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A comparison of plastic and plankton in the North Pacific Central Gyre

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ABSTRACT

The potential for ingestion of plastic particles by ocean filter feeders was assessed by measuring the relative abundance and mass of neustonic plastic and zooplankton in surface waters under the central atmospheric high-pressure cells of the North Pacific Ocean. Neuston samples were collected at 11 random sites, using a manta trawl lined with 333- μ mesh. The abundance and mass of neustonic plastic was the largest recorded anywhere in the Pacific Ocean at 334,271 pieces per km² and 5,114 g per km², respectively. Plankton abundance was approximately five times higher than that of plastic, but the mass of plastic was six times that of plankton. The most frequently sampled types of identifiable plastic were thin films, polypropylene/monofilament line and unidentified plastic, most of which were fragments. Cumulatively, these three types accounted for 98% of the total number of plastic pieces.

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