

## Guest Editorial

### Bridging the great Antarctic krill divide

The Antarctic krill fishery in the Scotia Sea and southern Drake Passage, like many fisheries, divides opinion. One side sees krill as an underexploited resource that can be sustainably harvested to provide a range of products, including those with putative health benefits. The other side sees the fishery as unacceptable because it competes with penguins and whales, and its products are used in intensive farming of fish and livestock. What is unusual is that opinion has polarised before the fishery has had a detectable impact on the ecosystem. Nonetheless, some claim that other fisheries have devastated ecosystems and so this one must be stopped before it inevitably does the same. Some go further and claim that the fishery is unsustainable or that krill is already overfished.

The FAO estimates that around 30% of global fish stocks are overexploited and a further 57% are fully exploited. This provides some context for the concern about krill. Conversely, the current Antarctic krill catch and catch limit are very low compared to estimated biomass (~0.4% and ~1% respectively). The catch limit allows the fishery to reduce the krill stock by about 2% while common definitions of sustainable catch typically allow reductions of more than 40%.

The krill stock is not overfished and the catch limit is a significant barrier to future overfishing. That said, this is no time for complacency. Demand for krill products is growing, the ecosystem is under pressure from the effects of climate change, and there is uncertainty about its present state and how it will respond to change. Uncertainty means, for example, that there is a risk that the current catch limit will allow stock reductions of more than 2% but the risk of a 40% reduction is vanishingly small. There are challenges to be addressed to ensure that future management of the fishery is effective. These challenges include identifying vulnerable parts of the ecosystem and establishing spatial protection, identifying effective indicators of the state of the krill stock and the wider ecosystem, developing flexible management that can adapt to changing conditions, and ensuring that catch limits are enforced.

Over the past few decades there has been a global change in attitudes to ecological resources. Many scientists, decision-makers, conservationists and business people now recognise the need to maintain the health, resilience and productivity of ecosystems so that they can continue to provide the benefits that mankind currently enjoys. These benefits can include the knowledge that penguin and whale populations are healthy, and the potential economic and health benefits of krill products. Some of these benefits would not exist without a fishery but an unregulated fishery would threaten others. An appropriate middle way would be a well managed fishery that limits the risk to penguins and whales both now and in the future. This is the approach that the 2002 World Summit on Sustainable Development (WSSD) advocated for fisheries world-wide. It is also the approach required by the 1982 CCAMLR Convention which both governs and permits the Antarctic krill fishery.

Either an unregulated fishery or a complete ban on fishing is unlikely. To pursue either of these extremes is to reject the approach recommended by the WSSD. Such a rejection would send a pessimistic signal around the world, particularly because the Convention helped to pioneer this approach. The alternative is to identify objectives for the ecosystem components that provide the various benefits and to establish trade-offs. Cooperating with those who have different objectives is often more challenging than simply opposing them. However, cooperation to identify trade-offs might be the only way for either side to achieve sensible objectives.

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