



DEBUNKING
COMMON MYTHS
SURROUNDING
PLASTIC
POLLUTION

SLOACTIVE
...

PLASTIC
OCEANS

A PLASTIC OCEAN

It's hard to imagine a life without plastic, it's as if it has always been there, given how much we rely on it. After all, plastic was designed to last forever. But somehow, we as humans, became confused along the way, and that began in the '50's when we were told that this indestructible product was disposable. We started designing thousands of items with it that we used just once and then we threw them 'away'.

There has been a lot of focus on plastic pollution in the marine environment lately, and for good reason. However, there are a number of myths surrounding our perception of this that need to be debunked. We decided to talk to the experts to find out the truth behind some of the sweeping statements that you so often hear in the media

We've spoken at great lengths with Jo Ruxton, Co-Founder of global non-profit organisation, Plastic Oceans and Producer of documentary feature film, 'A Plastic Ocean' (on Netflix and Amazon Prime). Alongside our own research, Jo has helped us debunk some of the myths outlined below.

The background of the entire page is a photograph of a beach. In the foreground, there is a large amount of plastic waste, including a clear plastic bottle, a piece of brown cardboard, and various other pieces of debris. The beach is covered in sand and some dried leaves. In the background, the ocean waves are breaking, and the sky is a clear, bright blue. The overall scene depicts a polluted beach environment.

MYTH

THE FLOATING ISLAND OF TRASH

Also referred to as, "Great Pacific Garbage Patch"

A common misconception is that 'The Great Pacific Garbage Patch' is a large swirling mass of plastic garbage floating around on the surface in the middle of the Pacific Ocean. The truth is that this accumulation of plastic does not consist of a large island of plastic bottles, plastic bags and other discarded plastic debris. The plastic found here is far less obvious, yet far more insidious. It's more of a plastic soup of microplastics, consisting of tiny plastic particles and fibres that may not even be visible to the naked eye. Plastic washing out from our storm drains, beaches and river mouths enter the ocean and there they become brittle as the salt water, waves and sunlight affect them. As they are carried by large ocean current, they make their way out to the centres of the oceans breaking up into smaller and smaller fragments as they go. By the time they reach the centres they are already the size of plankton, the tiny plants and animals that form the base of the marine food chain. The fragments that have come from much larger items are known as 'secondary microplastics'. Primary microplastics are already minute when they enter the ocean, these come from microbeads used in cosmetics as well as fibres from household drainage etc. In a report by the IUCN, it was stated that 35% of all primary microplastics in the oceans originate from machine-washed synthetic textiles, making this the largest source of microplastics, with car tyre wear in second place at 28%.

On their expedition to film *A Plastic Ocean*, Jo went to the most talked about 'garbage patch' in the centre of the North Pacific Ocean to see the extent of the problem. Jo explains how, "we used plankton nets to trawl the surface waters which appeared clear. When we began sampling 400 miles west of San Francisco, I was horrified to see tiny pieces of plastic in the net. But that was nothing, we continued sampling all the way out to the centre and eventually every net was completely full of tiny pieces of plastic mixed in with the tiny animals that live there. Many of the planktonic creatures have transparent bodies and it was easy to see the plastic that they had been eating instead of their normal food." She recalls. "We also launched a dinghy to occasionally collect some of the larger items we found floating and if you were to do so for an hour, you might collect a crate full of larger pieces that typically come from shipping (things being dumped from ships at sea) but it was nothing resembling a 'floating island of plastic'.



MYTH

PLASTIC EVENTUALLY BREAKS DOWN

Plastic never breaks down, plastic breaks up into smaller pieces.

Because plastic was designed to defy nature, to last forever, it will not decompose and will persist in the environment for a very long time, we cannot begin to guess how long. Rather than simply decomposing naturally, it tends to break up into smaller and smaller bits of plastic which eventually become microplastics. Although really small, these tiny bits of plastic pose a huge threat to both environmental and human health.

Microplastics are estimated to make up over 90% of the estimated 5 trillion pieces of plastic floating in the global ocean, and tend to accumulate in the ocean gyres, where they are now ubiquitous and simply impossible for marine animals to avoid. What makes them particularly dangerous is that unlike larger pieces of plastic debris, they are either invisible and therefore unwittingly ingested, or they are mistaken for food particles and ingested by mistake. Consequently, they are consumed by marine organisms of all sizes. Animals that consume others whole will consume the plastic particles too, but that is only part of the problem. From the day plastic enters the ocean, it starts to attract the chemicals there like a magnet. These chemicals have come from decades of industrial and agricultural run-offs and are persistent in the marine environment. But they are hydrophobic, they don't like water and they stick to plastic and intensify the longer that plastic remains.

Once consumed the one thing they like better than plastic, is fat and they are released and stored in the fatty tissue of the animal that has eaten the plastic. So, although we might not eat the guts of fish, where the plastic might be, those chemicals still make their way up the food chain, magnifying in intensity as they go so that top predators, and that includes us, end up with the biggest load. To add to that problem, the chemicals used in the manufacturing process of plastic also leach out into the bodies of the animals that eat it – so plastic really is double-trouble once eaten by marine animals..

