



Figure 1- Plastic Pollution Crisis (The Ocean Cleanup, 2018)

Funding Research on the Plastic Pollution Crisis

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By 2050 there will be more plastic than fish, by weight, in the ocean. The dependence society has developed on plastic in recent decades has created an abundance of plastic waste to enter the environment at an alarming rate. Plastics are synthetic and semi-synthetic polymers that serve as a versatile material with many different applications. Plastics have a lifespan of anywhere between 20-500 years. Even after years of degradation, these polymers re-enter the environment as microplastics, microscopic pieces of plastic that are harmful to all ecosystems across the globe and that are extremely difficult to monitor. In recent decades attempts have been made by political movements to combat plastic pollution and to find greener alternatives to plastic. More times than not, capitalist gain has been prioritized by global environmental governance (Dauvergne, 2018a). The lack of funding by the government towards plastic pollution research has played a big role in this oversight and will be addressed in this paper. By implementing stricter governance on marine pollution, and funding the monitor and regulation of industry-level pollution within the United States, the plastic crisis may be combated.

There is a high level of uncertainty regarding how much plastic has infiltrated the ocean. It is estimated that 2 hundred million metric tons of plastic have been dumped since the 1950's. Recent findings show that microplastics have been identified in tap water, bottled water, seafood, rain, clogging coral reefs, trapped in arctic ice, ingested by fish, whales and seabirds and many other organisms. Plastic has reached corners of the Earth that could never have been anticipated decades ago. Plastic production is estimated to reach 500 million metric tons by 2050 as demand continues to grow in this day and age. Approximately 40% of plastic production today is used in packaging and 20-25% is used for production of items. (Worm et al, 2017). In addition to the alarming rate at which plastic is already being produced and disposed, these items are commonly produced to be durable and resilient with the addition of fillers and additives that in turn expand

its lifespan. In turn this is creating an abundance of material that is exponentially growing in the ocean with a capability of outliving several generations. “The durability, photodegradation, and microscopic size of plastic waste further complicate governance” (Dauvergne, 2018b).

Domestic regulation of industrial pollution at a global scale can make a significant change when done in unison. In recent years, the plastic pollution crisis has made headlines within the United States. Circulating images of sea turtles swimming with plastic bags has struck the heart of many but the necessary change that needs to be brought forth remains stagnant. The United Nations address improving water quality by reducing pollution and sustainably managing marine and coastal ecosystems in their agenda for sustainable development 2030 (Worm, et al., 2017). However, those organizations leading the discharge of industrial waste and microplastic emissions are avoiding the responsibility of wastewater recycling. Despite recent findings in technology that can remove up to 98% of microplastics from effluents in industrial processes, (Poerio et al., 2019) the investment in wastewater treatment as an environmental management strategy is voluntary in many parts of the world (Dauvergne, 2018a). The lack of accountability in waste dumping by primary and secondary industries around the globe have allowed for an abundance of microplastics to enter the environment. Understandably, corporations have found ways around having to abide to greener-practices in waste management because they're often inconvenient. The cost of production of greener plastic alternatives are often higher than that of plastic and countries with legislation often allow for industries to find legal loop-holes and oversell poor-monitoring and inconsistent implementation (Xanthos and Walker, 2017).

A common counterargument many U.S. corporations will present on the topic of plastic-waste monitoring or switching to greener plastic alternatives is that a high percentage of the plastic waste currently infiltrating the ocean are the responsibility of other nations. In 2018 the

nonprofit organization, “The Ocean Cleanup,” led an expedition to the Great Pacific Garbage Patch, an accumulation of marine debris in the ocean that is roughly around three times the size of France. Their studies found that up to 20 percent of the mass was from the Tohoku tsunami that hit Japan in 2011. About 60 percent of food packaging waste were found to be from Asia. Other studies have confirmed that Asia is substantially responsible for ocean pollution. In a 2015 study, China and 11 other Asian nations were found to be responsible for 77-83 percent of plastic waste entering the ocean. This same study placed the U.S. 20th on the list of top ocean polluters and American corporations saw this as an achievement. However, first world nations such as the U.S. should be leading by example, given that this nation is one of the top plastic producers and consumers of the globe (Lebreton, et al., 2018).

It is the U.S.’s responsibility to implement stricter governance on plastic waste and to encourage lawmakers around the globe to tackle plastic-waste pollution at its foundation. Holding large corporations accountable for their contributions to global warming and pollution are pivotal in reversing the extensive damages brought upon the Earth over the last century. With proper governance and regulation of plastic pollution at an industrial level can be a ripple-causing step in the right direction.

References

- Dauvergne, P. (2018a). The power of environmental norms: Marine Plastic Pollution and the politics of microbeads. *Environmental Politics*, 27(4), 579–597.
<https://doi.org/10.1080/09644016.2018.1449090>
- Dauvergne, P. (2018b). Why is the global governance of plastic failing the oceans? *Global Environmental Change*, 51, 22–31. <https://doi.org/10.1016/j.gloenvcha.2018.05.002>
- Lebreton, L., Slat, B., Ferrari, F., Sainte-Rose, B., Aitken, J., Marthouse, R., Hajbane, S., Cunsolo, S., Schwarz, A., Levivier, A., Noble, K., Debeljak, P., Maral, H., Schoeneich-Argent, R., Brambini, R., & Reisser, J. (2018). Evidence that the Great Pacific Garbage Patch is rapidly accumulating plastic. *Scientific Reports*, 8(1).
<https://doi.org/10.1038/s41598-018-22939-w>
- Worm, B., Lotze, H. K., Jubinville, I., Wilcox, C., & Jambeck, J. (2017). Plastic as a persistent marine pollutant. *Annual Review of Environment and Resources*, 42(1), 1–26.
<https://doi.org/10.1146/annurev-environ-102016-060700>
- Xanthos, D., & Walker, T. R. (2017). International policies to reduce plastic marine pollution from single-use plastics (plastic bags and microbeads): A Review. *Marine Pollution Bulletin*, 118(1–2), 17–26. <https://doi.org/10.1016/j.marpolbul.2017.02.048>

Self-Reflection

After writing this assignment I was surprised at how much I struggled writing this paper. I've written on the topic of plastic pollution before but I am unfamiliar with writing a positions paper that is addressed to the government for funding an idea. I think I am more familiar with writing research articles and have forgotten how to comfortably incorporate my stance on the topic into the assignment.

I found that reading articles and doing research on the topic is something I am very comfortable doing for any sort of paper. I navigated pretty well in finding sources on the topic and doing the research necessary to come up with the background information on plastic pollution. I am quite familiar with using databases for my research so I resorted to using similar databases I've used in the past, an example being the Elsevier- Science Direct database. I am familiar with citing and creating reference pages but I do often forget certain minor details in the citing process.

Another part of this paper that I was struggling with was writing from the opposing side of the argument. I think I've spent a lot of time writing and reading solely research journals and had forgotten how to incorporate a counterargument into my paper. In research we've been taught to completely avoid biases and including your personal opinions in your writing so I find myself straying away from doing what the assignment is asking. I think I just have a few writing habits to unlearn. Overall, this assignment brought a lot to my attention on things I need to work on as a writer.