Management of Antarctic Krill
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Information Paper

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I. Background

ASOC is collaborating closely with The Pew Charitable Trusts (PCT-USA) in helping to manage the Antarctic Krill Campaign initiated by PCT in April 2006. The campaign is coordinated by PCT in conjunction with several other foundations. A diverse group of environmental NGOs from around the world, including but not limited to ASOC members, are participating. This Information Paper introduces the campaign and its objectives.1

The Antarctic is one of the most extreme and remarkable places on Earth. The Antarctic continent, together with the surrounding Southern Ocean, is home to an iconic group of birds and mammals found nowhere else. Antarctic krill (Euphausia superba) is central to the Antarctic marine food web, as most organisms are either direct predators of krill or are just one trophic level removed. Krill swim in dense “swarms”, making them very attractive to commercial fisheries, which catch and process krill into oil and meal for aquaculture. An increasing demand for krill meal as part of farmed salmon feed, together with the development of new technologies that make krill fishing and processing more efficient, may trigger a rapid expansion of the fishery that could irreversibly impact the ecosystem, if not properly controlled.

Antarctic krill’s central role in the Southern Ocean ecosystem means that multi-species, rather than traditional, single-species management principles and approaches are needed to take into account potential impacts on krill- dependent predators and the wider marine environment. The Convention on the Conservation of Antarctic Marine Living Resources (CCAMLR), responsible for managing Antarctic krill stocks, applies the precautionary principle and ecosystem-based approaches to the management of marine resources, though their implementation is still at an incipient stage. The precautionary principle is embodied in Article II (c), and the ecosystem approach is addressed in Article II (b). While the needs of krill-dependent species, for example, are taken into account in setting krill fishing quotas for large areas of the Southern Ocean, those need to be subdivided into catch limits for smaller units, taking into account relationships between krill and predators which occur at much smaller scales.

Currently, Antarctic krill fishing occurs entirely in the South Atlantic, in clear overlap with important feeding grounds of land-based krill predators such as penguins and seals. CCAMLR scientists warn of a potential risk of localized krill depletion that could seriously impact populations of krill-dependent species. Information about the relationship in the South Atlantic between krill and other species is still limited, though, and there is insufficient information to assess the impact of environmental conditions such as climate change. In spite of krill’s central role in the ecosystem, krill fishing is still exempt from most monitoring, control and surveillance measures that are applicable to other Southern Ocean fisheries. For example, scientific observers are required on board all vessels fishing in the CCAMLR Area, except for krill vessels, in spite of repeated calls by CCAMLR’s Scientific Committee for complete observer data, which are necessary to develop proper management advice.

The need to advance ecologically sound management for krill has been made more urgent by new harvesting and on-board production technology, introduced in Norway, that allows krill to be pumped continuously out of the water and onto a vessel, where it can be processed immediately to prevent spoilage, allowing vessels to maximize catches and improve profitability, and because of krill’s increased demand as feed for the rapidly expanding international aquaculture industry, as has occurred recently in Chile.

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1 For further information contact Pew’s Antarctic Krill project at Tel: 1-202-552-2138 or email mtaylor@pewtrusts.org.
Backed by CCAMLR’s own principles that require marine ecosystem needs to be taken into consideration in management decisions, CCAMLR member governments are moving forward to establish greater regulatory oversight and put in place an ecosystem-based management regime for krill based on small management units that respond to ecological interactions. However, increased engagement and meaningful results in those scientific and decision-making processes need to occur before the commercial fishery expands to unsustainable levels.

II. Krill Campaign Objectives

The Krill Campaign has two primary objectives: (1) for CCAMLR to manage krill using the same monitoring, control and surveillance measures as it mandates for all other fisheries; and (2) for CCAMLR to approve precautionary, ecosystem-based catch limits at sufficiently small scales to protect marine living resources that are dependent on krill.

CCAMLR should improve the current management of the krill fishery by taking the following measures:

1. **Subdivide krill catch limits among small-scale management units in the South Atlantic so as to ensure that fishing does not compromise krill availability for predators.** In 2002, endorsing advice from its Scientific Committee (SC), CCAMLR divided the South Atlantic (Area 48) into 15 smaller units for the management of the krill fishery (Small-Scale Management Units or SSMUs). The SC is now given the task of providing advice on how to subdivide existing catch limits amongst SSMUs. This subdivision should be decided on the basis of precaution, ensuring that the catch limit allocated for each SSMU does not compromise krill availability for predators.

2. **Mandate scientific observers on board krill vessels.** The presence of scientific observers on board fishing vessels provides information that is key for the SC to provide adequate management advice. CCAMLR should require that each vessel fishing for krill in its Convention Area have at least one scientific observer on board, as mandated for other Southern Ocean fisheries.

3. **Require a Vessel Monitoring System (VMS) for all vessels fishing for krill.** Krill fishery controls should include the requirement that all the vessels that fish for krill should maintain an automated VMS that allows constant monitoring of their positions.

4. **Improve reporting requirements.** Although reporting requirements for the krill fishery have been significantly improved in recent years, these regulations need to be adapted to new fishing and processing techniques currently employed. Specifically, fine-scale reporting must allow cross-fleet comparison between different fishing methods in order to understand the krill fishery trends.

5. **Require submission of detailed fishing plans.** For the SC to be able to assess the krill fishery and provide adequate management advice, CCAMLR Member countries should be required to submit annual reports of their detailed fishing plans, including number of vessels, timing and areas for planned fisheries, expected catch levels, and product information.

6. **Develop a catch documentation scheme for krill.** Catch documentation schemes (CDS) allow monitoring of landings and world trade in fish products. It also enables importing States to identify fish or fishery products caught in a manner that undermines international conservation and management measures, providing a useful tool to address Illegal, Unregulated and Unreported (IUU) fishing. CCAMLR should consider establishing a Catch Documentation Scheme for krill, building on the experience of the CDS developed for the toothfish fishery.

7. **Improve coordination of scientific research programmes on krill and its relationship with other elements of the ecosystem.** Scientific advice on krill management is based on research carried out and reported voluntarily by CCAMLR Members. Increased coordination would strengthen the contribution of their research programs to CCAMLR conservation and management goals. Related thereto, CCAMLR’s ecosystem monitoring program (CEMP) should also be improved to help ensure that changes in key ecosystem elements are adequately identified. Priority should be given to establishing some form of monitoring in areas currently fished but where no data are available.
III. Conclusion

Since its entry into force in 1982, CCAMLR has been a pioneer instrument establishing an ecosystem-based approach to the management of marine resources. A great opportunity arises now for CCAMLR to become a 21st century model for the full application of the precautionary principle and ecosystem management, providing path-breaking fisheries management approaches for the Antarctic region. To achieve that goal CCAMLR’s Member states and other stakeholders need to translate its basic conservation principles into flexible, effective management procedures that ensure the long-lasting health of the Antarctic marine environment and the species that reside therein.