

Antarctic krill help to fertilize Southern Ocean with iron

July 4 2011

A new discovery reveals that the shrimp-like creature at the heart of the Antarctic food chain could play a key role in fertilising the Southern Ocean with iron – stimulating the growth of phytoplankton (microscopic plant-like organisms). This process enhances the ocean's capacity for natural storage of carbon dioxide.

Reporting this month in the journal *Limnology and Oceanography*, an international team of researchers describe how [Antarctic](#) krill (*Euphausia superba*), once thought to live mostly in surface waters, regularly feed on iron-rich fragments of decaying organisms on the sea floor. They swim back to the surface with stomachs full of iron, releasing it into the water.

Antarctic krill is the staple diet for fish, penguins, seals and whales; and is harvested by commercial fisheries for human consumption.

Lead author from British Antarctic Survey, Dr Katrin Schmidt says, "We are really excited to make this discovery because the textbooks state krill live mainly in surface waters. We knew they make occasional visits to the sea floor but these were always thought as exceptional. What surprises us is how common these visits are – up to 20% of the population can be migrating up and down the water column at any one time."

The scientists painstakingly examined the stomach contents of over 1000 krill collected from 10 Antarctic research expeditions. They found that

the krill, caught near the surface, had stomachs full of iron-rich material from the seabed. The team also studied photographs of krill on the sea floor, acoustic data and net samples. All these provided strong evidence that these animals frequently feed on the [sea floor](#).

This finding has implications for managing commercial [krill](#) fisheries and will lead to a better understanding of the natural carbon cycle in the [Southern Ocean](#).

Schmidt continues, "The next steps are to look at exactly how this iron is released into the water."

More information: The paper, *Seabed foraging by Antarctic krill: Implications for stock assessment, benthic-pelagic coupling, and the vertical transfer of iron* by Katrin Schmidt, Angus Atkinson, Sebastian Steigenberger, Sophie Fielding, Margaret C.M. Lindsay, David W. Pond, Geraint A. Tarling, Thor A. Klevjer, Claire S. Allen, Stephen Nicol and Eric P. Achterberg is published in *Limnology and Oceanography*. 56: 1310-1318. aslo.org/lo/toc/vol_56/issue_4/index.html

Provided by British Antarctic Survey

Citation: Antarctic krill help to fertilize Southern Ocean with iron (2011, July 4) retrieved 9 April 2024 from <https://phys.org/news/2011-07-antarctic-krill-fertilize-southern-ocean.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--