



Committee: United Nations Environment Programme (UNEP)

Topic: Addressing the Environmental Impact Of The Great Pacific Garbage Patch

Countries For Committee:

China, Indonesia, Vietnam, United States of America, Sri Lanka, Thailand, Australia, Canada, Japan, Mexico, Russia, Ecuador, Singapore, South Korea, Peru, Chile, Tuvalu, Guatemala, El Salvador, Nicaragua, India

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1. COMMITTEE BACKGROUND:

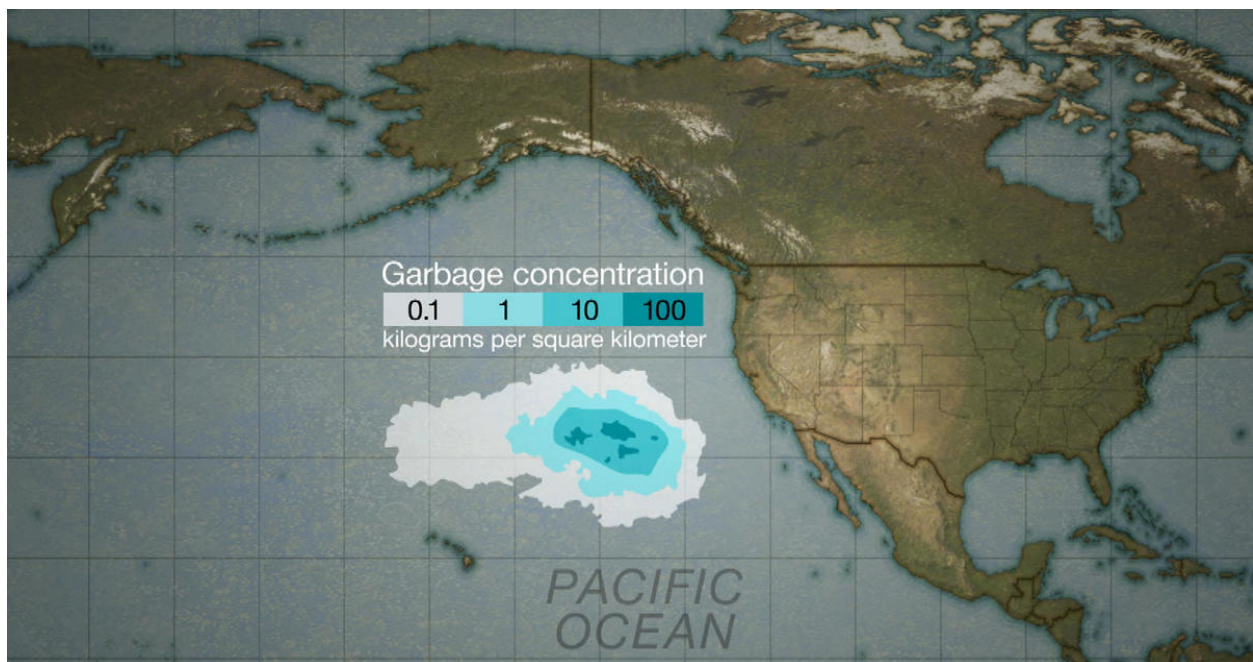
The Stockholm Conference on the Human Environment resulted in the establishment of the United Nations Environmental Programme (UNEP) in June 1972. UNEP is the UN's environmental coordination body. It has aided in the identification and analysis of global environmental issues, the development of regional and worldwide environmental programs and conventions, and the spread of environmental research and information. Assisting developing countries in implementing environmentally sound policies and practices is one of its most critical responsibilities.

UNEP has also released its Worldwide Environment Outlook (GEO). This is a comprehensive report on the global state of the environment since 1997 in response to the environmental requirements of Agenda 21. Nairobi, Kenya is home to the organization's headquarters.

