MSC Fisheries Assessment: Antarctic krill fishery

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WWF's Antarctic & Southern Ocean Initiative (ASOI) was established to advocate the protection of the biodiversity of the Antarctic and Southern Ocean through an ecologically representative network of MPAs; sustainable management of legal fisheries and measures to address illegal, unregulated and unreported fishing; the recovery and stabilization of populations of Southern Ocean seabirds; and the improved resilience and adaptation ability of the system to the impacts of climate change. The Initiative is hosted by WWF Australia.

A number of WWF national offices directly contribute to the aims and objectives of the ASOI, including WWF Australia, WWF-New Zealand, WWF South Africa, WWF-UK, WWF-US, WWF-Norway and associate Fundacion Vida Silvestre Argentina (FVSA). Other WWF offices engage in advocacy at a national level ahead of key political opportunities and decision-making meetings, such as the annual meetings of the Antarctic Treaty Consultative Parties (ATCM) and the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR).

As a contribution to the Initiative's work on sustainable legal fisheries in the Southern Ocean, ASOI is interested in the Marine Stewardship Council certification / recertification of any Southern Ocean fisheries, including the South Georgia and South Sandwich Islands Patagonian toothfish longline fishery, South Georgia icefish pelagic trawl fishery, Australian mackerel icefish fishery, the New Zealand Ross Sea toothfish longline fishery (RSLT) and the Antarctic krill fishery.

WWF considers that precautionary management of the krill fishery, which is transparent and enforceable, is fundamental to the health and status of krill stocks and all the Southern Ocean species dependent on krill and the health of the wider ecosystem. The expected expansion of the krill fishery is currently not matched by investments in science and monitoring of impacts on predator populations required for precautionary management of the fishery, and poses huge challenges for the current and future sustainability of the fishery.

WWF's ASOI has a number of concerns about the potential certification of the Antarctic krill fishery. The key issues are *Catch Limits for Antarctic krill, Small Scale Management Units, Technology, Scientific Observers, Research and Monitoring, and Integrating Climate Change impacts into Ecosystem-based Management*. The issues are described in detail below.

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Proposed certification of the Aker BioMarine Antarctic krill fishery

Antarctic krill, *Euphausia superba,* is considered to be the lynch pin of the Antarctic food chain. Krill is worth millions of dollars to industrial fishing operations and there is a growing interest in entering into the fishery. For almost 40 years the Antarctic krill fishery has been the largest fishery in the Southern Ocean for which Russia, Japan, Chile, Korea, Ukraine, Poland and Norway have been the major players. From 1990 until today, about 100 000 tons of krill has been harvested annually. Heightened interest in the krill fishery and changing technology may lead to more participants entering the fishery, which, if not well managed, could result in localized depletion of krill and serious damage to the Southern Ocean foodweb. It is important to meet these challenges by ensuring that adequate and effective conservation and management measures are in place.

Maintaining krill populations and making informed decisions to protect wildlife that depend on krill as a food source is fundamental to the orderly development of the krill fishery. Yet there is still insufficient knowledge about the impacts of the fisheries on krill populations and dependent predators. There can be little doubt, however, that krill fishing can have significant localized impact on predator populations. There is a close relationship between krill and baleen whale distributions, and the current fisheries are operating close to shore where land-based predators forage. Reduced abundance of krill in these areas may pose significant risks to krill dependant predators, such as seals and penguins.

Furthermore, recognizing that the Southern Ocean is already experiencing impacts associated with global climate change, the regulations that apply to the krill fishery must use the precautionary approach and consider climate impacts when making management decisions.

WWF's ASOI has a number of concerns about the potential certification of the Antarctic krill fishery. The key issues are outlined below:

- **Catch Limit for Antarctic Krill** – The current catch limit for Antarctic Krill in Area 48 (Subareas 48.1, 48.2, 48.3 and 48.4) is 3.47 million tonnes, which is around 10 % of the estimated total biomass in this division. WWF is concerned that while this represents a smaller catch limit than for most other fisheries, it may fail to protect krill predators at the local scale where they compete with industrial trawlers for a smaller number of krill.

  In 2007 CCAMLR amended Conservation Measure 51-01 to set an interim catch limit for Area 48 at 620 000 tonnes until CCAMLR has divided the entire catch limit of 3.47 million tonnes into so-called SSMUs. The origin of this interim catch limit was the agreement that even a relatively low catch limit could lead to localized depletion of krill, if the entire catch was taken in one small area, and krill predators would be left without a food source.

  WWF strongly supports this interim catch limit and believes that it must remain in place until CCAMLR has adopted an adaptive feedback management system that not only divides the catch limit into SSMUs, but is flexible enough to respond to ongoing monitoring.

  WWF also believes that for the fishery to be certified it must be able to demonstrate that there is no significant localized impact on predator populations, and ensure that the fishing effort is well-dispersed to avoid conflict and competition with krill predators at a local scale.

- **Small Scale Management Units (SSMU)** –To address concerns that intensive fishing in small areas would adversely impact krill predators, CCAMLR divided Area 48 (Subareas 48.1, 48.2 and 48.3) into 15

SSMU's in 2002. CCAMLR's Scientific Committee is currently considering how to divide the total catch limit among the SSMUs. WWF acknowledges the challenges related to accurately dividing the catch into SSMUs, and believes there is an urgent need for more detailed knowledge about the relationship between krill biomass and predator populations in space and time, the effects of krill harvesting on predator populations and the impacts of climate change on krill recruitment and survival to be able to make the correct division.

WWF believes that it is essential that the Aker BioMarine krill fishery contributes with information related to how the fishing effort is distributed according to the proposed SSMU's and in relation to predator distribution, to be able to conclude on potential localized impacts of the krill fishery.

