Causes and Effects of Ocean Pollution

Every year, nearly 8 million tons of plastic are dumped into our oceans, and this problem causes damage to everything and everyone, especially marine life and the Earth's climate. According to Webster's Dictionary, climate change is, "a change in global or regional climate patterns, in particular, a change apparent from the mid to late 20th century onwards and attributed largely to the increased levels of atmospheric carbon dioxide produced by the use of fossil fuels", and pollution is, "the presence in or introduction into the environment of a substance or thing that has harmful or poisonous effects".

In fact, there are around 269,000 tons of ocean pollution floating on the surface of the oceans right now, but that is only a fraction of all the plastic in our oceans that is affecting the planet. There is estimated to be 4 billion microfibers of plastic per square kilometer in the deep sea. That plastic is so small and broken down, that people can't see it so they don't think it's there, but in reality, it's the plastic causing the most problems to health, economy, and marine populations. As stated by Erik Solheim, the head of U.N. environment program, "plastic pollution is surfing onto Indonesian beaches, settling on the ocean floor in the North Pole, and rising through the food chain into our dinner tables. We've stood by too long as the problem has gotten worse. It must stop."

The problem will only grow over time, and the effects will get even worse if they are ignored. As stated before, all life is affected, even our climate. Whales and dolphins get tangled in nets, colored plastic gets mistaken by turtles and seabirds as food, fish breathe through microfibers of plastic and ingest it, infecting their bloodstream, and corals have an 85% higher chance of getting sick after coming into contact with the toxic gases absorbed by plastic. To specify, more than 70% of the oxygen humans breathe is from the ocean, and corals help regulate carbon dioxide levels in the atmosphere. Even though corals only make up 1% of the world's marine environment, roughly 25% of all marine species take shelter in coral reefs. If more corals die, they won't be able to regulate carbon dioxide levels, and eventually, global warming will get worse. In one case, a team of scientists found a turtle with a straw lodged up its nose. They suspected it got mixed up with its meal and tried to gag it out after swallowing it, but the straw went out the wrong passageway. This eventually got it stuck through its nostril.

The scientists took nearly ten minutes to free the straw. Due to the lack of realization about the damage that has been done by plastic pollution, it is imperative to figure out the causes and effects of the immense pollution, so more people can help stop it. Many people know that Earth's oceans are slowly dying, but many people don't know the main causes of why the oceans are so unhealthy. One major cause of polluted oceans is obviously the amount of plastic being put in the oceans by every country.

The largest contributors to ocean pollution are China, Indonesia, the Philippines, and Vietnam. China produces the most plastic pollution in the world at 8.8 metric tons, nearly one-third of all the plastic pollution produced in the world. None of it is getting cleaned up or being kept under control. Most of the time it isn't the people's fault. There just isn't good enough waste management. Even worse, none of it gets recycled, so it's either burned or dumped into the oceans, creating plastic and air pollution. Another major cause is the fact that none of the trash

gets cleaned up once it gets to the ocean, and is left to decompose into those extremely harmful microfibers of plastic. Cleaning beaches costs thousands and it costs even more to clean up in the ocean. Additionally, it's almost impossible to clear it all without severely harming marine life. Even clearing out the Pacific Garbage Patch, the largest trash dump on Earth, would take decades and a lot of funding, at least $122- $389 million per year. That excludes labor and equipment cost.

This ocean pollution also has some dreadful effects on marine life, economy, climate change, and even human health. Additionally, if there is no permanent working solution, the miserable effects will only get worse. All of the terrible effects of ocean trash are so vast that they may not seem correlated to ocean pollution. One of the worst effects are the ones on coral. If corals die, fish lose their habitats, less oxygen is produced, barrier reefs become weakened, and tourist hotspots lose profits. In fact, when coral comes into contact with plastic, it has an 85% higher chance to bleach. Coral bleaching, according to the National Oceanic Atmospheric Administration, or the NOAA, is, "When water is too warm, corals will expel the algae (zooxanthellae) living in their tissues causing the coral to turn completely white. This is called coral bleaching. When a coral bleaches, it is not dead. Corals can survive a bleaching event, but they are under more stress and are subject to mortality." When the algae are lost, it is nearly impossible for corals to photosynthesize.

Additionally, a loss of coral may also lead to many problems, not just for marine life, but for humans as well. Up to $375 billion is lost due to the death of coral for the economies they support. Reefs also protect coastlines from extreme storms, flooding, and waves. According to a study done by Science, "Coral reefs in Hawaii are valued at more than $33 million for the U.S. economy." Coral bleaching events now occur 5 times more frequently opposed to 40 years ago. In the 1980s, the average reef would be affected only once every 25-30 years. Starting since 2016, bleaching events started occurring every 6 years. As stated by Independent, "The world has lost roughly half its coral reefs in the last 30 years." The main factor for the spike in coral deaths is mainly ocean acidification, which can be caused by plastics absorbing the toxic gases and heat from the atmosphere. Another major effect is obviously the one on marine animals. Dolphins and whales get tangled in loose nets, microplastic gets ingested by fish when they swim through it, turtles choke on plastic when it gets stuck in their throats, and seabirds confuse plastic with food and choke on it as well. Furthermore, 31% of all cetaceans, or large marine mammals (whales, dolphins, and porpoises), have ingested plastic, and 22% of those cetaceans have an increased risk of death. In this situation, many scientists fear that by 2050, there will be more plastic than fish. They also estimate 99% of all seabirds will have directly ingested plastic by 2050 as well. In truth, the effects of Ocean Trash will only get drastically worse as time goes, especially if nothing is done to stop the constant flow of plastic pollution into Earth's oceans.