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# Microplastics: An Evaluation Of Threat And Implications For Management

Anthony Gallagher [1], Aldous Rees [1,2] and Paul Wright [1,3]

*(1) Southampton Solent University, SO14 0RD Southampton, United Kingdom*
*Telephone: +44 2380319748 Email: anthony.gallagher@solent.ac.uk*
*(2) Telephone: +44 2380319748 Email: aldousrees@hotmail.co.uk*
*(3) Telephone: +44 2380319170 Email: paul.wright@solent.ac.uk*

The annual global demand for plastics has increased consistently over recent decades and now stands at approximately 245 million tonnes pa. A significant proportion of this is known to end up in the marine environment though estimates vary as to the true extent. Of this, microplastics, defined as barely visible particles that can pass through a 500 µm sieve, and composed of either virgin resin pellets or fragments of larger plastic debris, are now known to be an increasing component found both within marine sediments and the water column. Whilst the mechanisms by which such microplastics impact upon marine ecosystems have been documented there is an urgent need to quantify the magnitude of the problem, as well as to consider how best to manage the threat of rising levels of microplastics in the marine environment. This study determined the levels of microplastics present within the Solent estuarine complex in the UK, focusing on the water column. A plankton net trawl survey was carried out, with samples analysed allowing for a qualification of the nature of the microplastics found; and in turn their possible impacts. Overall the study identified significant quantities, ranging in colour and shape, with key local inputs likely to be wastewater treatment plants as well as the numerous boat yards found in the area. In eliciting the extent of a local problem that will undoubtedly be felt more widely in the marine environment, this paper also considers the challenges and difficulties inherent in trying to manage or control microplastics, as well as highlighting some potential mechanisms by which this could be pursued.