

JoMUN [XVII]

Forum: Environment Committee

Issue: Facilitating discussion on the effects of plastics and microplastics on marine biology in developing nations.

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INTRODUCTION

The first report on the impact of plastics in the oceans was in the 1960s, since then an increase of plastics in the oceans, as well as the numerous articles and reports on these plastics debris have increased drastically.

Every year an estimate of 12.5 million tons of plastics are dumped in the oceans. The United Nations Environment Programme has estimated that in the oceans there is around 57 trillion microplastics. An estimate was made, out of 8 million tons of plastic waste thrown away, 12.5% goes into the ocean. These are hazardous towards animals such as turtles (who confuse plastic bags with jellyfish), birds, seals and other sea creatures who get entangled or digest these floating plastics. Reports show that there are around 8 million birds and approximately 100 000 animals who die due plastic indigestion every year. Plastic debris is one of the biggest dangers to marine life and the marine ecosystem.

DEFINITION OF KEY TERMS

Microplastics

Microplastics are debris of plastics which are smaller than 5 millimetres in length (the size of a sesame seed). these microplastics are created by the degradation of floating plastics, as well as manufactured microplastics found in fibres, microbeads and nurdles.

The Great Pacific Garbage Patch

The Great Pacific Garbage Patch is in the North Atlantic, plastic dumped in the ocean is brought to the North Atlantic due to gyres which are ocean currents that concentrate on one spot. The patch is 1.6 square kilometres wide.

Gyre

A Gyre is where ocean currents meet and create a swirl. This swirl traps any floating debris that is on the surface of the water. There are Gyres located in every ocean on Earth.

Plastic

Plastic is a synthetic material created from different organic polymers. It can be shaped into soft, hard or elastic products.

Pollution

It is when a harmful or poisonous substance or object is either already present or introduced in an environment.

Current

A current is when a body of water is moving at a faster speed than the surrounding water. This also applies for air.

For-profit organisation

A for-profit organization looks to make money and an income out of selling of products.

Non-profit organisation

A non-profit organisation uses money that has been given to them to fulfill a certain goal. They do not sell products to make money.

BACKGROUND ON THE ISSUE

In 1862 the first plastic was created by Alexander Parkes, Leo Baekeland in 1907 developed the first synthetic plastic based on fossil-fuels. New York City hosts the first ever National Plastic Exhibition in 1946, this exhibition showed how plastic helped aid during WWII, this war led to plastic being produced four times more than before. The early 1970s showed reports on plastic pellets that were found in the North Atlantic, this led to more research on the prevalence of plastic on the seafloor, as well as the effect of these plastic pellets on the marine life. In 1979 plastic grocery bags are introduced in the US. In the 1960s and 1970s litter awareness campaigns led to Woodbury, New Jersey to become the first US city with a recycling programme. Plastic microbeads start being used in cosmetic products in the 1990s. Charles Moore a sailor discovers in 1997 the Great Pacific Garbage Patch (the world's biggest garbage patch) while he was sailing back to Los Angeles. Since the 1950s plastic had accumulated in the ocean, and now the Great Pacific Garbage Patch is a third of the USA's size. This is called the 7th continent, 7 million metric tons of plastic and 3.4 million square kilometres of plastic. The similar case was found in the Atlantic and Indian oceans. After realizing that plastic bags had blocked drains during a severe flood, Bangladesh became the first country to ban plastic bags. The first U.S. city to ban plastic bags was San Francisco in 2007. In 2008 a government study on Bisphenol A (a chemical found in the production of hard plastic bottles and the lining in baby-formula cans), confirms its effects on the human health such as; breast cancer, early puberty, behavioural problems and finally prostate issues. The first country to ban microbeads in cosmetics was the Netherlands in 2014. In 2017 the BBC releases Blue Planet II, this increases awareness about the effect of plastic on marine life, to pass the messages the BBC uses shocking images.

MAJOR COUNTRIES AND ORGANIZATIONS INVOLVED

San Francisco

The first US city to implement a ban on certain plastics. San Francisco has banned restaurants to give with takeout's plates, serviettes, utensils unless the customer asks for them directly. Plastic straws, toothpicks, stirrers made from polystyrene foam found in food products are banned. If these rules are not respected, the person violating the rule will be punished with a fine. The heads of San Francisco hope these rules will discourage the public from using single use plastic.

Kenya

Kenya has agreed to completely eliminate plastic from its country. In shopping centres plastic bags have been removed entirely due to Kenya's plastic bag ban. This forces people to use bags made from synthetic fibres.

United Nations

The United Nations are playing a major role in combating plastic pollution in our oceans. The UN have passed regulations and laws on the transport, production and disposal of plastic in multiple member nations. This organisation encourages people to change their ways of life by reducing their use of plastic.

The Ocean Cleanup

This organisation is the first to launch a system to clean up 7th continent. It has ambitions to clean 50% the 7th continent in 5 years. The Ocean Cleanup is set to release 60 cleaning systems to get rid of the 7th continent.

