How bad actually is plastic pollution, isn’t it the most important issue?

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Plastic pollution is a major global issue and has received significant media attention over the past few years. When it was first produced on an industrial scale, plastics represented a major material breakthrough owing to their durability, low cost and because they are relatively lightweight. The sheer scale of plastic production in the present day, however, means that it is having substantial negative impacts on the environment. Globally, over 380 million tons of plastic is produced each year, yet only a small fraction of this is effectively recycled. Of all the plastic produced in human history, a whopping 8.3 billion metric tons, only 9% has been recycled, the remainder has either been incinerated (12%) or has accumulated in landfill (79%). The plastic that ends up in landfill, however, does not always stay there, with a large amount making it into the environment.

Each year 8 million tons of plastic ends up in our oceans, making up 80% of the human waste found from the surface of the ocean to the deepest depths of the ocean (a plastic bag was found in the Mariana trench at a staggering depth of 10,975 metres). Most of this plastic enters rivers where it then travels to the ocean. Once plastic pollution reaches the ocean, where it can persist for large amounts of time, it can have devastating impacts on marine wildlife. The most visible impact is the ingestion, suffocation, and entanglement of hundreds of marine species by plastic pollution. Some of the most affected species include sea turtles, marine mammals (e.g., whales, dolphins and seals) and sea birds, who may mistake plastic for food and can lead to starvation as they are unable to digest it. A less obvious issue is related to microplastics. Rather than biodegrade, plastics break down into smaller and smaller pieces – plastics are classed as microplastics once they reach less than 5mm in length. It is estimated that somewhere between 15 – 51 trillion particles of microplastic have accumulated in the ocean. These particles absorb and concentrate harmful and toxic chemicals (some of which are carcinogenic) and due to their small size are readily ingested by marine life. Furthermore, since these particles are often ingested by organisms at the bottom of the food web, they can be passed from species to species and even to humans in the process known as bioaccumulation. For example, if you were to eat six oysters, you are likely to also ingest up to 50 pieces of microplastic – the health impacts of ingesting these pieces of plastic are uncertain at the moment and will require future research.

Plastic however is not only an issue that affects our rivers and oceans, but also contributes to the climate crisis. Over 99% of all plastics are made from chemicals derived from oil, natural gas, or coal – all of which are fossil fuels and the main drivers of climate change. If the current trend of plastic production continues, then plastics will account for 20% of all oil use by 2050. In 2019 the greenhouse gas emissions from the plastic lifecycle (from production to incineration) were an astonishing 860 million tons of greenhouse gas emissions. If plastic was a country, it would be the 6th largest emitter – emitting 2.3x more than the UK in 2019. However, under current predictions, the emissions footprint of plastics would reach 1.34 billion tons per year of greenhouse gas emissions by 2030 and a whopping

2.8 billion tons by 2050. Such emissions would not be compatible with the temperature objectives of the Paris Agreement.

In comparison to the climate crisis, the plastic problem seems almost insignificant. Even if we eliminated all plastics, the oceans are still going to heat up, coral will still bleach and the amount of oxygen in the oceans will continue to fall – impacting all the species we are hoping to save from our plastic. Now, this absolutely does not mean that we should not take action to solve the plastic problem (we definitely should and you can learn about some of the actions you can take to help here), but that the plastic problem does not exist in isolation but rather is one part of a constellation of interconnected and interacting global environmental crises. Solving one crisis (e.g., the climate crisis, ecological crisis, water crisis, food crisis) without solving all crises is likely to be a fruitless activity.