2. HISTORY OF THE TOPIC:

a) The discovery of the Great Pacific Garbage Patch

In 1997 the great pacific garbage patch was discovered by Charles Moore as he sailed through the ocean waters. The great pacific garbage patch had been estimated to be building up since around the 1980's.



b) Creation of the Great Pacific Garbage Patch

Scientists had been aware of the growing problem of plastic debris in the world's oceans since the late 1980s. However, the Great Pacific Garbage Patch came to public attention only after 1997, when Charles Moore discovered it. When he returned to the area the following year, the patch had grown in both extent and density. In 2015 and 2016 the Dutch-based organization Ocean Cleanup found that the density of the debris in the garbage patch was much greater than expected and that the plastics absorbed pollutants, making them poisonous to marine life. The Great Pacific Garbage Patch is the best known of all garbage patches.



c) The current state of the Great Pacific Garbage Patch

A study in 2018 showed that The Great Pacific Garbage Patch contains roughly 79,000 tons of plastic. There was a more recent study in 2020 which found that more than 24 billion pounds of plastic are being dumped into the ocean each year, this number is considered to have tripled by 2040. There are around 60 ocean cleanup machines and many more initiatives such as the trash collection device 'Jenny' which has already taken 20,000 pounds of plastic from the ocean and is aiming to remove 90% of ocean plastic by 2040.



d) Environmental and ecological impacts

The largest threat that the extreme amount of plastic pollution poses is on Earth's wildlife, specifically oceanic livelihood. Polluted plastic kills wildlife through entanglement from rouge fishing nets, and other debris, as well as ingestion. Whether it's a purposeful ingestion made on a mistaken assumption, or from an unknowing ingestion plastic has been found consumed by hundreds of different animals. Since plastic is not decomposable the constant exposure to salt water and the weathering caused from ocean currents break down all polluted plastic into tiny and dangerous pieces. Microplastics have been found in 114 different animals' species digestive systems as of 2018, deteriorating the ocean's food chain. Polluted plastic threatens the ability for animals to safely find food, whether they are consuming plastic themselves or their food has been consuming plastic and encroaches on their habitual space and niches.

3. STATEMENT OF THE ISSUE

The Great Pacific Garbage Patch is a collection of marine debris in the North Pacific Ocean. Also known as the Pacific trash vortex, the garbage patch is actually two distinct collections of debris bounded by the massive North Pacific Subtropical Gyre. Currently, half-way between Hawaii and California, sits an enormous cluster of garbage and waste estimated to cover 1.6 million square miles of surface. Gathered by ocean currents this mass of plastics and synthetics poses a serious threat to ocean wild-life and Earth's resources. Not only is it vital that the clean-up of this patch begins, but new actions to prevent the formation of this patch in the future must start. Focus should be placed on the regulation of current plastic production and the widespread use of alternative eco-friendly materials. Anti-pollution and plastic clean-up legislation should comprehensively tackle this issue from every angle, ensuring the reduction of plastic in Earth's ecosystems

"Garbage patches" is the informal nickname given to open ocean areas where marine debris concentrates.

4. INTERNATIONAL ACTION

To help combat global plastic pollution many new ideas have been seen that work to clean-up current plastic litter and produce and spread new plastic alternative materials. Biodegradable plastics, known as BPDs, have been used as a plastic alternative but while they are a usable substitute they are not as reliable or cost-effective as plastic and oftentimes contain their own chemical products.[14] “Plastic, Litter, and Toxics Reduction Law.” Sfenvironment.org - Our Home. Our City. Our Planet, 1 July 2019, sfenvironment.org/reduceplastic.

It has proven difficult to find a marketable and environmentally friendly product that fully replicates the abilities of plastics, so the most important means to truly combating plastic pollution is through reduction of plastics use. Places like San Francisco, and other cities, are putting this method to the test by creating laws on plastics use or taxing the use plastics or banning it completely. Legislation such as this could help create a legitimate reduction in polluted plastic. Still many scientists around the world are working on producing a plastic material that biodegrades and reduces the amount of dangerous toxins in the environment.

To specifically clean-up plastic pollution, one company, The Ocean Cleanup, has developed a trash collecting unit that sits on the surface and allows the oceans current to help it collect garbage. With many of these devices spread throughout the ocean this company hopes to reduce the garbage patches size by half in 5 years.