So, while the image of a floating island of trash does a good job of generating awareness of the extent of the problem, in reality the problem is far subtler but far more damaging to the marine environment. Marine trash does exist in huge quantities, it is just not concentrated in one area but rather spread out across the oceans.



MYTH

PLASTICS TAKES 450 YEARS TO BREAK UP

There have been claims about how long plastic takes to break up. A trending statistic that you will see floating about it that things like plastic bottles take 450 years to break down. However, plastic was only invented 150 years ago, and was really only introduced to the common house hold in the 1950's – in most of our parents' and grandparents' lifetimes, and when Earth's population was only 2.5 billion.

“So how would anyone really know how that plastic can take 450 years to break down? There has been no research or evidence to prove exactly how long it takes plastic to fully break up.”

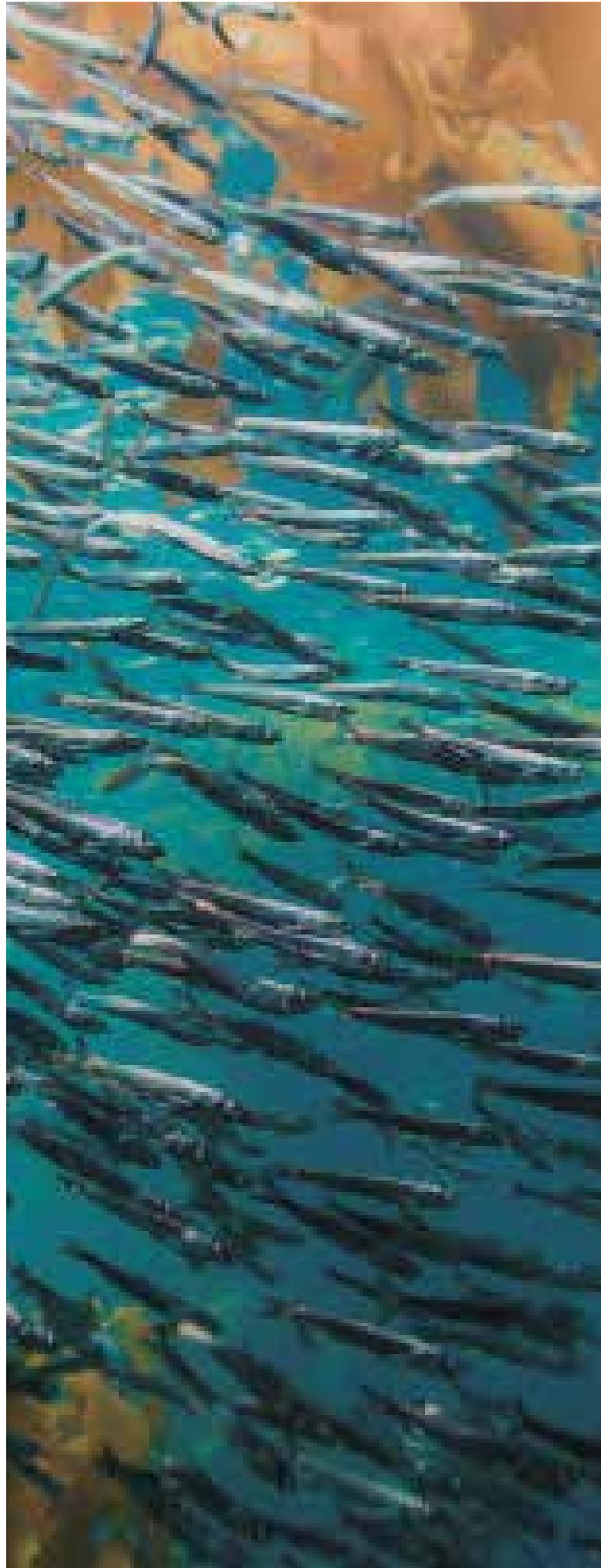
The best assumption to make, is that any number of years is far too long, and that plastic was designed not to break down or decompose – it defies natural processes.

MYTH

THERE WILL BE MORE PLASTIC THAN FISH IN THE SEA

Plastic production is already more than 330 million tonnes per year and the world population is rapidly approaching 8 billion. The latest estimates say that there are about 3.5 trillion fish in the sea that are known to humans. But really, nobody knows how many fish in the ocean. Despite an increasing rate of species discovery, as much as 95 percent of the world's oceans remain unexplored. Humans have not seen the half of it. On a 5-week filming trip for the BBC, Jo Ruxton produced a film featuring deep sea biologists who were looking for new species of fish in the 70 - 150m depth range. During that trip alone, they discovered 26 new species of fish at that depth alone. Scientists rediscovering more new species with every deep dive in submersibles.

