
Plastic pollution of the King George's island (Antarctica)

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Abstract

The Southern Ocean has a major influence on the oceans and the Earth's climate. The main current of the Southern Ocean is the Antarctic Circumpolar Current (ACT). This current encircles Antarctica, it is directed to the east and occupies the entire water column from the surface to the bottom. The ACC and a series of frontal zones are a natural barrier to meridional transport, however, Clarke et al., 2005 show that eddies can serve as a potential vector for the transfer of plankton which shows that marine litter also might be transported to the inner waters of Antarctica. In the season of 2021-2022 during the 67th Russian Antarctic expedition the shores near two research stations were searched for marine litter. Russkaya is one of the most remote stations situated in the Pacific sector of Antarctica, the coast is almost entirely covered by ice. No garbage was found there. The second was the Bellingshausen station, situated on the King George's island. Two opposite shores were surveyed. Beaches situated on the coast of the Drake Passage were much more polluted compared to the beaches on the side of Maxwell bay. From about 50 to almost 90% of all found items on the shores of Drake passage were made of plastic and majority of them related to fisheries or shipping, compared to about 30% for the Maxwell bay. The King George's island is the place which is put under a lot of pressure from the tourist industry. Also several research stations are situated close to each other, which creates an environment for pollution but also for joint effort to minimize negative effects. Authors thank the Russian Antarctic expedition (RAE) for the opportunity to carry out research. The crew of the R/V Akademik Tryoshnikov and expedition members of the 67th RAE for their help.

Keywords: Marine litter, Antarctica, beaches, macro plastic

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