

Citizen observation of plastic pollution in coastal ecosystems to address data gaps in marine litter distribution

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The accumulation of plastic litter in coastal environments has become an issue of high priority for policymakers around the globe, due to their potential hazardous effects to biota and human health, and their impact on ecosystem services and local economies. To develop effective mitigation measures, it is critical to acquire knowledge on the distribution and levels of plastic litter. However, in many world regions, such as in West and North Africa or Southeast Asia, the concentration of plastics reaching coastal areas is still poorly documented. To address the data gaps in marine plastic litter distribution worldwide, citizen science programs are instrumental in complementing shoreline assessments, and are effective in increasing public awareness of plastic pollution.

The Citizen Observation of Local Litter in coastal ECosysTems (COLLECT) project, supported by the Partnership for Observation of the Global Ocean (POGO), is a citizen science initiative which aimed to acquire distribution and abundance data of coastal plastic debris in seven countries, in Africa (Benin, Cabo Verde, Côte d'Ivoire, Ghana, Morocco, Nigeria) and Asia (Malaysia). The project consisted of training local students (15-18 years old) from secondary cycle institutions on sampling and analysing macro-, meso- and microplastic in beach sediments, using scientific procedures.

The project will also measure the impact of the citizen science intervention by assessing shifts in ocean literacy and pro-environmental behaviour in the students. The results from COLLECT will contribute to establishing baseline information on coastal plastic debris, with citizen science being an enabler of open science, allowing data to be freely available to the public, academics and policymakers. Results will further contribute to the identification of hotspots of plastic coastal litter, and bring awareness to local communities on the potential consequences of plastic pollution. The COLLECT project actively contributes with data suitable to survey plastic litter to the United Nations' Sustainable Development Goals (UN SDGs), in particular to SDG 14 (Life below water), on the sustainable use of the ocean.

Keywords

Citizen Science; Plastic Pollution; Marine Litter; Microplastics; Beach Sampling; Ocean Literacy; Well-Being; Pro-Environmental Behavior