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Composition and Distribution of Beach Debris in Orange County, California

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ABSTRACT

Many studies have quantified debris collected on beaches around the world. Only a few of those studies have been conducted in the United States, and they are largely limited to semi-quantitative efforts performed as part of volunteer clean-up activities. This study quantifies the distribution and composition of beach debris by sampling 43 stratified random sites on the Orange County, California coast, from August to September 1998. We estimated that approximately 106 million items, weighing 12 metric tons, occur on Orange County beaches. The most abundant items were pre-production plastic pellets, foamed plastics, and hard plastics. Debris density on the remote rocky shoreline was greater than that on high-use sandy beaches for most debris items. This finding partially reflects the periodic clean-up of high-use beaches by local municipalities, and also indicates that a high percentage of the observed debris was transported to the site from waterborne sources.

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