THE NEED TO REDUCE UNCERTAINTIES IN THE ANTARCTIC KRILL FISHERY

Submitted by ASOC
The Need To Reduce Uncertainties In Krill Fisheries

Abstract
Interest in krill fishing continues to grow. To ensure that this fishery develops in accordance with Convention principles, CCAMLR must intensify efforts to reduce uncertainties. Lack of sufficient information about abundance of krill and krill predator populations, their distribution and seasonal variability, predator-prey relationships and the effects of climate change are delaying the establishment of krill catch limits among small-scale management units (SSMUs) in Area 48. Uncertainties over krill escape mortality and the impact of krill fishing on fish larvae and krill predators are also concerning. These are urgent issues and we call on CCAMLR’s Scientific Committee to make recommendations to address them and for the Commission act on them at this meeting.

I. Introduction
For several years, ASOC has been calling for improved management of Antarctic krill fisheries, such as establishing feedback management procedures at the SSMU level, requiring systematic scientific observer coverage on board krill vessels, increasing research through a coordinated research plan, improving monitoring through a strengthened CCAMLR Ecosystem Monitoring Programme (CEMP) and enhancing control measures applicable to krill fishing. Some progress has been made, however more work remains to be done.

While ASOC appreciates the action taken by CCAMLR XXVIII to spread out krill catches in order to prevent concentration of fishing effort, the conservation measure was insufficient to address the problem. Currently 99% of krill fishing takes place in coastal areas close to penguin breeding colonies in overlap with their foraging grounds. Recognizing this, at WG-EMM 2009, it was agreed that large catches up to the trigger level or current catch limit (620,000 tonnes) from localities within subareas should be avoided. The Scientific Committee (SC) at CCAMLR XXVIII endorsed this recommendation, and consequently discussed how to distribute the catch limit into the Subareas 48.1, 48.2, 48.3 and 48.4. After a long discussion, percentages of the catch limit were allocated to the four Subareas, but no provision was included to avoid concentration of catches in coastal areas. With the current distribution of the fishing effort, the likelihood of localized impact on predators is quite high unless some further spatial area limitations on catches in coastal areas are implemented.

At CCAMLR XXVIII, a Conservation Measure was adopted to place scientific observers on board krill vessels. The CM makes mandatory the appointment of observers (national or international) on krill fishing vessels, with a required coverage of no less than 30% in the fishing season 2009/10 and no less than 50% in fishing season 2010/11. In addition, the SC agreed that WG-SAM would design a scientific observer program for krill at its meeting in July 2010. ASOC encourages CCAMLR to follow the advice of WG-SAM to strengthen the current requirement and to move forward towards a systematic scientific observation of the krill fishery.

II. Priority Issues For CCAMLR XXIX
A. Implement systematic observer coverage for the krill fishery
Data from scientific observation is the key component necessary for ecosystem-based management of the krill fishery. For many years, the Scientific Committee has been calling for scientific observers on board all krill fishing vessels, in order to understand the overall behaviour and impact of the fishery on dependent predators and the ecosystem. A robust scientific observation program is also fundamental to collect biological data—a factor that currently limits CCAMLR’s ability to monitor and manage the krill fishery.

At CCAMLR XXVIII, partial scientific coverage was introduced as a requirement for the first time in the krill fishery through CM 51-06. The systematic observer coverage scheme adopted in the CM includes the following:
A target coverage rate of no less than 30% of vessels during the 2009/10 fishing season and no less than 50% of vessels during the 2010/11 fishing season

A target coverage rate of more than 20% of observed hauls set by a vessel per fishing season being sampled

All vessels being observed at least once every two fishing seasons

All areas and seasons within each subarea or division being covered by an observer each year

At the same time, the Commission agreed to review this CM at its 2010 meeting based on the analysis of WG-SAM and WG-EMM, and the advice of the Scientific Committee.

The level of observer coverage needed may differ from area to area and at different times of the year. Higher coverage will be needed in areas where krill population parameters have higher variability as opposed to other areas with lower variability. Obtaining information on landed catch, conversion factors used, escape mortality and the mass-at-length of krill sampled is important to determine the total mortality of each length class of krill. This information is needed to make an integrated assessment of krill, which is key for making sound fishery management decisions.

At the recent meetings of WG-SAM and WG-EMM, considerations on observer coverage needs in relation to areas and times of the year were analysed. The Commission should follow the working groups’ recommendations and adopt a well-designed program for systematic observer coverage in the krill fishery.

B. Undertake krill biomass surveys

Estimates of pre-exploitation biomass of krill (B0) are uncertain for a variety of reasons. Of greatest concern is the fact that the last survey was conducted a decade ago. Moreover, it is now understood that krill are increasingly impacted by climate change. Therefore, CCAMLR Members should take the necessary steps to conduct a new krill synoptic survey to obtain a new biomass estimate for Area 48. Concurrently, krill fishing vessels should be encouraged to conduct small-scale acoustic surveys as part of their fishing operations. Information from such acoustic surveys would be fundamental to the understanding of the inter-annual variability in fishing grounds across subareas. Surveys in Subarea 48.2 are particularly needed since no research programs are active in this area.

