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## The Solution to Plastic Pollution: A Dissection of the Break Free From Plastic Pollution Act

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# The Solution to Plastic Pollution: A Dissection of the Break Free From Plastic Pollution Act

## Abstract

Ever since the development of plastic in the 1900s, it has become one of the most commonly used materials in the world. Its flexibility and durability allow it to be used in a wide variety of materials from clothing to packaging to toothbrushes. However, plastic's durability has caused environmental damage as well, as plastic particles have been found in everything from waterways to human bodies. This paper explains the history and science of plastic production and examines studies on the environmental and public health impacts of plastics. It then examines various policies that have been enacted to control plastic pollution and the effectiveness of those policies. Finally, it assesses the Break Free From Plastic Pollution Act and investigates why certain stakeholders support and oppose this act. Ultimately research suggests that the Break Free From Plastic Pollution Act would be effective at reducing plastic pollution in the United States, and the United States Congress should pass this act in order to protect both people and the environment from plastic pollution.

## Keywords

Plastic, Environment, Policy, Politics

## Disciplines

Environmental Policy | Environmental Studies | Public Affairs, Public Policy and Public Administration

## Comments

Written for PP 401: Advanced Topics in Public Policy

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Nadine Snyder

May 12th, 2021

## **The Solution to Plastic Pollution**

### **A Dissection of the Break Free From Plastic Pollution Act**

#### **Introduction**

The creation of plastic forever changed the economies and environments of countries across the globe. Today plastic is in almost everything, from clothing, to packaging, to toothbrushes. It has become inseparable from modern life. However, this may not be a good thing. Plastic pollutes our waterways and landscapes, and recent studies have shown that it even pollutes our bodies. However, attempts at regulating plastic use and production have not always been successful. The plastic industry has lots of money and power in the political game, and it is difficult to regulate a material that so many people are dependent on. Even so, given how difficult it is to remove plastic from our environment and bodies, it is now more important than ever for governments to regulate plastic. Therefore, The United States Government should pass the Break Free From Plastic Pollution Act, in order to reduce plastic waste, improve waste management, and hold companies accountable for the harm their products do to the environment and society.

#### **Background**

##### **History of Plastic Production**

Plastic was first created in 1907 in the form of Bakelite, a synthetic polymer that was designed to replace silk and ivory (Davis, 2015). During World War Two, the need for cheaper materials greatly boosted plastic use. Post World War Two, plastics were lauded as a cheap material that could be used for everything from packaging to clothing (Davis, 2015). Plastic

consumption was generally not driven by the need for new technology, but instead by the price of the material. It was a cheap replacement for items that were already in use. It also allowed for an increase in global consumerism, as plastic materials, such as shrink wrap, made shipping processes far easier (Davis, 2015). In the past fifty years plastic production has increased dramatically. In 1960 plastic made up just 1% of all municipal solid waste in the United States. By 2005 plastic made up at least 10% of all municipal solid waste. Global plastic production has increased 620% since 1975 (Jambek et al, 2015). This rapid increase in plastic consumption and production makes it even more important that countries, such as the United States, have policies regulating the disposal of plastic, to ensure that pollution does not get out of hand.

### **Science and Formation of Plastic**

Plastic is so popular as its flexibility allows it to be molded into a seemingly infinite number of products. The term plastics itself is defined as materials that at some stage in production are capable of flow that allows them to be extruded, molded, spun, or painted on as a coating (American Chemistry Council, 2021). Plastic is made from carbon atoms from monomers that come from oil or gas. Then these carbon atoms are chemically bonded to form polymers through a process called polymerization (American Chemistry Council, 2021). This is done by adding an enzyme, such as peroxide, that causes the monomers to link up. Plastic can also be formed through condensation, which is when catalysts are added to cause all atoms to react with the atoms surrounding them. In condensation byproducts, such as water, oftentimes have to be disposed of before the newly linked polymers can be used (American Chemistry Council, 2021). After the polymer chains are formed additives can be added to the plastic to give it different properties. For example antioxidants can be added to the outside of plastic

packaging, to prevent it from being damaged. Antimicrobials can be added to things such as shower curtains, to prevent bacteria growth. Flame retardants can be added to things such as wire and cable coverings, to ensure they do not catch fire. Colorants can be added to all types of plastic, to improve the aesthetics, and make the item unique when compared to other plastic items (American Chemistry Council, 2021). After all of these steps are complete, carbon molecules are transformed from oil to a plastic cup or other item.

