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Can Zero Waste Save our Oceans?

1. Zero Waste and Ocean Plastic: What’s the Big Deal?

I have been an environmentalist for as long as I can remember, and have always loved the natural world. I remember looking forward to my family’s annual vacation to Florida and how much I loved swimming in the ocean. I also remember walking the shoreline with my dad, picking up plastic debris brought in by the tide. When I was in high school, I completed my senior project on the benefits of recycling. I thought recycling was the be-all and end-all and the perfect solution to all our waste problems, including that of the plastic washed up on the beach. As the concept of zero waste has come to the mainstream, however, my idea of the perfect solution to our waste problem has shifted drastically. In the last six months or so, I have started to incorporate some zero waste swaps into my daily life. Throughout this transition to a low-waste lifestyle, I have found that I am exponentially more conscious of my consumer habits and my life’s impact on the world around me. This paper is a manifestation of my growth as an environmentalist and as a person and represents the ever-changing perception of what it means to care for the planet in today’s ever-changing world.

The oceans are the backbone of planet Earth — they cover nearly three quarters of the Earth’s surface, produce more than half of the world’s oxygen, and absorb about a quarter of the world’s atmospheric carbon dioxide. They also regulate weather patterns and are teeming with some of the richest biodiversity found on Earth. Millions of people across the globe depend on the ocean for their livelihoods and rely on its sea life as a source of food. These are just a few of the reasons why healthy oceans are imperative to a healthy planet. Oceans face a variety of anthropogenic threats, including overfishing, acidification, and the loss of coral reefs due to climate change. Among these, and one of the easiest problems to solve, is the issue of solid waste. Rampant over-consumption has led to an excess of waste, particularly single-use plastics that are detrimental to the health of our oceans, and the most feasible way to solve this problem is through the implementation of zero waste.

II. An Epidemic of Plastic Pollution in the Oceans

The Great Pacific Garbage Patch is a startling representation of how human trash has affected the oceans. According toOcean Cleanup, the Great Pacific Garbage Patch is a mass of buoyant plastic three times the size of France that is located in the Northern Pacific. The plastic enters the ocean from rivers, where it accumulates in a gyre, an area of ocean characterized by circular ocean currents. The plastic then begins to degrade. At her TEDx talk at Georgia State University in 2015, Pam Longobardi stated“Plastic never goes away; it can only break down into smaller and smaller pieces. Every single plastic object made on earth is still on earth.” The smaller and smaller pieces she refers to are what is known as microplastics, small bits of plastic measuring less than five millimeters across. Microplastics are particularly hazardous because they are extremely difficult to clean up and have already begun to make their way into the bodies of corals, zooplankton, and other marine animals. They pose a risk to humans by means of bioaccumulation and biomagnification. When a marine organism consumes plastic, its related toxins become absorbed into the animal’s tissues and build up over time. This is bioaccumulation. When a predator consumes the contaminated animal, the amount of plastic-related toxins in the predator’s body increases even more because the predator is likely consuming a large volume of its prey. This is biomagnification.

According to a study done on fish and shellfish sold at market in California and Indonesia, about 25% of the fish were contaminated with either plastics or textile fibers (Rochman). The authors of the report state that “anthropogenic debris is associated with a cocktail of hazardous chemicals.” These chemicals include heavy metals, pesticides, and other toxins, which are known to disrupt the functioning of various bodily processes and may lead to disease and hormone disruption in humans and other animals (Blastic). The bioaccumulation and biomagnification of these chemicals in the food chain can pose a significant threat to people whose diets are comprised largely of fish and shellfish. The link to human health is clear: the more plastic our food consumes, the more plastic we consume.

Apart from human health, plastic pollution also poses a risk to the safety of wildlife. Animals often starve to death as plastic accumulates in their stomachs, leaving no room for real food, or become entangled in floating plastic debris that strangles them to death. Sea turtles, for example, are often observed consuming plastic bags after mistaking them for jellyfish. Sea birds are known for picking through sea garbage in search of their natural prey and are later found dead with a stomach full of plastic (Rainbow Light).

III. Origins of Zero Waste: Industrial Waste Management and the Circular Economy

 The term “zero waste” originated in industry as a term for a comprehensive waste management strategy. In an industrial-scale zero waste system, nothing goes to waste. All temporary waste products can be used again for something else, and products are designed to last rather than to be quickly disposed of. According to Science Direct**,** “In a zero waste system, material flow is circular, which means the same materials are used again and again until the optimum level of consumption” (Song). This circular flow of materials points to another concept relating to large-scale waste reduction and efficient use of resources — the circular economy. The circular economy focuses on shifting the manufacturing process so that products are made to be used as inputs in the production of something else at the end of their usable lives. This is what is known as cradle-to-cradle design. In contrast, cradle-to-grave design involves producing products to be thrown away, a much less sustainable practice.