C. Strengthen and Fund CCAMLR Ecosystem Monitoring Program (CEMP)

CCAMLR has adopted a feedback approach to krill fisheries management which requires management measures to be continuously adjusted as relevant information becomes available on the interactions between krill fishing and krill predators. However, this feedback management cannot be properly implemented without an effective CCAMLR Ecosystem Monitoring Program (CEMP). Unfortunately, data submitted to CEMP has been decreasing in recent years. For this reason, in 2009, the Scientific Committee advised that a review of CEMP, including the requirements for its monitoring reference sites was an urgent priority. The AKCP believes that fishing nations must help fund these on-going research and monitoring needs. The issues that need more research and data gathering are as follows: krill and krill predator populations, their distribution and seasonal and inter-annual variability, as well as predator-prey relationships and the effects of climate change.

During the last Antarctic Treaty Consultative Meeting (ATCM) in May 2010, the report from the Antarctic Treaty Meeting of Experts on Implications of Climate Change for Antarctic Management and Governance was presented. Important ideas about the role of CCAMLR’s SC in addressing climate change impacts in its management considerations were discussed. The proposed revision of CEMP can help ensure the impacts of climate change can be distinguished from similar effects of fishing. The CEMP revision also provides an interesting opportunity to establish coordinated ecosystem monitoring between the ATCM’s Committee on Environmental Protection (CEP) and CCAMLR’s SC. Furthermore, at the last ATCM meeting, CCAMLR and CEP agreed to work together and consider their respective monitoring needs, and organize a second joint CEP – SC workshop in 2012 around the theme of monitoring.

Currently, the Lenfest Ocean Program is analyzing the possibility of supporting workshops to contribute towards the development of feedback management of krill fisheries. Issues to be examined in those workshops are related to krill dynamics and variability across Area 48, and monitoring in the context of this
areas. This bycatch includes species which were highly depleted in the late 1960s and ’70s in krill fishing areas. There is still uncertainty over the level of bycatch of juvenile and larval fish in the krill fishery over all seasons and areas prevent a solid analysis of the impact of this bycatch on fish populations.

To address this issue, CCAMLR needs to ensure systematic scientific observation in the krill fishery. It also needs to develop consistent observer protocols across krill fishing vessels to analyse by-catch of fish and other marine larvae, including a procedure for sampling fish of all sizes and different species. Therefore, in addition to samples obtained from traditional trawlers, it is imperative to agree on protocols for scientific observers to sample larvae/juvenile fish when observing continuous krill trawling vessels. In addition, the Scientific Committee should provide advice on the acceptable level of by-catch for different fish species in the krill fishery.

F. Gather Biological Data for the Revision of CM 51-07 in 2011

The most recent risk assessment conducted for WG-EMM has concluded that the 620,000 tonnes trigger level or current catch limit in Subareas 48.1 - 48.4 is not sufficiently precautionary, due to the excessive fishing concentration in coastal areas. The conditions under which the trigger level was established in 1991, have changed, especially the impacts from climate change which have increased significantly. In order to provide a precautionary spatial allocation of this catch limit until agreement can be reached on SSMU allocations, the Commission took a first step and subdivided the trigger level at CCAMLR XXVIII (CM 51-07). This CM is an interim measure to be reviewed in 2011 to ensure the implementation of Article II, taking into account the prey requirements of land-based predators. Consequently, the revised CM should reduce the risk of localized depletion of krill near predator colonies. For this revision to be conducted appropriately, CCAMLR Members will need to gather the necessary predator data and provide them to the relevant working groups. To ensure a robust data collection, Scientific Committee representatives need to engage their relevant national scientists in this discussion.
G. Adapt Data Reporting on Krill Catches in Accordance to the Catch Limit Allocated for Each Subarea

CM 23-06 establishes that krill catches shall be reported on a monthly basis, provided that catches are less than 80% of the trigger level. Nevertheless, CM 23-06 has not been adapted to reflect the spatial allocation of the trigger level among subareas in accordance with CM 51-07 agreed in 2009. Thus, it would necessary to adapt the reporting requirement of CM 23-06 so that vessels begin to report catches at intervals of 10 days when reaching 80% of the catch limit allocated for each of the subareas.

III. ASOC Recommendations

To reduce uncertainties in the Antarctic krill fishery, ASOC urges CCAMLR to:

- Abide by scientific advice provided by WG-SAM and WG-EMM and review CM 51-06 to ensure systematic coverage of international scientific observers for the krill fishery in accordance with the CCAMLR Scheme of International Scientific Observation.
- Agree to and conduct a new krill synoptic survey to obtain an updated biomass estimate for Area 48. Small-scale acoustic surveys should be undertaken regularly in all areas where krill fishing takes place to provide up-to-date information on inter-annual krill variability. Subarea 48.2 is of particular importance, since no research program is active in this Subarea.
- Strengthen the current CEMP to adapt to the needs of a feedback management system. Concurrently, CCAMLR should develop funding mechanisms to support monitoring as necessary through a dedicated CEMP Fund.
- Follow the recommendations from WG-EMM, providing necessary information on krill escape mortality and participating in experimental work to estimate the level of krill escape mortality.
- Agree on protocols for scientific observers to sample larvae/juvenile fish when observing continuous krill trawling vessels. The Scientific Committee should provide advice on the acceptable level of bycatch for different fish species in the krill fishery.
- Engage national scientists to gather the necessary predator data for revision of CM 51-07 in 2011 and provide them to the relevant working groups.
- Amend CM 23-06 to reflect the need for vessels to start reporting krill catches at intervals of 10 days when reaching 80% of the catch limit allocated for each subarea.