The often-quoted statement that says, 'By 2050 there will be more plastic than fish in the ocean' can only be guesswork and we feel there is already enough alarming evidence of the damage plastic is doing in the marine environment without making up unprovable statements that might cause policy makers to question the real facts. However, if we were to base our numbers on current trends, another 33 billion tonnes of plastic could have accumulated around the planet by 2050. This is still an incredibly unsettling statistic.





BIODEGRADABLE PLASTICS

All plastic degrades, it just does it very, very slowly, but, it doesn't biodegrade. Biodegradable and/or compostable plastics are often touted as being an environmentally-friendly alternative to conventional plastics. However, some manufacturers are mis-labelling their products and confusing consumers and many environmentalists refer to this practice as 'greenwashing'.

In some cases, products have been labelled 'biodegradable' when they are in fact plastic, such as HDPE, mixed with plant material. Over time these items appear to photodegrade however, it is only the plant element that breaks down.

Compostable products made completely from plant material are a better alternative because they will eventually biodegrade. However, in many cases, labelling them 'composable' is confusing since consumers assume they can be buried in the ground like household compost. The majority of compostable plastic replacement items need to be sent to an industrial composting facility where they are exposed to heat and oxygen. This means they would need to be sorted, separated and collected in a separate waste stream to normal plastic recycling.

There is no such scheme in place. Consumers cannot easily identify whether the item is plastic or not, they might try to do the right thing but placing the item in the plastic recycling and if they do then the whole batch would be contaminated and unable to be recycled. The current alternative option would be landfill where it would not be heated enough to decompose. So, it seems we have some of the answers but not the infrastructure to make them work. Not yet. And plant-based plastics, although they will eventually break down in the ocean, it might still take a few years, during which time they can still choke and entangle marine life there.



RECYCLING PLASTICS

Extremely large volumes of plastic items are produced and discarded each and every day. “We are producing plastic at an exponential rate, every piece of plastic that has been created ever is still there.” Jo Ruxton points out, “Only a small portion is incinerated. So, what to do with the rest? Yes, it can be made into decking and park benches. But how much of this planet are we going to cover with black plastic? Imagine if all of our roads were made of plastic, we could then be breathing it in - especially on a hot day “.

Recycling programs, where recovered plastic is recycled and used to fabricate new products, can (and do) help to reduce the amount of plastic that ends up on a landfill, and ultimately the ocean. However, it is a myth to think that everything we send to the recycling depot gets recycled. Currently recycling is not that efficient and about half of the plastic stuff we recycle is not actually recyclable, so it ends up being dumped anyway. To improve recycling efficiency, consumers need to lobby to get recycling centres or drop off points that accept a wide range of plastics made available for local communities. Furthermore, Jo points out that we don’t exactly want to cover our entire planet with plastic either.

“A piece of plastic loses quality each time it’s recycled. If plastic is recycled between 10-20 times, it loses colour and quality. Then finally, it’s buried or incinerated.”

Plastic loses quality each time it is recycled. After 10 – 20 times it is no longer valuable and any mixed plastics end up black. Little can be done with the end product so we still have the same mass of plastic that has no use. Considering the exponential rate (and way) we are producing plastic, we are still ending up with that amount in the environment at the end of its life. Where will it all end up?”



SOLUTIONS

In order to prevent plastic from entering our oceans we need to tackle the problem using a multi-pronged approach.

“The only universal answer to this is we stop considering plastic to be disposable as it was designed to last forever”.

The most important thing to do is to reduce the amount of plastic we consume and the amount of plastic waste we generate. This can be achieved by saying no to single-use plastics such as straws, disposable sippy cups, plastic bags etc. Then, we need to make a concerted effort to phase out plastics from our everyday life. By investing in some reusable shopping bags and/or a large shopping basket that will hold all our groceries, we can say ‘no’ to single use plastic shopping bags at the till.

“Purchasing decisions such as choosing food and beverage items in glass bottles or jars rather than their plastic counterparts”; purchasing a bamboo tooth brush and wooden clothing pegs rather than plastic items; shopping for wooden kiddies toys rather than plastic toys can help reduce the amount of plastic waste we generate – these items are just as durable, if not more so, they have a timeless quality, and are made from natural materials and are therefore truly biodegradable and will break down readily in the environment when discarded.

Then, we need to reuse or repurpose plastic items wherever possible rather than dispose of them. And while it’s true that plastic straws and plastic pens make wonderful pea-shooters, they should still rather be avoided. Bamboo versions work just as effectively. Recycling plastic is far better than sending it off to a landfill, but as mentioned earlier, not all of the stuff we send for recycling actually gets recycled.

The simple truth is that when we throw plastic away, it doesn’t go away, it just goes away from us, and very often ends up in the ocean. Ultimately, if we have any hope of reducing the amount of plastic swirling around in our oceans, we have to start by reducing the amount of plastic that is being constantly added. This can only be achieved by reducing, reusing and recycling plastic.



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