

Living in a Sea of Plastics

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1. Objective

The main objective of this project is to shed light to people living in a landlocked state who might think that what they do here does not have an affect on what ends up in our oceans. Also, to show the disturbing condition our oceans are currently in because of the incredible amount of plastic that has collected at sea and the detrimental effects that it has on marine mammals.

2. Problem



One of the greatest threats to our ocean's health is human pollution. Every single piece of plastic that has ever been created still exist in our environment and will remain here for at least 500 years.¹

It's a huge global problem because of all the plastics we are throwing away accumulate in gyres, which are large systems of circulating ocean currents that move through the world's oceans.

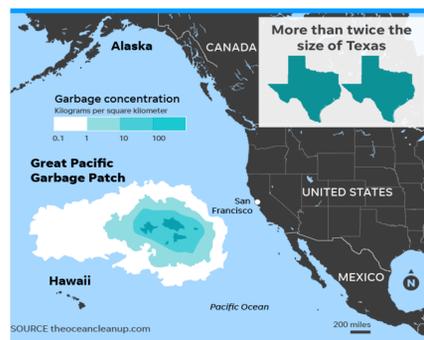
3. Introduction

Plastics are responsible for killing 100,000 marine mammals globally every year in two direct ways, either from ingestion or from entanglement in plastic-based fishing gear.² An estimated 56% of marine mammals have consumed plastic because species can easily mistake plastics as their prey. Balloon can



resembles squid and be ingested. Plastics are found to cause inflammation of abdominal tissues in even the largest marine predators such as the sperm whale.² Marine mammals can also accidentally consume plastics while using hunting techniques such as echolocation.² It is believed that plastics confuse their echolocation sonar and cause mammals to incorrectly interpret it as food.² Plastics are also detrimental to marine mammals through entanglement and drowning, the worst being abandoned fishing gear.² An estimated 640,000 tonnes of the eight million tonnes of plastic that enters our oceans every year is this "ghost fishing equipment."²

The plastics we are throwing away end up accumulating in gyres which are large systems of circulating ocean currents that move through the world's oceans. The Great Pacific Garbage Patch, the largest of five offshore plastic accumulation zones in the world's oceans, covers an estimated surface area of 1.6 million square kilometers, which is about twice the size of the state of Texas.³



4. Solutions

On top of solutions already in place that reduce the amount of plastic entering into the environment, such as cutting back on single use plastics, we can take further action to remove what currently exists in our landfills to prevent them from eventually making their way to our oceans. One solution to this global problem is to gather discarded plastics that already exist in landfills and repurpose them. While repurposing plastics does not immediately remove them from the environment, it does minimize the hazardous effects it can have on marine mammals when it enters into their environment.



5. Methods

Two methods to repurpose plastics, in an effort to reduce and prevent their potential hazardous impacts on marine mammals, is to remove what already exists in landfills and to make at home recycling more appealing.

Once collected, these plastics can be melted down to be used in 3D printers. Repurposed plastics and 3D printers can be used to create many different items such as buoys that can be used to outline marine protection areas, art structures at parks that have a sign talking about how much plastic was removed from the environment to create it, bionic limbs and so much more.

Another solution is to incorporate recycled plastics into cement. Using plastic in cement as a filler can have the potential to reduce the amount of cement used which not only reduces plastics in the environment, it also reduces the carbon footprint that concrete leaves on our environment.

6. Conclusion

The health of our oceans is being threatened by plastic pollution. Plastic pollution is an issue because rather than decomposing, it just breaks down into smaller pieces called microplastics and remains in the environment for at least 500 years.⁴

All of the plastic that ends up in our oceans accumulate in large gyres where marine mammals are known to migrate through.³

Plastic pollution is responsible for killing 100,00 marine mammal every year worldwide and the rate at which plastic is entering into the ocean doubles every eleven years.²

Mammals are directly affected by plastics either through accidental indigestion or drowning caused by entanglement.²

Anyone can make a difference whether they live near the ocean or in a landlock state. Repurposing plastics in landfills to prevent them from eventually making their way into the ocean is a positive step towards reducing plastics already in the environment.

The use of 3D printers to create items such as art structures and bionic limbs are just a few ways to repurpose plastics from the environment.

Using plastics as fillers in cement can also reduce the amount of plastic in the environment and prevent them from making their way into the ocean and also play a large role in reducing the carbon footprint cement leaves on our planet.



7. References

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