

Abstract – Marcus Eriksen, 5Gyres

"A field study of the fragmentation of biodegradable packaging in six different environments"

Biodegradable packaging degrades differently in varied environments, but the rates of fragmentation in different terrestrial and marine environments over time is not well understood. Here we collected 22 types of packaging, made from PHA, PHB, PBAT, PE, PS and paper, and placed them in 6 different environments for 64 weeks to measure fragmentation rates. We chose a terrestrial and marine setting in three U.S. locations: Florida, California and Maine. Results show wide variability, with the slowest fragmentation rates in dry terrestrial climates and fastest in warm marine settings. The aim of this study was to provide manufacturers of bioplastic packaging with a rich open-source dataset and over 2300 photo-documented items to better inform how they present the lifecycle of their packaging to consumers.