

Urgent need to defuse the microplastics time bomb



The research vessel Tara in Malta.

The threat posed by microplastics to the health of the marine environment and to public health is still low on the radar, having so far failed to captivate the public's attention. Marine scientists have long been talking about the sheer magnitude of this virtually unknown and unheeded threat, but their message is simply not getting through.

For this reason, the visit last week by the research vessel Tara was a red letter day as it bolstered awareness about the issue. Tara is renowned for its gruelling expeditions around the world's oceans, but this year's seven-month-long expedition will meander through 16,000km in the Mediterranean Basin, sampling day and night with tailor-made nets known as Manta nets, in order to assess the density of microplastics in different parts of the Mediterranean.

Microplastics, as the name implies, are small, with some members of the scientific community defining them as particles being smaller than 1mm while others define them as being smaller than 5mm. In view of their small size, they have a knack of being ingested by filter-feeding marine species, such as mussels, or of being engulfed by planktonic species. This could have various consequences, including the hapless marine species in question developing a blockage or physical damage to their digestive tract or absorbing toxic chemicals into their bloodstream.

Due to the fact that oil-based polymers (plastics) are largely non-biodegradable, these toxic chemicals tend to accumulate in the fatty tissues of organisms. Hence, the higher up the food chain one goes, the higher the concentration of chemicals in fatty deposits, and we all know who is at the top of the marine food chain – us.

Another unsavoury aspect of microplastics is that they act as magnets for the so-called Persistent Organic Pollutants (Pops), which in turn include some horrendous chemicals such as dioxins (pesticide residues), benzene (a fuel additive, among other uses) and chloroform, with most Pops leading to major organ damage in humans. The consequences for public health are massive.

As Gaby Gorsky, scientific mentor of the Tara Mediterranean expedition, rightly highlighted, roughly half the plastic that ends up in the sea comes from the humble plastic bag that we use for everyday use, and which is discarded with gay abandon after a short time. Hence, solutions to stave off the microplastics threat include a reduction in the use of plastic by allocating a higher financial cost to its consumption and a greater emphasis on the use of biodegradable plastic.

Some years ago, plastic bags were banned from supermarkets, but they seem to have crept back in. The three main sources of microplastics in the marine environment include the breakdown of larger plastic material. The plastic gets smaller as a result of exposure to ultraviolet light and other forces (but the toxicity does not diminish), direct industrial production of microplastics (for use in abrasives, for example) or through the shedding of synthetic fibres from textiles as a result of domestic washing of clothes.

For more information about the ongoing Tara Mediterranean expedition visit the website below.

<http://oceans.taraexpeditions.org/en>

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