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Plastic Pollution in the Pacific Ocean

Sarah Van Nes

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"THE world's largest collection of ocean garbage is twice the size of Texas," (USA Today, 2018). This "island" of trash is known as the "Great Pacific Garbage Patch" and it is made up of all kinds of debris, but most notably, plastic. Plastic is the worst kind of debris because it does not biodegrade. Many companies and businesses have started to take action on the problem and reducing plastic waste. Should the government be doing more and contributing to solving the problem? There are many ways that everyone can help solve this problem and reduce their use of plastic as well as help commit to bigger solutions. Most Californians who have a love for the ocean and marine life are extremely concerned with the growing problem of plastic pollution, which is a huge problem for people in the community and it should be recognized by not only people in California, but people worldwide.

Plastic pollution has been a problem for quite some time and it continues to grow and worsen. The Great Pacific Garbage Patch is just one of the many large collections of trash in our oceans. These "islands" are what can be seen by most people on the surface of the water. The trash mostly consists of fishing gear and a lot of plastic materials. "As it degrades over time, in the long term, this material has the potential to increase levels of microplastics by 30-fold to a staggering total of around 50 trillion particles" (The Exponential Increase, 2018). Fifty trillion particles floating in the Pacific Ocean just increases the harm on marine life. But not all garbage and plastic is trapped or floats at the surface. Many people forget that so much plastic and debris is found on the ocean floor. "Deep sea surveys are important because 50 percent of plastic litter items sink to the sea floor" (Marine, 2016). Marine Anthropogenic Litter, by Bergmann et al. is collection of information about debris in the ocean in a book. Anthropogenic meaning debris and garbage that is coming from humans, highlights issues and the man-made problems. The amount of plastic found in our oceans, floating on the surface, sitting on the seafloor, and in large masses of garbage is devastating.

An article from the National Oceanic and Atmospheric Administration defines microplastics as, "Plastic debris can come in all shapes and sizes, but those that are less than five millimeters in length (or about the size of a sesame seed) are called 'microplastics'"(NOAA, 2016). Animals are ingesting these plastic particles by mistaking pieces of trash for food. Larger pieces of plastic can

break into smaller pieces and eventually become micro-sized pieces over time. It is imperative that people realize that, "while plastic breaks into smaller and smaller pieces over time, it never biodegrades. As in never-never. That means something used once or twice can pollute the ocean for hundreds to thousands of years" (Ocean Plastic Pollution, 2018). Biodegradable materials are those that are decomposable and can be fully broken down by bacteria or other organisms. As was previously mentioned, plastic is not biodegradable. With this all known about the effects of plastic, what is the government and large companies doing about the issue?

Many companies and businesses in California are taking action, but when does the government need to step in to really help provide solutions for the problem? The state of California is the most active state in reducing the amount of single-use plastic. "In August 2014, California became the first state to enact legislation imposing a statewide ban on single-use plastic bags at large retail stores. The bill also required a 10-cent minimum charge for recycled paper bags, reusable plastic bags, and compostable bags at certain locations" (State Plastic, 2018). This action to ban plastic bags and charge for paper bags has influenced the public and given people more of an incentive to use reusable bags.

A proposition that Californians voted on was addressing the use of plastic straws. The bill requires restaurants and establishments to only provide single use plastic straws upon request, and it will go into effect in January 2019. California is making strides to lessen the amount of single-use plastic used, but the United States as a whole hasn't made restrictions or provided many solutions for the plastic pollution problem. "On December 28, 2015, President Obama signed the Microbead-Free Waters Act of 2015, banning plastic microbeads in cosmetics and personal care products" (What Are, 2016). This was a great effort made to reduce microplastics.

Clothing companies and aquariums are among the many businesses that recycle and support anti-plastic pollution efforts. Aquariums are actively working to reduce the amount of plastic that they use and to influence the communities around them. There is a well known campaign, "No Straw November" bringing awareness to the use of straws and single-use plastics. A group of aquariums have banded together and are working to bring awareness to the public. "The effort is led by the Aquarium Conservation Partnership (ACP), comprising 22 aquariums in 17 different states" (Aquariums Band Together, 2018). This effort is becoming wider known and recognized by many. This particular movement is taking great strides to influence the people around them and to, "lobby cities and regional governments to pass ordinances that encourage businesses to use fewer straws" (Aquariums Band Together, 2018).

The Monterey Bay Aquarium is amongst the best, most well-known, aquariums in the world. The aquarium is working on many projects to reduce the amount of plastic that they use in their operations. They are bringing more awareness to the problem by educating guests as they go through the aquarium, supporting local propositions, and advocating for policy action addressing the issue of ocean plastic pollution. The Monterey Bay Aquarium gives great solutions and rules that anyone can follow. "Remember the 5 R's. Saving the

ocean is also about your mindset" (Monterey Bay Aquarium). Refuse, Reduce, Reuse, Repurpose, Recycle. These are such simple things that everyone can do!

In addition to aquariums nationwide, there are many popular clothing companies that are using recycled materials. An example of just one of the many companies is a clothing retailer called SandCloud. They are local to California and make clothing from recycled materials as well as donating 10 percent of their profits to six different non-profit organizations that work to preserve the world's oceans, protect marine animals, and to educate others about sea life. There are so many companies like SandCloud with similar missions and goals to help marine life and reduce ocean pollution, many of these operating out of California. People are bringing more awareness to the issue even just with some pictures going viral on social media.

The Monterey County coastal cities are among the more educated public on the current pollution issues, and here at California State University Monterey Bay, we are also doing more to reduce plastic use. An example of this would be the Starbucks on campus, it has transitioned to using different lids instead of giving out straws. Starbucks supports using reusable cups and gives 10 cents off of the drink when customers bring one in. The campus Dining Commons has a table and board of information about "No Straw November" visible to everyone who walks in. California State University Monterey Bay is also very good at recycling, there are bins all around campus to recycle, as well as on-campus housing providing them in dorms. There are also smaller groups on campus working to clean up trash and clean the beaches. The Marine Science Club does beach clean-ups at local beaches in Monterey. Many people who clean up the beaches also collect data of what materials were found and it goes towards further scientific research for the community. Those are a couple of simple ways that the college campus is working to reduce the amount of plastic being used and it is easy for everyone to follow.

There are so many simple things that everyone can do to reduce the amount of plastic that they use. In an interview with Amber Cui, a student at California State University Monterey Bay, and an environmental science major, shared some of the ways that she reduces her personal use of plastic and some insight into the problem. "People will pay the convenience fee instead of investing in long term solutions" (Cui). This quote points out the idea that people would rather use single-use plastic bags and cups simply because it is easy and convenient. A simple thing that all people can do is bring reusable bags to the grocery store, or a reusable cup to Starbucks. It is a matter of remembering to do it and making that effort to reduce plastic use. Reusable water bottles and bags are very popular and are a simple but effective way to not use single-use plastic.

Plastic pollution ultimately affects everyone. People need to realize the lasting effects of using single-use plastic and make a change. Most people have seen the viral picture and videos on social media of things like a sea turtle with a straw stuck in its nose. You would think that seeing something like that would cause a person to change in their habits. When is there going to be change on a larger scale? It is very important that people are educated on the facts and effects that single-use plastic has on our oceans. Even if it's just using a

reusable water bottle, it will make a difference if everyone does it. 2019 is just around the corner, and it is an opportunity for everyone to change their habits, to reduce the use of all single-use plastics, and to be conscious of plastic use in day to day life.

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