Bangladesh

Bangladesh is the first country to completely ban plastic bags. This happened after the government realised that bags were clogging the sewer system during severe overflows.

TIMELINE OF KEY EVENTS

1907	This year marks the creation of fossil fuel-based plastic.
1960s	Plastic starts being popular and in more significant production.
1997	Charles Moor discovers the Great Pacific Garbage Patch, while he was returning to Los Angeles on his boat.
September 12, 2001	Blue Planet airs for the first time. People start to see the impact of plastic on the ocean for the first time.
January 2017	Creation of the 4Ocean clean-up company.
September 2018	The Ocean Cleanup launches their system 001 to clean-up 7 th continent.

RELEVANT UN RESOLUTIONS, TREATIES, AND EVENTS

The United Nations and its range of sub-departments, try to inshore that our planet stays clean, and works on making our acts environmentally friendly.

Basel Convention, Norway. May 10th, 2019

Changes to this convention have been adopted by 187-nationbods. These changes make the export of plastic waste more difficult due to the country receiving this plastic must be aware it is unrecycled, mixed as well as contaminated. This will allow developing countries to control plastic pollution better.

Economist World Ocean Summit in Bali, 2017

At this summit the UN urges governments to change their plastic usage with plastic reduction policies, it targets industries for two reasons; one to redesign products as well as minimizing plastic packaging. The summit also urges populations to change their own personal habits.

UN Environment Assembly in Nairobi. March 15, 2019

In Nairobi 170 countries have pledged to reduce their usage of plastic by 2023. This meeting led to a non-binding resolution on plastic throwaway items such as plastic bags.

PREVIOUS ATTEMPTS TO SOLVE THE ISSUE

The Ocean Cleanup project

This project was launched on September 8th, 2018. The project consists of a 600-meter-long, floater and a 3-meter-deep scur below. This floater moves with the wind, waves and currents, it is in the form of U due to the currents, this allows the plastic to be concentrated in the centre of the floater. The scur prevents plastic from going under the system. This system has solar powered lights, sensors and satellite antennas, which communicate data and its location. Periodically a boat comes to pick up the plastic that the floater caught and takes it to be recycled in a near by city. There is to be 60 of these systems cleaning up the oceans, all 60 of them are estimated to clean up 50% of the Great Pacific Garbage Patch in 5 years. It has yet to prove effective.

4Ocean

4Ocean is NGO which was created by 2 surfers Alex Schulze and Andrew Cooper. The company was created on the 4th January 2017. This company gets funding by selling bracelets made from recycled plastic found in the ocean, each bracelet sold allows 4Ocean to remove 1 pound of trash from our coastline.

The Sea Cleaners

This association will launch their project in 2023. Their project is a boat the size of football field, it works like a manta ray. The plastic flows into the hole of the catamaran where at the end there is a conveyor belt, this belt picks the trash out of the ocean, then people separate plastics accordingly. Following this the plastic is squished into blocs.

POSSIBLE SOLUTIONS

Act on the other four major garbage patches

The world concentrates on cleaning up the Great Pacific Garbage Patch, however there are 4 more in our oceans. Each ocean has Gyres which collect plastic with currents and bring them all in one spot. To be able to rid the oceans of plastic, first NGOs and other major organisations need to look at what is happening in all the oceans.

Fixing an existing system

The Ocean Cleanup's system 001 has yet to prove effective. Ocean Cleanup needs to rethink their system. For this problem to be fixed Ocean Cleanup needs to see the problems as well as the effect of the oceans natural forces to create an effective system to catch the plastic in our oceans.

Helping small clean up companies with funding

There are small companies that clean our oceans with little funding. Away to increase the removal of plastic from coastlines and the ocean is to help these companies, by funding them and give the adequate material needed for the job.

Stop using one use plastic

The problem that we face with microplastic and other plastics in our ocean, is due to the overuse of plastics that we use once and only once. For this to stop the human population needs to start using plastic that can be used more than once or replace plastic containers with bamboo or other biodegradable materials.

WORKS CITED

"UN-adopts-global-treaty-limiting-plastic-waste-trade" *Plastic News*, 10 May 2019. Web 07 August 2019.

"What are microplastics?" *NOAA's National Ocean Service*, 17 June 2016. Web 31 July 2019.

"Plastics: The History of an Ecological Crisis" *EcoWatch*, 18 April 2018. Web 31 July 2019.

"UN resolution pledges to plastic reduction by 2023" *BBC*, 15 March 2019. Web 08 August 2019.

APPENDIX OR APPENDICES

<https://www.youtube.com/watch?v=O1EAeNdTFHU>

Explains in more detail how the Ocean Cleanup system works.

https://www.youtube.com/watch?v=2vTgzgN_Z8U

This video shows 4Oceans company and problems of plastic.

<https://www.youtube.com/watch?v=0EyaTgezSzs>

Explains in depth the Great Pacific Garbage Patch.

<https://www.sciencedirect.com/science/article/pii/S0025326X11003055>

This article will explain the dangers of microplastics as well as its origins.