Plastics Effect on Marine Life and Climate Change

Climate change is slowly destroying planet Earth and the animals living in it. Climate change is one of the most important environmental current issues in the world today and plastics are a big contribution to the cause of it. We use plastics on a daily basis; plastic bags for grocery shopping, plastic cups for coffee, and plastic water bottles for a quick drink. Big corporations are producing millions of plastics because it is beneficial to them. They do not care about the negative impacts plastics cause on Earth and marine life, their only focus is money. Plastics are benefiting big corporations, destroying marine habitats, and negatively impacting marine life because plastics kill marine animals such as turtles, fish, sharks, as well as other mammals. Most humans ingest amounts of seafood very often, especially fish. Fish are a very popular type of seafood, and if fish eat marine debris, then we are eating what fish ingested. This causes human sickness as well as diseases and even death. If we don't stop the use of plastics, it is going to affect us as much as it affects marine life. The production of plastics is contributing to climate change because of decreasing ocean life, which causes marine animals to die, which damages their habitats, which creates environment impacts on the Earth.

"Eighty percent of the plastic debris comes from land. It washes out to sea from our beaches, streets, and highways. It flows out through storm drains into streams and rivers. It flies away from landfills and into the stomachs of sea turtles everywhere. Most of the debris is recognizable. While large plastics are a substantial pollutant, over time these plastics will break down into smaller, more toxic pieces." (STC). According to the sea turtle conservancy, over one million marine animals die each year because of plastic debris in the ocean. "Currently, it is estimated that there are 100 million tons of plastic in oceans around the world. It is expected that another 60 billion pounds will be produced this year alone. In some areas, the buildup of plastics is estimated to span 5 million square miles. To put it into perspective, that is the equivalent of the area of the U.S. plus India." (STC).

Plastic was made in 1907, when it became public people were amazed by it because plastic is very flexible and extremely malleable. The shapes one can create with plastic are endless, which is why it was a huge success in the 1900s and corporations started adapting plastic to their products because it was very popular. Nowadays, plastic is one of the main causes of climate change and the main cause of death in marine life. Turtles swallow plastic bags thinking that they're jellyfish and birds swallow small pieces of plastic thinking they're food, which kills them. "Climate change would tend to increase the geographic distribution (altitude and latitude) of disease vector organisms and to result in alterations to the life-cycle dynamics and seasonal activity of vectors and parasites. These effects would amplify the potential transmission of many vector-borne diseases." This affects the circle of marine life and causes sickness as well as death for every marine animal because they can get their body stuck in plastic or they can't ingest it.

The journal 'Climate Change and Human Health' provides direct and indirect effects on health and demonstrates that the direct health impacts on both humans and animals are rising because of climate change and rising temperatures. An example of direct effects on health is altered rates of heat, which can cause cold-related illness as well as death for marine animals. An example of indirect effects on health is the sea level rise, which destroys the cold habitats for

marine life and increases the risk of infectious disease. (Climate Change and Human Health). The stratospheric ozone depletion is also a very important factor for climate change. It can cause skin cancer, cataracts, and indirect impacts in agriculture as well as in aquatic systems, which damages and causes destruction in the marine life habitats.

One of the major causes of death in marine life is marine debris (waste) because it contaminates marine habitats globally, which leads to many ecological impacts. In the journal 'The Ecological Impacts of Marine Debris', Chelsea Rochman includes a scientific study regarding the ecological impacts of marine debris. This study analyzes the different levels and categories of marine debris and concludes that the majority (82%) of marine debris and ecological impacts were caused by plastic and the chemicals released by them, in comparison to other materials. There are different marine debris that negatively impacting the aquatic systems as well as marine life. "There can be no doubt that marine debris poses several potential threats. It may be hazardous to wildlife physically, by entanglement and ingestion, or via alteration of habitat and/or transport of nonnative and potentially pathogenic species. It can also be hazardous to wildlife chemically, if chemical constituents of the debris itself." (Chelsea Rochman et al.). I agree that plastics killing marine life is a point that needs emphasizing since so many people believe that plastics aren't damaging the environment.

There are other solutions to reduce or ban the use of plastics so marine animals don't die because of it. A counterargument from corporations to keep using plastics is that nowadays plastic is cheap and it is beneficial to them. Another counterargument from the public is that plastic is very useful and they might ask "if plastics are banned, what will be the alternative material? Paper? The production of paper also damages the environment". Paper won't be the alternative material because the production of paper reduces the number of trees and demolishes habitats in the Earth. But Keith Coble emphasizes that there is a possibility to use cornstarch-based biodegradable plastics, which undergo decomposition in 6 months. There was a model created that simulated market conditions. For example prices, quantities, and resources to have a positive impact on the Earth. This journal provides six alternative biodegradable plastics made from different organic materials or plants. This solution betters the plastic usage so it doesn't have as much of a negative effect on marine life and climate change. According to the sea turtle conservancy, other solutions to reduce the use of plastics is to use reusable cloth bags instead of plastic bags when going shopping, not littering, volunteering at a clean-up event in a local beach, and not releasing balloons into the air because they travel far and end up in our oceans being consumed by sea turtles that mistake them for food. Another good solution is banning plastic straws (which they have been banned in Los Angeles as of April 2019) because the straws go into the turtles' noses and kill them.

An additional insightful solution to reduce plastics in the ocean is a system used to pick up plastics with a fishing net. In his CNN article "A Floating Device Created to Clean up Plastic from the Ocean Is Finally Doing Its Job, Organizers Say", David Williams provides a perceptive solution to reduce marine debris in the ocean. This solution is a Netherlands based ocean cleanup system that is shaped as a u-shaped barrier and it includes a fishing-like net that hangs below the surface of the water. David Williams writes "Ocean Cleanup plans to build a fleet of these devices, and predicts it will be able to reduce the size of the patch by half every five years." This system is very useful because it would be able to reduce the size of marine debris in the ocean every five years by half. The floating device collects floating as well as underwater plastics in the ocean, and, even though this prototype is only available in Europe, it should be included in all the world's oceans because it is a very creative and well-rounded solution to fix

the problem of marine debris in the ocean.

There are many other solutions we can all incorporate into the world so we can reduce and ban the use of plastics. For example, recycling, reusing and using biodegradable materials so plastics decompose in months instead of years. There have been many advancements in the use of plastics in the United States, especially in California. These solutions need to be used all over the world, not only in the United States. If only one country practices these solutions it won't have a big difference in solving climate change.

We need to reduce and ban plastics soon or they will keep contributing to climate change. Plastics create a negative impact on the environment and affect climate change because they take a really long time to decompose. Even though plastics are very malleable and corporations want to keep using plastics because it benefits them, the material is incredibly bad for the environment. It is great that there are many solutions to reduce plastic in the ocean and some of them are being applied in different states of the United States, but it is not enough. These solutions need to be applied globally because plastics are especially bad for the marine environment because it kills marine life and the habitat in which they live. There is hope to change the environment for the better, but we all need to work together to keep pushing the appliance of all these solutions so we can restore habitats and save the animals living in it. If we don't act fast, marine life will be decreasing as well as their habitat with them, and it will be too late.

Works Cited:

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