

4.13.17

# Ocean Pollution

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*“The ocean stirs the heart, inspires the imagination, and brings eternal joy to the soul.”*

*-Robert Wyland*

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What has been done and what can we do now?

## Background Information

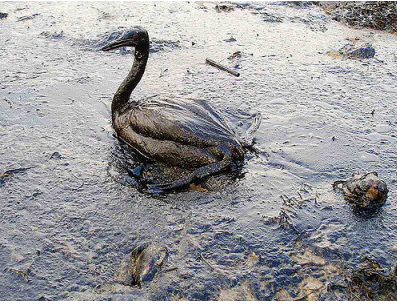
For hundreds of years, humans have been dumping their waste into the oceans. Only recently (the 20<sup>th</sup> century) have laws been made against dumping waste into the ocean. Marine pollution was especially a concern during several United Nations Conferences around the 1950's. [1] At that time, many people believed that because of the size and magnitude of the oceans, our pollution would have little to no impact on marine life and the oceans as a whole.

During the early 1960's, several companies tried to dispose of their radioactive waste in the oceans. These was a very controversial topic, so many people stepped up and decided to start campaigns against marine pollution. The Santa Barbara oil spill in 1969 was one of the first times that ocean pollution made international headlines and had gotten the attention of the public.

In 1972, Congress passed the Clean Water Act to reduce water pollution. Various pieces of anti-pollution legislation have followed since that time. The ENS (Environmental News Service) noted that over 40 percent of American waterways were unsafe for swimming and fishing.



*On a shore in Belize, there is no sand in sight. Only plastic, garbage, and liter cover the Turneffe Atoll shore [1]*



*A bird suffers from an oil*

Water resources also face an ongoing threat from man-made environmental disasters such as the 1989 Exxon Valdez oil spill. This accident was tragic, while 11 million gallons of oil were accidentally dumped into the sea off Alaska's Prince William Sound. This oil spill instantly killed hundreds of thousands of birds, fish and other wildlife and devastated the area for years afterward.

## Current Situation

There are over 5.25 trillion pieces of plastic debris in the ocean, and we are still counting. [2] While scientists are aware of some of the effects all this pollution has on animals and humans for that matter, they are still unsure about some possible effects from this issue.

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- *Over one million seabirds killed by ocean pollution each year*
  - *One hundred thousand sea mammals are killed in the ocean by pollution each year*
  - *It is estimated that every square mile of ocean has more than 45,000 pieces of plastic floating in it.*
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More and more areas within the ocean are becoming “dead zones” and the loss of marine life is becoming overwhelming. There are currently over 405 dead zones throughout all the oceans, which is so alarming. The impacts of these dead zones could become detrimental to humans. [3]

- With so many dead zones, the amount of food the world produces potentially will decrease significantly
- Approximately 8 million tons of plastic were dumped into the ocean last year
- 86% of sea turtles ingest plastic and waste thinking it is food which can cause internal damage to the animal

### Effects – too many to count

When plastic enters the oceans, the amount of marine wildlife it affects is a number greater than anyone can imagine.



*A frustrated man explores a polluted shore in Morocco*

## Current Situation Continued...

Many times, wildlife and fish will eat smaller pieces of plastic thinking it is food. This can affect humans because 14% of protein humans eat on average is from fish. If we eat a fish that has consumed harmful plastic, then the harmfulness has been transferred to our own bodies. That can lead to potential issues with hormone imbalance, reproductive problems, kidney damage, and nervous system damage. [4]



*A turtle's shell is deformed from plastic waste [10]*

Even coming into contact with water that has pollution in it can have some nasty side effects on human bodies including diarrhea, skin rashes, and stomach-aches. Can you imagine going for a swim on a spring break trip and getting sick just from simply touching the water? This issue effects everyone. It directly affects those living close to the beach and the water, but it also effects anyone that eats fish, shrimp, lobster, or any other seafood. Or even anyone that likes to travel and spend time on a beach! Eventually, all this pollution will catch up with us.

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*“Water and air, the two essential fluids on which all life depends, have become global garbage cans.”*

*-Jacques Yves Cousteau*

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## What is being done now?

Boyan Slat is a 21-year-old that had a great idea for an invention to help clean up the oceans. He thinks that if he creates a V-shaped underwater wall, more trash passing through the ocean could be more easily found in one place therefore making it easier to be removed and recycled. [5]



*Here is an illustration of Slat's idea and how it would collect garbage [5]*

According to the Huffington Post, if Slat's technology is successfully implemented, it could remove almost half of the Great Pacific Garbage Patch. That would be 154 million pounds of trash cleaned up in just 10 years, according to Slat and his organization's estimates.