In general there are two main types of plastic, thermoplastics and thermoset plastics. Thermoplastics are formed of repeating units, called unit cells. Examples of different types of thermoplastics include ethene, propene, and butene, which differ in their number of carbon and hydrogen bonds (American Chemistry Council, 2021). There are two main groups of thermoplastics, homopolymers, which are formed of long chains of carbon bonds, or heteropolymers where the carbon atoms are divided by oxygen or nitrogen atoms. Homopolymers tend to be more durable than heteropolymers. In general, almost all plastics, approximately 92%, are thermoplastics (American Chemistry Council, 2021). All thermoplastics have a high molecular weight, which means that they can easily bond with thousands of other atoms. They also are easily meltable, and can be molded to form a variety of objects. Thermosets are plastics that are not meltable, as they are formed from 2 or 3 dimensional configurations of atoms, not just a single chain (American Chemistry Council, 2021).

The chemical bonds in plastic make it very difficult to decompose. On average plastic takes 20 to 500 years to decompose. The decomposition rate of plastic products depends on the strength of the plastic it is made out of. For example weaker plastic such as the plastic in a plastic grocery bag can take 20 years to decompose, whereas sturdier plastic, such as the plastic in a toothbrush can take around 450 years (Godswill and Godspel, 2019). This makes recycling

plastic incredibly important, as if it is not recycled it will spend decades sitting in landfills. However, 91% of plastic is not recycled. Thermoplastics, which comprise the majority of plastics can be recycled, while thermoset plastics, which comprise 8% of all plastics cannot be recycled (Sedaghat, 2018). This is because the weaker bonds of thermoplastics allow them to be easily broken down and formed into other materials, whereas the stronger bonds of thermoset plastics make them difficult to remold. However, thermoplastics can generally only be recycled 2 or 3 times before the quality of the plastic deteriorates to a point where it cannot be reused (Sedaghat, 2018). This process is called downcycling, and it happens to the majority of recycled goods. All of this information is especially concerning considering that 8.3 billion metric tons of plastic have been produced since 1960. 6.3 billion metric tons of this plastic has become waste (Sedaghat, 2018). This waste causes environmental, public health, and environmental justice issues that need to be addressed.

### **Environmental Effects of Plastic**

Plastic waste causes severe harm to the environment, particularly to ocean ecosystems. One study found that in 2010 275 million metric tons of plastic was created by 192 coastal countries. 99.5 million metric tons of this plastic waste was created by people living within 50 kilometers of the coast (Jambeck et al, 2015). Plastic waste is at a greater risk of entering the ocean when it is mismanaged, or when it does not make its way to a landfill, incinerator, or recycling center. It is estimated that 31.9 million metric tons of the 99.5 million metric tons of coastal waste that was generated was mismanaged, and 4.8 to 12.7 million tons of this waste ended up in the ocean (Jambeck et al, 2015). As the amount of plastic used by global populations increases, the amount of mismanaged waste will as well. As the amount of mismanaged waste increases, so will the amount of waste that enters the ocean.

Not all coastal countries put an equal amount of plastic waste into the oceans. Currently China creates the most waste and it is estimated that over 5 million metric tons of plastic waste that entered the ocean in 2010 was from China (Jambeck et al, 2015). Other countries in Southeast Asia, such as Indonesia and Thailand created similar amounts of plastic pollution, and it is estimated that 1 to 5 million metric tons of plastic waste that entered the ocean in 2010 was from those countries (Jambeck et al, 2015). However, it is important to remember that the United States and other countries from the Global North ship their waste to Southeast Asia, so it is likely that their waste was originally from the Global North. The United States was a worse offender than other countries from the Global North, as 0.25 to 1 million metric tons of plastic waste from the United States entered the ocean in 2010, whereas only 0.01 to 0.25 million metric tons of waste from individual European Countries entered the ocean that same year (Jambeck et al, 2015). These numbers are troubling as plastic does not biodegrade quickly, so the waste accumulated in the ocean grows every year. Plastic production is likely to increase, so if this waste is mismanaged, it will only lead to more environmental damage. If coastal populations continue to mismanage waste at the same rate, it is estimated that 150 million metric tons of waste will enter the ocean by 2050. If coastal populations increase the rate at which they mismanage waste it is likely that 250 million tons of plastic waste will have entered the oceans by 2050. However, if countries curb waste mismanagement, it is possible that only 100 million metric tons of waste could enter the oceans by 2050 (Jambeck et al, 2015). It is vital that this pollution is curbed, so that marine species are not harmed.