5. ESSENTIAL QUESTIONS

1. Is your country being affected by the Garbage Patch in any way?

2. Is your country adding to the Garbage Patch, if so, how?

3. Has your country made any policies to reduce the use of plastics or considered ways it is disposed of?

4. What are the best methods for oceanic pollution clean-up, and how can they be implemented on a global scale?

5. How should waste management change to better protect Earth's ecosystems and prevent pollution?

6. What sustainable practices should be enforced in industry and at a grass-root level?

7. How do we eliminate production and use of single-use plastic, and other harmful common pollutants such as glass and rubber?

8. What new sustainable materials could pose as a plastic replacement and how can their mass production begin?

6. RESOURCES

MacDonald, James. "Where Are the Biodegradable Alternatives to Plastics?." DAILY JSTOR. 1 September 2018.

<https://daily.jstor.org/where-are-the-biodegradable-alternatives-to-plastic/>

"Plastic, Litter, and Toxics Reduction Law." Sfenvironment.org - Our Home. Our City. Our Planet, 1 July 2019, sfenvironment.org/reduceplastic.

Bauer, Patricia. "Great Pacific Garbage Patch." *Encyclopædia Britannica*, Encyclopædia Britannica, Inc., www.britannica.com/topic/Great-Pacific-Garbage-Patch.

7.VISUALS

GP GP Infographics:



Through the Gyre

By now, most of us are aware that there is a large patch of floating plastic in the middle of the Pacific Ocean. What you may not know is that it's not made up of plastic bags and empty bottles. It's made up of billions of tiny pieces of plastic, and it's basically invisible unless you're floating in it. While this might sound better, it's actually much worse for the environment—and for you.

Location
The garbage patch is located in the North Pacific Gyre, one of five major swirling vortices of currents in the world's oceans.



Size
The borders of the plastic garbage patch are difficult to determine because much of the plastic is in pieces too small to be seen by satellites or planes.

Estimates of the size range from about 350,000 square miles (an area roughly the size of Texas) to 6 million square miles, which would mean that the garbage patch covers about 10 percent of the entire Pacific Ocean.



Formation

Of the 200 billion pounds of plastic people use each year, about 10 percent ends up in the ocean. Seventy percent of that eventually sinks, but the other 30 percent is carried on the surface by ocean currents. When plastic ends up in the waters of the Pacific, much of it is swept up into currents that lead to the Pacific Gyre. Garbage from the east coast of Asia takes roughly a year to reach it; garbage from the west coast of North America takes five years.



Contents

Ninety percent of the trash floating in the world's oceans is plastic. In every square mile of ocean, according to some estimates, floats nearly 50,000 pieces of plastic. In the Pacific Gyre, most of that plastic comes from four sources:

- Low density polyethylene (plastic bags)
- Polypropylene (bottle caps)
- Polyethylene terephthalate (plastic water bottles)
- Expanded styrene (Styrofoam)



Photodegradation

The sun breaks down plastic into smaller and smaller pieces, but can never break it down entirely. Unlike organic materials, which eventually biodegrade, the plastic breaks into ever smaller pieces while still remaining a polymer.

As it breaks apart, the plastic ultimately becomes small enough to be ingested by aquatic organisms which reside near the ocean's surface. Plastic waste enters the food chain.

Plastic Pieces



Plastic Chemicals

Plastics in the water absorb floating chemicals, which are attracted to the plastic's oil base. Many of these chemicals are known as persistent organic pollutants, which never leave the environment or break down. These chemicals include:

- Aldrin (insecticide), Chlordane (pesticide), Dieldrin (insecticide), DDT (pesticide), Dioxins (toxic chemicals that are an industrial waste product of actions like metal smelting and paper bleaching), Endrin (insecticide), Furans (toxic chemicals used as solvents), Heptachlor (insecticide), Hexachlorobenzene (fungicide), Mirex (insecticide), Polychlorinated Biphenyls (or PCBs; coolant and lubricant), Toxaphene (insecticide)



Impact

Ocean life can mistake the small pieces of floating plastic for zooplankton. When they eat it, they also ingest the chemicals that the plastic has absorbed. These organisms and small fish are consumed by larger fish, which also absorb the chemicals, and which are then eaten by people. Many of these poisonous plastics also end up in the stomachs of marine birds and animals.

