
Microplastics found in fish from a remote Marine Protected Area in the Sub-Antarctic

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Abstract

Understanding microplastic uptake in fish is of global importance for environmental pollution monitoring of ecosystems as well as understanding the potential ecological implications, human health risk and global economy impacts of plastics within commercially fished species. Much of the research in fish so far has focussed on areas of high human population or industry, but understanding the occurrence of microplastics pollution in more remote areas is vital for defining the scale of the problem and understanding organism uptake at lower pollution levels.

In this study, fish caught in 2017 as part of a monitoring survey from the remote Marine Protected Area around South Georgia were sampled for ingestion of plastics. Differences in plastic types and concentrations were determined between locations around the island and across a generalist feeder and a specialist feeder.

Fish guts were digested with a commonly used method, 2M potassium hydroxide to isolate suspected plastics using microscopy. Contamination was controlled and monitored throughout all steps with strict QC followed. All potential microplastics were chemically characterised using Fourier Transform Infrared Spectroscopy.

Microplastics particles were found across all locations and observed in the guts of both generalist and specialist feeders, however the concentrations and types varied across sites and feeders. The findings provide much needed evidence on microplastics ingestion in a remote Marine Protected Area. This information will contribute to baseline figures for monitoring future microplastics pollution in this important ecosystem.

Keywords: plastics, marine, ecosystems, pollution, conservation, Antarctic, polar, fishes, ingestion

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