The reason that oceanic plastic pollution is so troubling is that it causes severe harm to marine organisms. It is estimated that 100,000 marine mammals are killed every year due to plastic pollution (WWF, 2018). Plastic pollution can kill marine mammals in three ways: by

starvation, causation of internal injuries, and suffocation. Marine mammals are killed by starvation, as plastic makes animals feel full, without giving them the nutrition they need to survive. They can be killed by internal injuries, as plastic can cut their organs causing inflammation and internal bleeding (WWF, 2018). They can be killed by suffocation as plastic wrap around the mammals necks restricting their airways. It can also trap them under the ocean, and prevent them from resurfacing for air. However, marine mammals are not the only sea creatures harmed by plastic pollution. It is estimated that 1 million seabirds die every year due to plastic pollution. They die in similar ways to marine mammals, by starvation, internal injuries, and suffocation (Yeoman, 2019).

One example of a bird population that has been damaged due to plastic pollution is the Laysan albatross. These birds are known as skim feeders, meaning they feed by flying along the ocean surface with their beaks open, and eating whatever happens to be at the surface of the water. In the past this was primarily squid and fish eggs, but as plastic pollution has increased, the albatross have been consuming more plastic (Klavitter, 2012). The albatross are not only consuming the plastic themselves, but also feeding it to their chicks. One study on Midway Atoll found that 90% of chicks had plastic in their gizzards (Klavitter, 2012). This study also found that chicks that died before adulthood typically had consumed twice the amount of plastic compared to the chicks that survived. About 40% of the chicks on Midway Atoll die from starvation due to plastic pollution (Yeoman, 2019). In order to save sea bird populations, especially Laysan albatross populations, humans will need to stop putting plastic waste into the ocean.

One final way that plastic harms ocean ecosystems is through the creation of microplastics. Microplastics are created when plastic weathers down in the ocean into tiny

pieces. These pieces of plastic cause problems as they are extremely difficult to remove from the water (Thompson et al , 2004). This plastic can be consumed by even the smallest of marine organisms. Plastic has been found in plankton samples dating back to the 1960s (Thompson et al, 2004). This plastic filled plankton is then consumed by fish where it bioaccumulates into larger and larger amounts. It has not been studied how these microplastics affect plankton, however it is known that plastic contains toxic chemicals, so it can be predicted that these microplastics do harm all marine organisms.

### **Public Health Effects of Plastic**

Plastic also has been found to have harmful effects on human health. In the United States the average adult consumes around 50,000 plastic particles in a year. This is the same as eating one credit card's worth of plastic every year (Carrington, 2019). One major way that people consume plastic is through sea food. When a person eats seafood the microplastics in the seafood enters that person's body. Plastic cannot be digested so as a person eats more and more seafood the amount of plastic in their body increases (Thompson et al, 2004). Plastic can also be consumed through water. Almost all the major municipal water systems in the United States, contain plastic particles, however people who drink out of plastic bottles consume far more plastic than people who do not. People who drink out of plastic water bottles consume around 85,000 plastic particles a year, 35,000 more than the average person (Carrington, 2019). Some plastics are considered to be relatively harmless and have not been found to have severe effects on human health, however some plastics are made with chemicals that are carcinogens, or can cause harm to the human endocrine and reproductive systems. This means that plastic pollution has turned into not only an environmental problem, but a public health problem as well.

Some chemicals that can cause health problems in humans include phthalates and Bisphenol A or BPA. Humans are exposed to these chemicals through their skin, nose, and mouth (Godswill and Godspel, 2019). It is estimated that most people who are exposed to chemicals such as BPA are exposed at safe levels, however scientists are not exactly sure what the effects of being constantly exposed to low levels of BPA are. This is especially concerning as it is estimated that the urine of 95% of adults in the United States contains BPA (Godswill and Godspel, 2019). BPA can cause several problems in the human body. It affects the expression of the thyroid alignment gene, and therefore can affect metabolic rate and development. It also reduces thyroid receptor activities and decreases the levels of thyroid hormone binding proteins which leads to hypothyroidism (Godswill and Godspel, 2019). BPA also affects sex hormones by binding to globins that typically bind to estrogens and androgens. This can cause an imbalance in the levels of estrogen and androgen in the body. This disruption of hormones can lead to disruptions in sperm production, and can make males infertile (Godswill and Godspel, 2019). In fact BPA could be one of the major chemicals behind the decline in sperm counts in American men in recent years.