 Perhaps the most hotly-debated topic when it comes to the proposition of a circular economy is its economic viability. Research has shown that the circular economy approach could significantly reduce costs to companies and municipalities as a result of the reduced issue of waste management. It would also create new jobs and increase the well-being of low-income families because the processes of reuse and remanufacturing are labor rather than resource-intensive(Ghisellinni)**.** The circular economy has tremendous potential to provide an environmentally and economically advantageous alternative to the current economic system.

The most common rival to zero waste is recycling; this process, however, is flawed in multiple respects and is less efficient overall than that of zero waste or the circular economy. In her blog post“I’m Green...But I Don’t Like Recycling,” Lindsay Miles details many of the reasons why recycling can’t solve all our waste management issues. “The main problem is that recycling doesn’t address the issue of over-consumption,” she says. Unlike zero waste, recycling sends the message that endless consumption is perfectly acceptable as long as you salvage your household waste for curbside pickup. The reality is that recycling is an energy-intensive process, involving collection, transport, sorting, cleaning, and reprocessing. It is much more efficient to control consumption and choose environmentally-friendly products from the get go. It is important to remember that recycling is a for-profit business, and companies will recycle the materials for which it is profitable to do so. We can’t always count on our recyclables actually being recycled. That being said, not all recyclables are created equal. It is nearly 95% more efficient to make aluminum cans out of recycled aluminum that out of virgin aluminum ore. So while we can continue to incorporate recycling into our waste management practices, we must also focus on the root of the problem: reducing over-consumption, both in industry and on an individual level.

IV. The Zero Waste Social Movement: An Individual Approach to Waste Reduction

 In the past few years or so, the concept of zero waste has made its way to the forefront of what it means to be green. The founder of the zero waste social movement is a woman named Bea Johnson, who has been living a zero-waste lifestyle with her family for ten years now. She and her family send no trash to landfill and rely only minimally on recycling. They compost their food waste and other biodegradable matter. Bea runs a blog called Zero Waste Home and is the author of a book by the same title. In her book, she details how to shop waste-free, eat waste-free, and otherwise run a waste-free home. While zero waste has long been an industrial practice and nothing else, Bea began the process of bringing zero waste right into the homes of people all over the world. This is a huge step toward empowering people to control their consumption and make environmentally-friendly choices. Lauren Singer is another leader in the zero waste social movement. She is a young entrepreneur who was one of the first to bring zero waste to mainstream social media, appealing particularly to young adults. She has done so through her blog and Instagram account Trash is For Tossers, as well as by opening the Package Free Shop, a store in New York City selling many of the basic items complementary to a zero waste lifestyle.

 A zero or low-waste lifestyle begins with minimizing consumption. A conscious consumer considers the longevity and usefulness of a product before purchasing it and contemplates the product’s end-of-life possibilities. Can it be composted or recycled? Can it be donated? Can it be easily repaired or reused as something else? If it is a single-use disposable, can it be substituted with a more sustainable alternative? Both Lauren and Bea recommend a series of easy zero waste swaps, including carrying your own coffee cup, water bottle, utensils, and napkin, and opting for bulk items over individually-wrapped foods. More information on zero waste swaps and how to be a conscious consumer can be found at zerowastehome.com and trashisfortossers.com. Bea, Lauren, and other influencers within the zero waste movement have emphasized reliance on products made of sustainable materials, including bamboo, metal, wood, glass, and cloth. Plastic is used only as a last resort and is kept away from food and water in order to avoid its harmful effects on human health. Plastic is a petroleum-based product, so avoiding it is not only beneficial for health reasons, but also because it helps to reduce our reliance on oil. As more and more people begin to realize the dangers of single-use plastic, we can have hope that our oceans and marine wildlife will be further spared the aftermath of plastic-inundated waters.

 The zero waste social movement is a departure from the norm. It gives consumers permission to deviate from what they’re told is acceptable. It empowers them to make smart, thoughtful decisions and to engage in conscious consumption rather than the mindless consumption our society promotes. Zero waste shows consumers how to vote with their wallets, a powerful concept in a society based on materialism. Most of all, it advocates for a separation from plastic in all its forms, which could be the saving grace our oceans are in need of.

 As you can see, plastic ocean debris and the concept of zero waste are connected in more ways than one. The breakdown of plastic trash into microplastics has a drastic impact on ecosystem and wildlife health, as well as human health. The most efficient way to reduce the risk of harm due to plastic pollution is through a significant cutback in the consumption of this material. Social media influencers like Bea Johnson and Lauren Singer have led the movement to bring this idea to the forefront of environmentalism by showing people how to live a zero or low-waste lifestyle. While this concept has grown in popularity, it is important to realize that lifestyle changes alone cannot solve our solid waste pollution problems. Companies must take responsibility for the disposable products and packaging they disperse to consumers all over the world. Rather than focusing so heavily on cheaply made single-use products, our manufacturing system must shift toward producing sustainably-sourced goods that are made to last. At the end of the day, it’s up to us to decide what kind of economic system we want to support. I’ll always choose a cleaner and healthier world, so my children can experience the awe and wonder of the ocean the same way I have.

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