identification of Seabirds of the Southern Ocean: a guide for scientific observers aboard fishing vessels. Te Papa Press in association with CCAMLR - http://www.ccamlr.org/pu/e/sc/imaf/sb-id.htm

Prince, P. A., Croxall, J. P., Trathan, P. N. and Wood, A. G. (1998) "The pelagic distribtuion of South Georgia albatrosses and their relationships with fisheries" in Robertson, G.; Gales, R. *Albatross biology and conservation* Chipping Norton, Australia: Surrey Beatty & Sons

Waugh, S. M., Baker, G. B., Gales, R. and Croxall, J. P. (2008) CCAMLR process of risk assessment to minimise the effects of longline fishing mortality on seabirds. Marine Policy 32: 442–454.