Another chemical found in some plastics that has been known to cause harm to human health is Polyfluoroalkyl Substances or PFAs and PFOAs. PFAs and PFOAs are found in a multitude of everyday items from nonstick pans to rain coats. They are popular as they are water resistant, flame retardant, and nonstick. This means they are extremely easy to clean, and are useful for making garments that are made for severe weather. They are most commonly found in teflon or nonstick pans. Teflon pans are generally considered to be safe however if they are not replaced after a certain time period, or are overheated or scratched can create gasses that cause flu like symptoms known as polymer fume fever (ATSDR, 2020). High levels of PFAs can cause

much more damage to human health. High levels of PFAs have been attributed to increased cholesterol levels, changes in liver enzymes, small decreases in infant birth weight, decreased vaccine response in children, increased risk of pre-eclampsia in pregnant women, and increased risk of kidney or testicular cancer (ATSDR, 2020). In general producers of PFAs argue that these symptoms are only found in people who have consumed extreme amounts of PFAs, however given that PFAs can be found in 2,337 locations in 49 states throughout the United States, it is something that the general public should be concerned about (Environmental Working Group, 2021).

### **Plastic and Environmental Justice**

The public health effects of plastic pollution and plastic waste disposal have not equitably affected all Americans. In fact plastic pollution is a major environmental justice issue in the United States, with black, latino, and low income communities being disproportionately affected by the environmental problems associated with plastic. One of the reasons that they are disproportionately affected by this pollution is due to the fact that people of color are less likely to own a home than white people. Around 44% of black individuals and families own homes compared to 2/3s of white individuals and families (Bullard, 2008). Home owners tend to have much more power in determining whether landfills, recycling centers, incinerators, and petrochemical plants are put in their community, when compared to renters, so therefore black communities have had less of a say on whether those facilities are put in their communities (Bullard, 2008). People of color have also been traditionally red lined, or have not been allowed to move into white communities. This created areas of marginalized people where it was simple for companies to locate polluting facilities as local, state, and federal governments simply did not care about the health of those communities (Bullard, 2008). Even though people of color are

technically allowed to live anywhere today, communities are still generally segregated, and marginalized people still bear the brunt of pollution from plastic facilities. In fact race has been found to be the single most important factor in determining whether an individual lives close to a toxic waste facility or dump (Bullard, 2008). Three out of five African Americans live close to a toxic waste facility, and in the South, 100% of all toxic waste is dumped in majority black communities (Bullard, 2008). Although this issue cannot simply be solved by reducing plastic use, reducing the demand for plastic, placing more restrictions on where petrochemical plants can be located and developing cleaner technologies for those plants would certainly help with environmental justice issues in the United States.

Plastic pollution is a global environmental justice issue as well. Much of the plastic waste that Americans recycle is sent overseas to be managed, particularly to countries in Southeast Asia. Much of this waste is not properly managed and ends up damaging Southeast Asian ecosystems by ending up in landfills or even rivers, where this waste will be transported to the Indo-Pacific Ocean (Tabuchi and Corkery, 2021). In China, this became such a problem that in 2018 it banned all plastic scrap shipments. In 2019, the global community attempted to fix the issue by placing stricter limits on the types of waste that could be exported from the Global North to the Global South in the Basel Framework, however the United States refused to sign (Tabuchi and Corkery, 2021). This means that companies from the United States continue to send plastic waste to countries that have signed the framework, and are therefore not required to accept the waste. As the United States did not sign on to the framework, there is nothing that countries in the Global South can do to prevent the United States from shipping them their waste. In January 2021 the United States shipped 48 tons of plastic waste overseas, with 25 tons of this waste ending up in poorer countries (Tabuchi and Corkery, 2021). Most of this plastic waste ends

up in Malaysia, which signed the Basel Framework and therefore should not be required to accept waste from the United States (Tabuchi and Corkery, 2021). In order for waste to be distributed in a more equitable way the United States needs to sign the Basel framework and find a way to restrict single use plastic usage.

