

University of Puerto Rico in Humacao

The negative effects of plastic pollution in Puerto Rico oceans

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Introduction:

The Sustainable Development Goals (SDGs) are a collection of 17 global goals designed to be a "blueprint to achieve a better and more sustainable future for all". The SDGs, set in 2015 by the United Nations General Assembly and intended to be achieved by the year 2030, are part of UN Resolution 70/1, the 2030 Agenda. The goals are broad based and interdependent. The 17 sustainable development goals each have a list of targets which are measured with indicators. In an effort to make the SDGs successful, data on the 17 goals has been made available in an easily understood form. A variety of tools exist to track and visualize progress towards the goals. Our investigation is about plastic pollution in Puerto Rico oceans. So, we chose SDG number 14 to complement our investigation, in which we will talk about what is plastic pollution and the effects of it to us and our planet.

In order to get a better understanding of the situation we first conducted a research on how much plastic pollution has affected the oceans. Also, how bad it has gotten through the passing of the years and why. According to estimates, human beings throw away more or less four million tons of trash every day. Now approximately 12.8% of the trash is plastic that causes pollution on our lands, air and especially water. Furthermore, plastic that gets thrown away contaminates the soil and groundwater with dangerous chemicals that can be harmful to many organisms. In addition, these chemicals can be especially harmful to marine pollution and the damage caused is immeasurable. If the planet doesn't do something to stop the plastic pollution by 2050, there'll be more plastic than fishes in the oceans.

The ocean is the most affected area by plastic pollution animals, ecosystems and even oceans can be severely damage and or destroyed. One of the ways that plastic can affect the marine life in the Caribbean ocean is that it can be easily mistaken for food. Plastic doesn't biodegrade, which means it cannot be naturally broken down by the environment into simpler compounds. Plastic goes through a process called photo-degradation, it's a process where plastic is broken down by the absorption of sunlight. The problem here is that these process takes 1,000 years and plastic can be degraded into an edible size for marine organism. Furthermore, animals cannot digest plastic and will just get full of rubbish, which can cause them to be poisoned, asphyxiated, and/or unable to ingest food. Also, animals can also get trapped in plastic and die such as plastic bags, plastic six pack rings and others.

One of the last methods done to conduct this research was to implement an online questionnaire. These questionnaires will be directly given to marine biologist students from the University of Puerto Rico in Humacao that understand and see these problems on a daily basis. The questions that will be provided will be asking how bad plastic pollution has affected the ecosystem and organisms that are in the east part of Puerto Rico. Also, how bad has this problem gotten in the past 10 years in our beaches that are in the east. Lastly, what possible solutions are there to help fix this problem.

The biggest problem in terms of the pollution that inhabits the oceans of Puerto Rico is the very common debris known as plastic. Plastic is not biodegradable which means that natural causes cannot break it down into simpler compounds. Plastic is considered photo-degradable which means that plastic turns into a size edible for a sea creatures' diet because of the ultraviolet rays emanated by the sun. This cause for concern seeing that sea creatures cannot digest plastic meaning it will

accumulate in the creature's stomach and will eventually kill it. What can be very useful to society, seeing that plastic is a very durable material, can be very harmful to nature. Some solutions that can be used to prevent the pollution in the ocean are using reusable bottles to limit the plastic bottles in the ocean. Reuse utensils such as straws, cutlery and plastic bags and try to go for a greener initiative, recycle properly and try to find ways to recycle different materials.

The first step we should start taking is to spread the cause. People need to understand the effects of the actions we take and how we will eventually suffer from them. There are a lot of ways of taking the initiative in terms of this big problem, but one of the simplest ways is to spread awareness through social media. Using social media as a tool to help people see how pollution is affecting the sea creatures and the oceans, can be of monumental help to start changing the way that people use plastic or other types of materials and turn into a more responsible and eco-friendly individual. Even if it is step-by-step, the best way to raise awareness is living by example. If we want to save our oceans, we need every person to know and understand the cause.