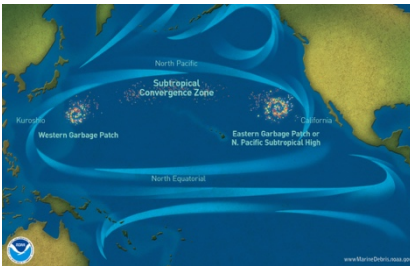
- By 2050, it is predicted that there will be more plastic in the ocean than fish
- A smaller version of the wall will be tested in the North Sea this summer

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***Many clean-up efforts are targeting the huge garbage patches, but is that the most effective way?***

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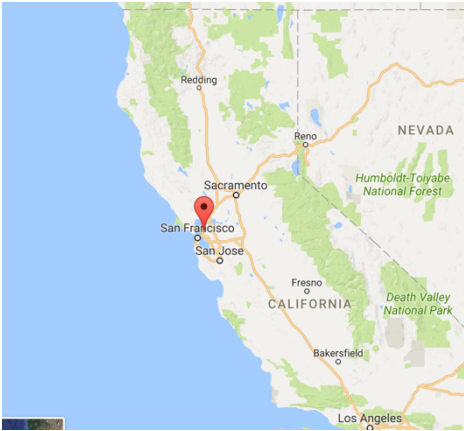
There are a few programs that are already in action, but sometimes they aren't the most efficient. It is hard to clean up every little piece of trash in the ocean too, so we have to focus on what is going to have the biggest positive effect now and for the future. Many programs are focusing solely on the Great Pacific garbage patch. This is a giant garbage site twice the size of Texas located between Los Angeles and Honolulu. But a new study shows that targeting the huge garbage patches probably isn't the most efficient way to clean up the high seas.



*This illustration shows the two huge garbage patches off the shores of California and Japan [6]*

Instead, agencies should focus on removing plastic from China's eastern shores and just a few other select locations around the world. According to Pacific Standard, collecting trash near the coast would reduce the impact on marine life more efficiently. The Ocean Cleanup organization has a similar idea to Slat's. Ocean garbage patches are vast but dispersed. [6] They create a wall that acts like an artificial coastline. By doing this, they passively concentrate the plastic by orders of magnitude, 100% powered by natural ocean currents.

## Community Clean Ups



*Berkeley, CA is located right outside of San Diego*

In the city of Berkeley, California, the community hosts many annual shore clean up days. They invite families, individuals, children, anyone who wants to help make a difference in the community. [7] They provide gloves and buckets to the volunteers to help pick up waste efficiently. All clean-ups include information about plastics pollution, suggesting ideas on how to help at home and end with a safety talk. Data is also collected at each clean-up, so they can provide facts to help change laws. After the clean-up is finished, they lead the volunteers to the proper location for trash and recycling. It is very effective in getting the community involved with shore clean-up as well as getting real life facts to use to try to change laws around them.

Save our Shores nonprofit organization puts together shore clean-up days all throughout the world. They ask for volunteers in Jamaica, California, Florida, and other tropical places to help clean up all the trash that was tossed on the shore. They focus around times where the beach is particularly popular, such as spring break and summer. [8] This is effective for those active good Samaritans that actively go out looking for volunteer opportunities to make the world a better place. For all those other people, it is not that effective due to lack of marketing and awareness.



*There are many different ways to reduce, reuse, and*

## Individual Efforts

Oceana is a huge international organization that is also doing work all around the world to try to cut the amount of pollution down. [9] On their website, Oceana states while it is hard to come back from what we have already put in the oceans, there definitely are ways to prevent anything more from happening.



*A sea turtle mistakes a plastic bag for food [12]*

Things like reusing whatever plastic you can and recycling are very helpful. Instead of throwing away a plastic grocery bag, save them up for a while and then properly recycle them or reuse them to carry things over and over again. Things such as properly exposing of hazardous materials is also huge on the list. Too many chemicals are getting dumped into the ocean, and that is not good for anyone. Some other ideas are:

- Donate to or join organizations such as Sea Shepherd Conservation Society, Oceanic Preservation Society, Whale and Dolphin Conservation, and Ocean Conservancy.
- Recycle!! Recycle everything and anything you can. Green glass, clear glass, cardboard, paper, etc.
- If you spend a lot of time or live near a beach, organize weekly clean ups within your community to make sure that the shore is not polluted with plastic garbage bags and water bottles.

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*“Be the change you want to see in the world.”*

*-Mahatma Gandhi*

### **A New Proposal**

A new proposal would be the idea that every town and village on the coast would take it upon themselves to organize a clean-up semiregularly. In the summer months, there should be a clean-up once a week. With more and more people out and about during the summer months, it is assured that there will be more trash and garbage out too. Everyone should be able to enjoy the beach, including the marine life that live in the water. It is time to take responsibility as a community and pick up after themselves.

Communities and townships have leaders on the town board that can handle problems that happen within the community. Town boards and municipalities should constantly host clean-ups during summer months as well as during the spring break season. This includes counties all across California, Florida, Alabama, North Carolina, and

South Carolina particularly year-round. In the summer, it could also move up the coast to Delaware, Virginia, New Jersey, and New York.

It has been shown that people want to help but often times don't know how to. That is why advertising is very important. Flyers for the clean-up should be distributed at businesses and bulletin boards all around the town to get the word out. Some towns have a town bulletin that gets sent out semiregularly and that would be the perfect place to announce the clean-up schedule and what to bring/do to sign up.

Nothing will change if we don't change. It is time to step up and change our world for the better. We cannot keep treating it as if nothing is wrong and it will fix itself because that will only make it worse. We only get one planet Earth, let's keep it clean and healthy.



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*“Change will not come if we wait for some other person or some other time. We are the ones we’ve been waiting for. We are the change that we seek.”*

*-Barack Obama*

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