## **Legislative History of Plastic**

### **Domestic Legislation**

Several U.S states have tried to tackle the problem of plastic pollution without federal assistance. For example, California has been attempting to curb plastic pollution since the 2000s. In 2007, San Francisco became the first county in California to ban single use plastic bags (Ballotpedia, 2017). By October 2016, 151 counties or jurisdictions had statues banning single use plastic bags (Ballotpedia, 2017). In November 2016, Proposition 67 was put on the ballot. This proposition banned grocery stores and other retailers from providing single use plastic and paper bags at check out, and gave them the option of giving reusable paper or plastic bags to consumers for a ten cent fee (Ballotpedia, 2017). Although many counties had plastic bag bans already in place, this proposition was still a controversial initiative. The American Progressive Plastic Bag Alliance opposed the initiative and led a campaign encouraging voters to vote no on the proposition. They instead supported Proposition 65, another proposition regarding plastic bags which stated that sale of plastic bags would go to a new state fund, called the Environmental Protection and Enhancement Fund. Legal analysts stated that if Proposition 65 received more votes than Proposition 67, the bag ban would be made void, and the bag fee would no longer exist (Ballotpedia, 2017). So in short, the American Progressive Plastic Bag Alliance put a seemingly pro environment proposition on the 2016 ballot, in an attempt to confuse voters

into voting against the bag ban. Their efforts failed however, and Proposition 67 passed with 53% of the vote (Ballotpedia, 2017).

A.B 793 or “An act to amend Section 14549.3 of, and to add Sections 14547 and 18017 to, the Public Resources Code, relating to recycling”, is another piece of legislation California enacted to reduce plastic pollution. This policy states that by 2030 all plastic beverage containers must contain at least 50% post consumer recycled material (A.B 793, 2020). While this policy did not stop the use of single use plastics altogether, it did force manufacturers to encourage consumers to recycle materials, so that they can be reused in plastic bottles. This shows that there is a desire to control plastic pollution in the United States.

### **International Legislation**

In Europe legislation has already been passed to control plastic pollution. In 2018 the European Union mandated that all plastic packaging must be reusable or recyclable. It also banned the use of certain single use items such as plastic cutlery, drink stirrers, oxo-degradable plastic bags, polystyrene food and drink containers, and Q-tips (European Parliament, 2019). These products were supposed to be banned permanently by 2021, however the deadline for this was pushed back due to the Covid-19 pandemic. Legislation on reducing plastic pollution has been proven to be successful in the past. For example, many parts of Europe have introduced fees on plastic bags in order to reduce plastic consumption. In Ireland a bag fee reduced plastic bag use by 90% and in Wales a similar fee reduced bag use by 96% (Schnurr et al, 2018). An absolute ban on single use plastics would reduce consumption and reduce the amount of plastic swept into the ocean every year.

In September 2020, the Canadian Minister of Environment and Climate Change proposed a policy similar to the European Union's that was aimed at reducing plastic pollution. This policy

would ban plastic checkout bags, straws, stir sticks, six pack rings, cutlery and food containers that are made from plastics that are difficult to recycle (Government of Canada, 2020). The Minister also announced that he wanted to focus on developing a circular economy for plastic. This means that plastic used in Canada would be required to be easily recyclable so it could be turned into new plastic containers. This would prevent companies from having to use petroleum products to create new plastics, as they would be creating plastics out of recycled items (Government of Canada, 2020). The Minister will do this by requiring all plastic products contain a certain amount of post consumer content. This requirement will force plastic producers to create products that can be easily recycled, and plastics that are durable, in order to prevent downcycling. It will also require plastic producers to invest more in recycling infrastructure, so that they are able to manufacture goods out of post consumer products (Government of Canada, 2020).

