Report on the status and trends of Southern Ocean Zooplankton based on the SCAR Southern Ocean Continuous Plankton Recorder (SO-CPR) Survey

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Abstract

The Continuous Plankton Recorder (CPR) can collect surface zooplankton continuously for 450 nautical miles during a single tow at normal ship speed. It is an effective and efficient monitoring tool for detecting surface zooplankton abundances, species composition, and distribution patterns over large oceanic scales. Zooplankton are a crucial link in the Antarctic marine ecosystem and changes in the zooplankton are likely to have substantial flow on effects through the rest of the food web. The Southern Ocean CPR (SO-CPR) Survey provides the largest comprehensive and systematic Antarctic zooplankton data set, spatially and temporally, using a consistent sampling methodology ideal for the purpose of mapping the seasonal, inter-annual, long-term and spatial variation in plankton diversity, as well as to use plankton as sensitive indicators of environmental changes to monitor the health of the Southern Ocean. Since launching in 1991, much of this work has already been published in 68 CPR based research papers, chapters, atlases, and reviews. This report highlights the achievements from over nearly 30 years of SO-CPR activities, and also includes new analyses identifying trends in relation to changes in zooplankton abundance and community composition. The continuation of the current SO-CPR program, the monitoring and mapping of zooplankton, with the continued accumulation of data, will further improve our baseline information on zooplankton abundances and distributions allowing us to detect and hopefully help understand the effects climate change impacts on the ecosystem.