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TITLE: Antarctic Marine Biodiversity ? What Do We Know About the Distribution of Life in the Southern Ocean?

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ABSTRACT:

The remote and hostile Southern Ocean is home to a diverse and rich community of life that thrives in an environment dominated by glaciations and strong currents. Marine biological studies in the region date back to the nineteenth century, but despite this long history of research, relatively little is known about the complex interactions between the highly seasonal physical environment and the species that inhabit the Southern Ocean. Oceanographically, the Southern Ocean is a major driver of global ocean circulation and plays a vital role in interacting with the deep water circulation in each of the Pacific, Atlantic, and Indian oceans. The Census of Antarctic Marine Life and the Scientific Committee on Antarctic Research Marine Biodiversity Information Network (SCAR-MarBIN) have strived to coordinate and unify the available scientific expertise and biodiversity data to improve our understanding of Southern Ocean biodiversity. Taxonomic lists for all marine species have been compiled to form the Register of Antarctic Marine Species, which currently includes over 8,200 species. SCAR-MarBIN has brought together over 1 million distribution records for Southern Ocean species, forming a baseline against which future change can be judged. The sample locations and numbers of known species from different regions were mapped and the depth distributions of benthic samples plotted. Our knowledge of the biodiversity of the Southern Ocean is largely determined by the relative inaccessibility of the region. Benthic sampling is largely restricted to the shelf; little is known about the fauna of the deep sea. The location of scientific bases heavily influences the distribution pattern of sample and observation data, and the logistical supply routes are the focus of much of the at-sea and pelagic work. Taxa such as mollusks and echinoderms are well represented within existing datasets with high numbers of georeferenced records. Other taxa, including the species-rich nematodes, are represented by just a handful of digital records.

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