### **Failed Legislation**

Although several policies to reduce plastic consumption have passed and been successful, several policies aimed at reducing plastic consumption have been thwarted as well. In 2020, S.B 54 was defeated in the California State Assembly (Becker, 2020). This bill would have required a 75% reduction in single use plastic packaging, plastic utensils, straws, and other foodware. It also would have mandated that all single use plastics sold in the state be completely recyclable or compostable (Becker, 2020). The bill was opposed by Californians for Recycling and the Environment, which was a group of members of the plastic industry posing as environmentalists. This shows that even though California has passed legislation controlling plastic use, the plastic industry still has power in the state and in the rest of the nation. Many Democratic Senators sat out on voting on this bill, so that they would not anger the plastic industry by supporting the bill,

and not anger constituents by voting no (Becker, 2020). California has always been forward thinking on environmental issues, so if a policy cannot pass in California, it will most certainly have trouble passing in the rest of the nation. Currently fourteen states have legislation that prevents local governments from banning plastic bags (Maldonado et al, 2020). This shows that the plastic industry has tight control over environmental policy in much of the country. This makes it extremely difficult for all levels of government to take action on reducing plastic use and pollution.

### **The Break Free From Plastic Pollution Act**

In order to tackle the problems caused by plastic production and pollution, Senator Jeff Merkley, a Democrat from Oregon, and Representative Alan Lowenthal, a Democrat from California, have proposed the Break Free From Plastic Pollution Act. The Break Free From Plastic Act Pollution was created by the Non Governmental Organization, Break Free From Plastic, and contains several measures aimed at reducing plastic pollution (Break Free From Plastic, 2021). The policy sets in place several goals to ensure that plastic waste is both reduced and managed in a responsible way. Firstly the policy would require producers of plastic waste to design, manage, and finance, recycling programs. The EPA would have to verify these plans to ensure that they manage waste in an effective and responsible way (Merkley and Lowenthal, 2021). This is significant as currently plastic producers create plastic waste, but are not in charge of managing it. The federal, state, and local governments must finance recycling centers and landfills to control plastic waste. This means that taxpayers pay for the mess that plastic producers create. This measure would solve this negative externality, and require plastic producers to be responsible for the plastic they create, instead of putting that burden on varying levels of government. The Break Free From Plastic Pollution Act would also encourage

corporations to make reusable and recyclable items. It would do this by fining corporations up to \$70,000 for selling products without having a plan to recycle them and for selling products that are not easily recyclable or compostable (H.R. 5845, 2020). Companies would also be incentivized to create products that are easily recyclable as they themselves will be in charge of recycling those products, and it will be cheaper for them to produce and recycle easily recyclable products. The Break Free From Plastic Pollution Act also creates a National Beverage Refund Program. Through this program consumers will receive ten cents for every beverage container they bring to be recycled. Several states have adopted similar programs already, and they have been proven to be successful, so it is likely a national program would be successful as well (Merkley and Lowenthal, 2021). Under the Break Free From Plastic Pollution Act producers would also be required to produce plastic that contains a certain amount of post consumer material. This amount would start at 25% post consumer content in 2025 and increase to 80% post consumer content by 2040 (H.R. 5845, 2020). Lastly, the Break Free From Plastic Pollution Act would mandate that the United States Government, along with private entities, invest in recycling and composting infrastructure, to ensure that the infrastructure in the United States is equipped to deal with large amounts of recycling and various types of materials (Merkley and Lowenthal, 2021). This will increase the efficiency of recycling in the United States.

The Break Free From Plastic Pollution Act also provides more specific actions to make sure that the act's goals are achieved. The Act would ban single use plastic bags, polystyrene containers, and plastic stirrers starting in 2023 (Merkley and Lowenthal, 2021). It would also institute a fee on carry out bags, that would go into a fund to pay for reusable bags and litter clean up programs (Merkley and Lowenthal, 2021). In addition to this the Break Free From Plastic Pollution Act would require the EPA to standardize recycling labels, so that everyone

could understand whether certain products are recyclable (Merkley and Lowenthal, 2021). The Break Free From Plastic Pollution Act would also put a ban on shipping waste to countries that are not part of the Organization For Economic Cooperation and Development (Merkley and Lowenthal, 2021). This would prevent the United States from overloading countries in Southeast Asia with plastic waste. Finally the Break Free From Plastic Pollution Act would put a pause on the construction of plastic facilities, until the EPA could update standards regarding pollution from plastic plants, and put in place best available technology requirements, so that plastic plants can control the pollution they generate (Merkley and Lowenthal, 2021).

In total the Break Free From Plastic Pollution Act would cost the Federal Government around 1.3 billion dollars. Out of this, 500 million dollars would be spent on building new or improving old recycling and waste facilities, 250 million dollars would be reserved for building and improving organics recycling infrastructure, and 150 million would be spent on reusable foodware systems (Merkley and Lowenthal, 2021). This bill would be paid for by fines to companies that do not follow the regulations, such as the standards for the required amount of post consumer material (H.R. 5845, 2020). Companies themselves would also be building and paying for a substantial amount of this new infrastructure. This will take some of the burden away from taxpayers, as they would no longer be paying to clean up the waste created by plastic corporations.

