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Krill for all: What the Antarctic krill fishery can learn from other systems

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The notion that marine predators (seabirds and mammals) and fisheries compete for the same resources (i.e., small pelagic fish and invertebrates) has been of interest to the marine conservation community for decades. In the Southern Ocean, fishing grounds for Antarctic krill (*Euphausia superba*) overlap with foraging ranges of krill-dependent predators. Combined with the impacts of climate change, competition for resources in the Southern Ocean could compromise conditions for Southern Ocean species, particularly as the fishery grows. To address these challenges, the Scientific Committee of the Commission for the Conservation of Antarctic Marine Living Resources has prioritized advancing ecosystem-based management for the krill fishery in its 2017-2021 work plan.

We recently convened an international group of fisheries and seabird scientists in two synthesis workshops to review, discuss, and synthesize previous approaches to studying, documenting and managing seabird-fisheries competition. The workshops evaluated three approaches to understand fisheries impacts on seabirds and other predators: 1) models including food web models that parameterize biomass 2) experimental manipulation of fisheries (e.g., time-area closures) in the vicinity of seabird colonies or marine mammal rookeries and 3) observational studies. We share best practices for choosing appropriate predator and prey indicator variables, analyze tradeoffs between method variations, and provide insights on how lessons learned in the workshops can inform the development of Antarctic krill ecosystem-based fisheries management.