



## **"The biggest plastic pollution problem we face is actually the smallest." Addressing the threat of microplastics in coastal environments through public engagement.**

David Jones

Recently, the damaging impacts of plastic pollution on the environment has been well publicised. Social media channel pages are overwhelmed by plastic awareness campaigns and at local levels, numerous grass root organisations attempting to resolve some of the issues are making significant contributions. However, whilst macroplastic pollution problems are being addressed, the impact of microplastics is an area about which there are still significant gaps in the knowledge base.

Qualitative and quantitative research undertaken at the University of Portsmouth has shown that the relative 'invisibility' of microplastics results in a reactionary rather than a proactive approach to the issue not only from an environmental, but also a socio-economic perspective. Around the world there have been piecemeal attempts to resolve some of the issues, such as the UK government ban on microbeads in cosmetics at the beginning of 2018, or the recent ban on plastic cotton bud sticks in Italy. However, the key action orientated challenges highlighted by the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP, 2015) in their global assessment on the sources, fate and effects of microplastics on the marine environment remain extant, their recommendations unimplemented. Meeting the challenges of increasing scientific knowledge, adapting our behaviour and changing public perception will not be achieved without public engagement and participation.

In order to address these issues, researchers at the University of Portsmouth developed a programme that used citizen scientists to evaluate the environmental impacts (scale, distribution and characteristics) of microplastics on the coastal environment. This included the production of an academically rigorous methodology and cost and time effective processes. In trials undertaken on the South coast of the UK during 2018, this research not only captured substantial amounts of data, it also improved the knowledge and skills of the participants and engaged with the local community.

Subsequently, the methodology and procedures utilised during this research programme were launched to a global audience in collaboration with a charitable conservation organisation. Since July 2018, registrations have been received from participating individuals, organisations, government departments and academic institutions from forty countries.

This presentation will outline the threat that the invisibility of microplastic poses to the coastal environment. It will also explain how, through the implementation of strategic planning, public engagement conducted through citizen science research projects of this kind can be used to address the problems of microplastics in coastal environments. It will demonstrate that citizen science can change our behaviour from being reactionary to proactive and potentially lead to policy and behavioural changes.