## **Stakeholders**

### **Environmental Organizations**

One group that has consistently supported the Break Free From Plastic Pollution Act has been environmental organizations. All major environmental organizations in the United States have expressed support for the Break Free From Plastic Pollution Act (Melges, 2021).

GreenPeace is one organization that has been particularly supportive of the act. GreenPeace issued a statement saying they support it for three major reasons. Firstly the organization believes that the Break Free From Plastic Pollution Act will hold plastic manufacturers responsible for their actions. Second, GreenPeace believes that it will reduce fossil fuel emissions. Third, GreenPeace states that the act will support marginalized communities that live near petrochemical plants (Melges, 2021). These arguments have been used as a rallying cry by GreenPeace to persuade their donors to write to their congresspeople to encourage them to support the Break Free From Plastic Pollution Act.

The arguments used by GreenPeace in support of the Break Free Plastic Pollution Act all prove to be true. For example holding plastic manufactures responsible for the waste that they create has been found to be an effective way to reduce plastic pollution. Many provinces in Canada already have systems in place that require extended producer responsibility (EPR) for plastic waste, meaning that plastic manufacturers have to be responsible for collecting and recycling the waste that they create. Nova Scotia is an example of a province that has benefitted from EPR programs (Diggle and Walker, 2020). In 1989, before the EPR program was implemented, beverage waste made up 72% of all materials gathered in the province. In 1996 an EPR program that required that a \$0.10 CAD deposit be paid on all beverage containers was put into place. This deposit was refunded for all containers under 5L, which incentives collection and recovery of beverage containers (Diggle and Walker, 2020). By 2004, beverage waste made up 7.5% of all materials gathered in the province (Diggle and Walker, 2020). The success of EPRs in Canada, signals that Break Free From Plastic Act Pollution would likely be successful as well.

GreenPeace is also correct in saying that the Break Free From Plastics Act will reduce fossil fuel emissions. Plastic production accounts for 20% of all global oil consumption and in

2019 plastic production and plastic incineration put 850 million metric tons of fossil fuels into the atmosphere (Merkley and Lowenthal, 2021). If plastic production grows as expected, fossil fuel emissions will grow as well and by 2030 plastic producers will release 1.34 billion tons of fossil fuels into the atmosphere (Merkley and Lowenthal, 2021). Therefore in order to reduce fossil fuel emissions it is necessary to reduce plastic production, or switch the source in which plastic is made. By promoting reusable materials, and requiring that plastics are recyclable and made from post consumer materials the Break Free From Plastic Pollution Act does both those things. This will reduce the amount of plastic that makes its way into the environment, while also fighting climate change.

Greenpeace is correct in saying that the Break Free From Plastic Pollution Act will support marginalized communities as well. The Break Free From Plastic Pollution Act requires that plastic producers consult with marginalized communities when developing their waste management programs, to ensure that those communities are not unfairly used as sites for new recycling centers or waste management sites (H.R. 5845, 2020). By requiring old plastic plants to update their technology, the Break Free From Plastic Pollution Act will also improve the air quality in the communities surrounding petrochemical plants, which are typically low income or communities of color. Putting a pause on the construction of new petrochemical plants will also prevent new communities of color from being targeted as locations for new plants (Merkley and Lowenthal, 2021). The Break Free From Plastic Pollution Act supports international environmental justice efforts as well, by preventing plastic companies from shipping waste to countries such as Malaysia. By supporting the Break Free From Plastic Pollution Act environmental NGOs are signaling that it is time for the United States government to stop prioritizing petrochemical plants and to put marginalized communities first.

## **American Chemistry Council**

The American Chemistry Council, which represents many of the nation's plastic manufacturers is against The Break Free From Plastic Pollution Act. They list the main reasons why they are against this act in a press release, from March 2021 (American Chemistry Council, 2021). Firstly, the American Chemistry Council states that pausing plastic production will slow down the economy, and prevent it from effectively recovering from the pandemic. Secondly it states that putting strict regulations on plastic will result in shortages in the medical supply chain. