



Plastically Speaking

Message: Ensure plastic waste never reaches waterways.

Recommendations

Individual

- Charge for plastic bags
- Increase public education on plastic pollution

Industry

- Reroute disposal from factories and ships
- Penalize plastic disposal into waterways

Goal

- Reduce the likelihood of plastic entering the ocean

Plastic pollution has different effects on land than in the water. Once plastic reaches the ocean, the consequences are diffuse and nearly impossible to manage. Therefore, the best solution is to prohibit plastic from entering the ocean. This paper aims to highlight the consequences of marine plastic pollution and recommends solutions to mitigate this problem.



Figure 1: Plastic pollution on shoreline in San Diego

It is reported that 12.7 million metric tons of plastic entered the ocean in 2010 alone.¹ Without improved waste management, the cumulative quantity of plastic waste is predicted to increase by an order of magnitude by 2025. Therefore, changing waste management is critical to minimize the impact of marine plastic pollution.

Problems with Plastic

As the quantity of plastic pollution increases, so do these consequences:

Biological

- Plastic pollution leeches toxins into the water, thus compromising our water quality.
- Ingesting plastic is a concern for all marine animals: it can harm wild populations, such as: seals, fish, and birds.

Economic

- Ingesting plastic affects the health of fisheries, as well as the organisms on which the fish depend
- Shoreline plastic impairs businesses that rely on tourism
- Shoreline clean up is an expensive pursuit



Figure 2: Plastic contents inside of fish GI tract

How Does Plastic Enter the Ocean?

Both individuals and industry are responsible.

Individual

Plastic enters the ocean when it makes its way into the sewer system – either from being flushed down the toilet or carried by a storm drain.



Figure 3: Plastic inside of seabird

Industry

Plastic enters the ocean in two ways. First, ships dump plastic waste into the ocean. Although this is illegal, it is difficult to enforce². Second, it can also get into the ocean due to mismanaged plastic waste, especially in coastal cities¹. It can also enter the waterways when plastic factories and landfills are located near a waterway.

Recommendations and Implications

1. Increase accessibility of plastic recycling around the city

Implications: Allow more plastic to be transformed so it is not treated as waste.

2. Charge fee for plastic bags and disposable coffee cups

Implications: Discourage public reliance on unnecessary plastic products

3. Educate public on marine plastic pollution

Implications: Give people information to make informed decisions

1. Improve waste management facilities so they do not dispose into waterways

Implications: Reduce amount of plastic entering the ocean

2. Fine industry that continues to partake in improper plastic disposal and increase enforcement

Implications: Discourage future activity



This policy brief aims to elucidate the issue of marine plastic pollution, since it is not something encountered in every day life. Ultimately, marine plastic pollution is developing into a global problem and it needs to be acknowledged.

References

1-Jambeck, J. et al. 2013. Plastic waste inputs from land into ocean. Science 347: 768-771.

3- Figure 1- <http://www.deepseanews.com/2010/09/the-invisible-side-plastic-marine-debris/>

5-Figure 3-<http://files.cdn.ecowatch.com/wp-content/uploads/2013/05/plasticsfeat.jpg>

2-UN Convention on the Law of the Sea. 1982. Appendix V.

4-Figure 2-<http://www.nrdc.org/oceans/plastic-ocean/>