

The Plastics Conundrum Part 1: **The road to hell is paved with good intentions**

In late 2017 Sir David Attenborough's Blue Planet II triggered citizens, governments and businesses across the world to take action on single-use plastics. Indeed, 'single-use' became Collins Dictionary's word of 2018. The initial response in the UK to the genuine environmental threat posed by plastic waste was dominated by calls for a phase-out. Other voices, including Lord Deben, the Chair of the UK's Climate Change Committee, have called for a more measured response considering plastic in the context of other concerns. Quite why circumstances combined as they did at that particular time is not at all clear, and I'm working with the Grantham Centre for Sustainable Futures at The University of Sheffield to try to shed some light on the question. The 'Great Pacific Garbage Patch' was first formally identified in August 1997 by Captain Charles J Moore and its existence, based on ocean current patterns, had been predicted nearly a decade earlier still. An ambitious project to collect floating plastic, the brainchild of Dutch engineer Boyan Slat, began ocean trials in late 2018., albeit with mixed results so far.

Plastics have been a part of the global economy for over a century, displacing natural or extracted materials. Whilst similar polymers occur in some natural materials (such as tortoiseshell, ivory, cellulose and horn) there are limitations to the physical scale with which they could be used, as well as the obvious moral and ethical questions around the killing of animals to obtain them. Poaching, albeit now for different reasons, remains an issue and the death in March 2018 of the last male Northern White Rhino serves as a stark illustration of the costs of exploiting animal sources. As well as the utility and cost benefits of artificial materials, therefore, the introduction of industrial plastics in their current form seemed at the time to be a positive development. After the introduction of celluloid, an early advert proclaimed that "it will no longer be necessary to ransack the earth in pursuit of substances which are constantly growing scarcer".



Coffee cup disposal on a station platform wrongly assumed by most commuters to be recyclable, July 2018

The new industry became fully established with the development of materials derived from oil, and plastics started to find progressively more applications. In the food industry protecting food from contamination and decay has become a major use with many positive environmental and health impacts. The low cost and high versatility of the new materials resulted in an increasing number of uses, many with positive social as well as economic consequences. Plastics are not solely the preserve of the food industry of course. Whatever device you're using to read this article will inevitably have plastic in its construction and it will have arrived from the manufacturer wrapped in more. Part of the challenge in managing plastics is the variety of polymers in use; the Local Government Association (LGA) which represents 370 local authorities in England and Wales has urged manufacturers to "scrap the "smorgasbord" of plastics which are used in packaging for key foods".

[The Plastics Conundrum Part 2: It's all downhill from here \(to the ocean\)](#)

[The Plastics Conundrum Part 3: What's going on?](#)

[The Plastics Conundrum Part 4: Where do we go from here?](#)

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