Pollution

Over the past fifty years, plastics have increasingly become more popular with consumers and manufacturers. In the year 1950, there were an estimated 1.7 Mt (million metric tons) of plastic produced in the world. While only sixty-five years later, there were approximately 380 Mt produced a year. Unfortunately, the major increase in plastic production has resulted in a skyrocket in pollution levels.

Nearly half of all plastics produced today are intended for packaging or shipping purposes. Manufacturers believe that plastics are an ideal material for packaging because they are cheap, durable, flexible and most importantly, they can be thrown away after a single use. This ideal is destroying the planet as approximately sixty percent of all plastic ever made has accumulated in landfills or the natural environment (Horton, 2018). Many commonly used polymers for plastics are extremely resistant to biodegradation. Some of the characteristics that cause the polymers to resist biodegradation are high molecular weight, hydrophobicity, and cross-linked chemical structures. There is evidence that some organisms can aid in the process of biodegradation, for example, bacteria, fungi, and mealworms. However, these organisms are not always present in the environment and, therefore, the plastics are not always able to be broken down. These characteristics make plastic such a demanding force when it comes to pollution in our surrounding environment (Horton, 2017).

As it is extremely difficult to destroy plastics without creating some sort of pollution, many plastics are thrown away; but what really happens after it is put in the garbage can and taken away by the trash truck? While most of the trash is taken to a landfill, some pieces escape that fate and fall out of the truck. These pieces of trash can often be seen on the sides of roads, in the woods surrounding suburbs, and in the rivers and streams that flow past local parks. Unfortunately, these places are only a temporary home for the pollutant. The plastic will be carried by gusts of wind to coastal areas or swept into precious waterways with rainstorms. Eventually, all of these plastics will end up in the ocean.

As of 2018, forty percent of ocean surfaces are completely covered with plastic. This equates to fifteen to fifty-one trillion pieces of plastic in the world’s oceans (Kilduff, 2018). With such a high concentration of plastic in the oceans, it is easy to see why there are major concerns about the health and safety of wildlife in this environment.

It is very common for a fish to mistake a piece of plastic for a delicious meal. However, once the fish tries to eat the plastic, internal problems occur. Plastic causes intestinal injury to fish because the acids in the stomach are not strong enough to break the plastic down fully, if not at all. This commonly causes the intestinal wall to rupture which then leads to death. If the fish is lucky and the plastic does not cut a hole into its intestines, the fish will likely be eaten by another fish or an organism higher on the food chain, which would include birds and mammals like humans. To provide clarity into this drastic situation, it has been estimated that one-fourth of all fish in the markets of California contain plastics, which are mostly microplastics, in their guts (Kilduff, 2018).

Another animal that commonly mistakes floating garbage for food is the sea turtle. If a sea turtle ingests plastic it will likely choke or sustain an internal injury, like a fish and die. Sometimes sea turtles ingest plastics and they are physically unharmed, for the moment. The sea turtle will believe that it is full and its stomach will actually be full, but not of food. It will be full of plastic. Since its stomach is full, it will not eat and it will eventually starve to death. Roughly half of the sea turtle population has ingested plastic, which is part of the reason that nearly all sea turtle species are classified as endangered. On top of the risk of ingestion of plastics, there are so many plastics on beaches that it is affecting their reproduction (Kilduff, 2018).

Finally, the animal that is least thought of in this situation is the bird. Hundreds of thousands of seabirds ingest plastics yearly. When a bird ingests plastic it greatly reduces the volume of storage it has in its stomach. This, like the sea turtle, causes the seabird to die of starvation. As of 2018, sixty percent of all seabirds have ingested plastic but it is estimated that in 2050, ninety-nine percent of seabirds will have ingested plastic (Kilduff, 2018).

The organism that has been deemed the most important in this equation is the human being. While the government discourages studies involving health risks to humans, they do allow scientists to test on animals with traits similar to the humans like rats. Scientists have conducted studies in which mice were exposed to varying levels of BPA, a chemical commonly used in plastic containers that store food and beverages. They are likely ingested by humans through the meat that they eat which is another reason why this pollution problem in the ocean is such a big deal. The results from the studies included significant stimulation of insulin secretion, decreased sperm counts, and a disruption into the hippocampal synapses which cause senility in the mice. The mice also had a decrease in maternal behavior and a loss of sex differentiation in brain structures and behavior (Thompson, 2009).

In conclusion, the number of plastics in the oceans is increasing exponentially. This greatly affects the wildlife in the environment as well as humans, as people do consume these animals. Since it is so difficult for plastics to be broken down by the environment and even by humans, the EPA reports that every piece of plastic ever created still exists causing insane amounts of plastic to pile up and become pollution. The health effects of plastic on humans and animals are different, but they are both negative impacts and something must be done to put an end to all of the plastic pollution.

Works Cited

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