

# • Antarctic icebergs: hotspots of ocean life

Global climate change is causing Antarctic ice shelves to shrink and split apart, yielding thousands of free-drifting icebergs in the nearby Weddell Sea. According to a study in the June 21 (2007) issue of *Science* these floating islands of ice — some as large as a dozen miles across — are having a major impact on the ecology of the ocean around them, serving as ‘hotspots’ for ocean life, with thriving communities of seabirds above and a web of phytoplankton, krill, and fish below.

The icebergs hold trapped terrestrial material, which they release far out at sea as they melt. The researchers discovered that this process produces a ‘halo effect’ with significantly increased phytoplankton, krill and seabirds out to a radius of more than two miles around the icebergs. They may also play a surprising role in global climate change.

‘One important consequence of the increased biological productivity is that free-floating icebergs can serve as a route for carbon dioxide drawdown and sequestration of particulate



Researcher Ken Smith (at right) led an expedition to study Antarctic icebergs using a multidisciplinary approach that included examining life beneath the icebergs using this small remotely operated vehicle

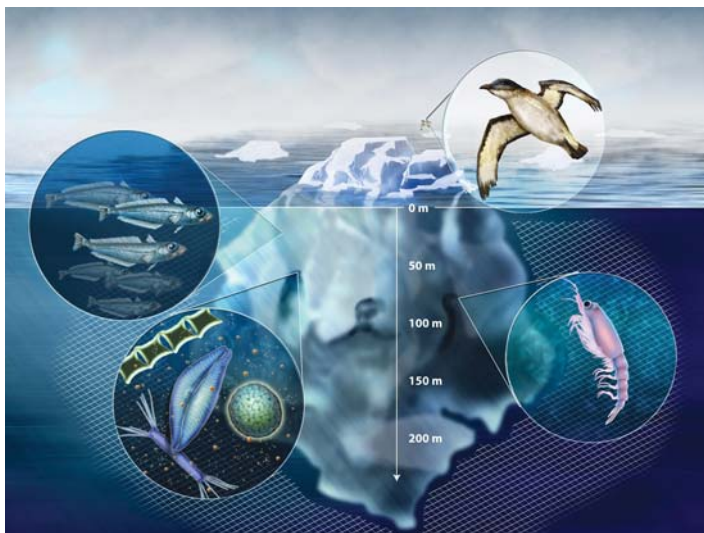
Image credit: © 2005 Rob Sherlock

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carbon as it sinks into the deep sea,’ said oceanographer Ken Smith of the Monterey Bay Aquarium Research Institute (MBARI), principal investigator for the research.

‘While the melting of Antarctic ice shelves is contributing to rising sea levels and other climate change dynamics in complex ways, this additional role of removing carbon from the atmosphere may have implications for global climate models that need to be further studied,’ added Smith.

Based on their new understanding of the impacts of the icebergs and their growing numbers — the researchers counted close to 1,000 in satellite images of some 4300 square miles of ocean — the scientists estimate that overall the icebergs are raising the biological productivity of nearly 40% of the Weddell Sea’s area. ©



**Icebergs hold trapped terrestrial material, which they release far out at sea as they melt**

Illustration by Nicolle Rager Fuller, National Science Foundation

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