
Baseline analysis of plastic pollution (PP) issues within the Galápagos archipelago.

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Abstract

Plastic pollution (PP) is perpetual, persistent, and ubiquitous. Furthermore, it is a growing global problem, particularly for oceanic and protected islands. Despite being one of the most pristine and rigorously protected areas globally, the Galápagos Archipelago is not immune to this threat. Moreover, it appears to be suffering from increasingly severe PP levels. It is still unclear how this problem has reached the land that inspired Darwin and what lessons the world can learn from a community fighting against PP. Our research aimed to quantify, map, and understand PP extent and wildlife impacts by closely working with the local community and tourists. Our results have confirmed that there is no plastic-free coast within the five Galápagos bioregions, with macroplastic abundance ranging from 0.003 to 2.87 items/m². This debris is not distributed homogeneously, with macroplastic significantly higher on windward shores. From debris in which information could be identified, the most common type of plastic polymer found was Polyethylene Terephthalate (PET). Perú, Asia, and Ecuador were identified as the most common countries of origin. Moreover, the plastic waste generated by AjeCroup and Coca-Cola was the most abundant in all five bioregions. PP impacts native and endemic species of the Galápagos terrestrial and marine ecosystems, with fifty-two species (*20 endemic*) recorded with PP interactions in two categories (a) entanglement and (b) ingestion. Including (8) reptilian species, (13) avian species, (4) mammalian species, (7) cartilaginous fishes, (14) bony fishes, and (6) invertebrate species. After a threat assessment for the 52 reported species, we found 15 species with the highest threats of serious harm from ingesting or becoming entangled in the Galápagos. Our research has shown that PP could be a serious issue within the Galápagos archipelago and that further work is required to reduce its impact now and into the future.

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