
Three years of the disruptive citizen science project Surfing for Science: impact, lessons learned, and new horizons

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Abstract

There is an ongoing critical need to gather scientifically robust datasets on floating plastic abundances and characteristics making use of the citizen science, as it provides clear advantages over conventional science by operating at long and wide spatiotemporal scales, reducing project costs and raising awareness. In 2019 we designed a low-cost, lightweight manta trawl to collect samples in the nearshore from recreational sports floating gear like SUP boards, kayaks, rowing boats, and others. Starting from 2020, several social, environmental and sports associations along the NW Mediterranean coast have been acquiring scientific samples. The project has represented a paradigm shift in microplastic research, allowing to fill the gap in knowledge of this transition coastal area, and actively involving citizens in the generation of genuine scientific outcomes. Starting from September 2022 the project has broadened horizons and new associations are collecting samples in the Cantabrian Sea, in the Atlantic. Our findings show considerable microplastic pollution in nearshore waters specially in Barcelona, and a high spatial and temporal variability. Furthermore, we have found that communication and dissemination are fundamental to the success of a citizen science project. We have designed some tools to reach and keep participants actively engaged and increase project's visibility and project's scientific results and outcomes. Samples obtained and data generated in the project have been deposited following the FAIR principles and can be viewed in the social media (Instagram account @SufringforScience-lab) and in a t-shirt to test non-verbal *communication*, and can be graphed and mapped (App <https://litter.shinyapps.io/surfingforscience/>), and downloaded (de Haan et al., 2022 *Environ. Res. Lett.* 17 045018). However, we still face some limitations and challenges, specially regarding the difficulties in engaging with policy makers and the low access to national research resources for citizen science projects.

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