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# Great Pacific Garbage Patch

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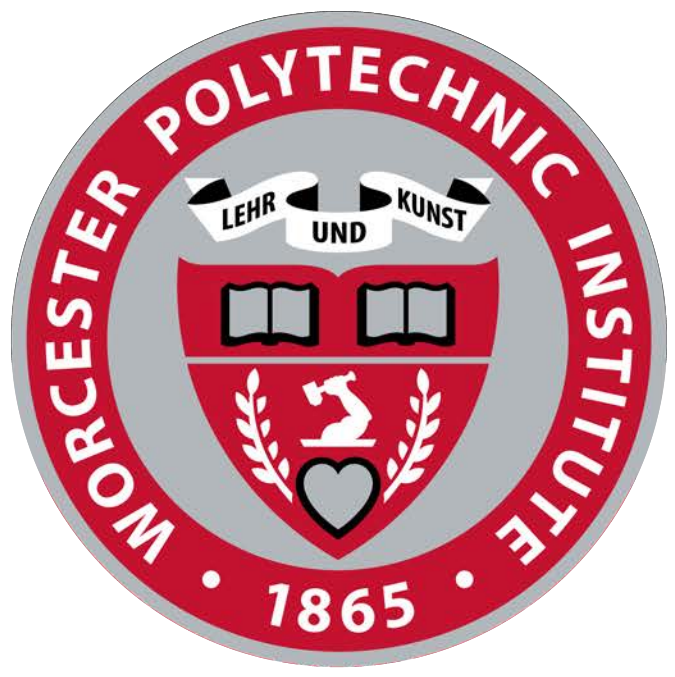
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## Great Pacific Garbage Patch

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Advisors: Professor Derren Rosbach and Professor Sharon Wulf

### Project Objectives

- **To educate citizens about marine pollution.**
  - Encourage prevention and restoration techniques that anyone can do.
- **To find a way to increase research on the issue of marine pollution.**
- **To pass H.R. 1171 (Amendments to the Marine Debris Research Prevention and Reduction Act) and S. 1119 (Trash Free Seas Act).**

### Background

The Great Pacific Garbage Patch is located between California and Hawaii and is estimated to be twice the size of Texas. The Gyre is formed by rotating ocean currents directed by the wind, and the cyclical motion allows for pollution such as plastics and derelict fishing gear to collect in the relatively calm centers. Sources of pollution include land-based, such as rivers or trash carried by the wind, ocean-based, where ships intentionally or accidentally dump trash like nets or small plastic pellets called nurdles into the water, or sewage-based. Each year an estimated 60 million tons of trash flow into the ocean.

Plastic undergoes photo degradation in the ocean when it is exposed to sunlight, which amounts to the plastic breaking into smaller and smaller particles as time goes on although it never fully disappears. Plastic can remain in the ocean environment for hundreds of years.

The existence of plastic in the oceans is harmful to marine life in various ways. Mammals such as the Hawaiian Monk Seal and fish can become entangled in derelict fishing gear, known as “ghost fishing”; sea birds such as the Laysan Albatross can ingest small pieces of plastic that cause them to starve to death; fish and other life can be transported long distances from their natural habitat via flotsam.

These issues need to be addressed before they cause irrevocable harm to marine life and the ocean environment.

### Abstract

Inside the North Pacific Ocean lies the biggest amount of trash in the world and it’s only getting worse due to human interference. The United States government has legislation and precedent in place to protect the oceans from human interference. However, there is not much awareness in the general public of the impact of human waste. If left untouched, more animals will be threatened by extinction because of the amount of waste. The National Oceanic and Atmospheric Administration has authority on clean up regarding national waters. Unfortunately, a lack of research prevents any mitigation efforts and a lack of money prevents additional research from being done.

Through the passing of various bills, the Administration would get more money to do research and increased education will allow citizens to be able to incrementally decrease waste impact.

### Process

This project began with the research of background information regarding the Great Pacific Garbage Patch to understand what the issues are. We found that it is a broad topic with many different problems each with many possible solutions. To focus the project, we chose to increase education and endorse certain pieces of legislation that are aimed to increase research, prevention and reduction of the gyre, because the creation of a technology was beyond the realm of feasibility for this project. To raise awareness of the issue, we created a website with facts about the gyre and included the petition we created using Change.org on the solutions page. Once the website was in place, we promoted it using social media sources.

### Acknowledgments

We would like to acknowledge Professor Wulf and Professor Rosbach for their time and dedication to GPS: The World’s Water. Thanks also go out to the PLAs for their advice and Stacy Schwartz for teaching us about resources we used for this project.

### Solution

- **Encouraged senators to pass legislation by the mass amount of citizens encouraging the bills.**
  - Emailed select Senators regarding the imperative nature of these bills.
  - Created a petition, which needs 1000 signatures, to pass H.R. 1171 and S. 1119.
- **Created a website, which educates the general population about marine pollution.**
  - Has information describing all details about the gyre and bills that need to be passed.
  - Instant gratification is received by linking the site to the petition so that more people can sign it.
  - Shows more ways to reduce waste impact, such as using reusable products.



Image: Home page of the Garbage Patch Kids Website

### References

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