- **Technology** – Aker BioMarine has introduced innovative technology to the fishery that has never before been used in the Antarctic. This advanced catching and on-board processing technology allows vessels to maximize catches and improve profitability. The application of these technologies to krill fishing in the Antarctic enables operators to increase catch up to 120 000 tonnes per year per vessel (equal to the total annual krill catch of all vessels in recent years).

  WWF is concerned about the unknown impacts of this technology on the Antarctic marine ecosystem, especially in relation to the bycatch of marine larvae. As a requirement the fishery must document the level of bycatch of marine larvae, and contribute to further study using new and existing data of the impact of bycatch of marine larvae as part of the assessment.

- **Scientific Observers** – The krill fishery in Area 48 is the only fishery in the Southern Ocean that CCAMLR exempts from its International Scheme of Scientific Observation. However, the data required by CCAMLR's Scientific Committee to implement ecosystem-based management of the krill fishery is substantial and cannot be met without a robust observer program. WWF believes that the Antarctic krill fishery must be subject to a comprehensive international scientific observer program in accordance with CCAMLR's Scheme of International Scientific Observation, and that the krill fishery should not be allowed to expand until all participants agree to comply.

  WWF advocates 100% observer coverage of all krill vessels, in accordance with CCAMLR's Scheme of International Scientific Observation to collect data necessary to evaluate and mitigate the impact of all krill fishing technologies on the Antarctic ecosystem, and improved catch and effort reporting to allow a haul-by-haul comparison between traditional trawl methods and Aker's recently introduced pumping technology to inform management decisions.

- **Research and monitoring -** There is an urgent need for more detailed knowledge about the spatial relationship between krill biomass and predator populations, the effects of krill harvesting on predator populations and the impacts of climate change on krill recruitment and survival. However, data submitted to the CCAMLR Ecosystem Monitoring Program (CEMP) has been decreasing in recent years and new investments in krill fishing are not being matched by the appropriate investments in science needed for a robust, scientifically-based management system.

  WWF believes that it is the responsibility of all participants in the krill fishery to contribute to research in the region, by both allowing researchers to enter onboard the vessels, allowing independent scientific observers onboard and by contributing to monitoring costs through a dedicated CEMP Fund.

- **Integrating Climate Change impacts into Ecosystem-based Management** – The mean air temperature has risen by 2.5˚C in the last 50 years over the Antarctic Peninsula. Global climate change will continue to result in changes to the Southern Ocean's temperature, acidity and sea ice coverage, with consequences on krill populations that are not yet well understood. Nonetheless, there is already some evidence of direct consequences for krill stocks through the loss of sea ice, and we know from observations of current patterns in the Arctic and other parts of the world that climate impacts can happen more quickly and at a greater scale than anticipated by models or scenarios within polar regions. In 2007, the CCAMLR Working Group on Ecosystem Monitoring and Management noted that the results of a comprehensive review of the structure and operation of the Scotia Sea ecosystem indicated that a combination of historical exploitation and the effects of climate change could lead to significant and rapid changes over the next two to three decades.

  WWF believes that krill management needs to be adaptive and flexible in order to allow rapid adjustments as new information on the impacts of climate change becomes available. Failure to do so could mean that current management may prove to be inadequate as changes in seasonality, food availability, and migration result in changes in krill stocks that could not been foreseen under non-climate change scenarios. The fishery must have in place the mechanisms to cope and respond to these matters in a timely manner, and we are concerned that this is not currently the case.

Marine Protected Areas - Provisions for the development of a network of marine protected areas are well established under the Madrid Protocol on Environmental Protection to the Antarctic Treaty and the Convention on the Conservation of Antarctic Marine Living Resources, but so far these provisions have not been used to their full potential. A process has now been established with a workplan adopted in November, 2008 to identify and designate an ecologically representative network of marine protected areas in the Southern Ocean, including the prioritization of a number of areas within Area 48.

While it is unlikely that all the areas identified for protection will be highly protected, i.e. no or extremely limited activity allowed, WWF is hopeful that a reasonable percentage of sites would be highly protected meaning that no fishing would be allowed. The future management of fisheries in Area 48 will need to take into account the development of an ecologically coherent network of MPAs in the area.

WWF believes that all fisheries, including krill fisheries, in area 48 must be cognizant of the fact that a network of marine protected areas is likely to be established in the area in the near future, and should be supportive of the need to include networks of MPAs in the delivery of ecosystem-based management in the region. In addition, they should commit to abide by any future management arrangements agreed through the Antarctic Treaty Consultative Meetings and CCAMLR meetings for the future development and management of an ecologically representative network of MPAs in the region.

- **Expertise of the assessment team** - WWF remains concerned at the limited Southern Ocean marine scientific expertise in the assessment panel. Given the importance and significance of the Southern Ocean ecosystem, it is difficult to comprehend why this expertise has been overlooked in the current assessment panel. While we recognize the competency of the panel, we believe the assessment team should include at least two scientists with significant Antarctic marine scientific expertise. WWF has previously offered names of possible candidates who have considerable Antarctic marine science and fisheries expertise and has also provided names of possible independent peer reviewers including Steven Nicol

(Australian Antarctic Division (AAD)), Phil Tratham (British Antarctic Survey), So Kawaguchi (AAD), and William K. de la Mare (AAD).

WWF urges that one or more of these experts to be consulted in the evaluation of the suitability of this fishery for MSC-certification.

This briefing provides an overview of the issues and major areas of concern to WWF, further information and references are available if required.

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- conserving the world's biological diversity
- ensuring that the use of renewable natural resources is sustainable
- promoting the reduction of pollution and wasteful consumption.