

## **FROZEN DESERT ALIVE**

### **A close look at the Antarctic pack-ice ecosystem**

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In spite of its harsh climate, the Antarctic Seasonal Sea Ice Zone is remarkably diverse and hosts globally significant fisheries resources, such as Antarctic krill (*Euphausia superba*). Large populations of penguins, other birds, seals and whales symbolize the biological richness of this ecosystem. Today, the distribution of sea ice is beginning to alter in some Antarctic regions due to global warming. It is therefore imperative to understand the ecological significance of sea ice in order to better predict future changes of Antarctic marine ecosystems. The production of ice algae is probably fundamental to sustain the rich life of the Antarctic Sea Ice Zone. Thus, the biological resources from the ice must be transferred into the food web of the water column food web by species dwelling at the ice-water interface. A novel sampling device was developed to investigate this barely accessible community, the Surface and Under Ice Trawl (SUIT). Investigations with SUIT yielded the first large-scale evidence that life under Antarctic pack-ice is surprisingly diverse and abundant. Especially Antarctic krill was closely associated with the underside of sea ice. These findings provide new and direct evidence that sea ice is crucially important for the productivity and the biodiversity of the Antarctic SIZ and allow new insights in the response of Antarctic marine ecosystems to changing sea ice characteristics caused by global warming.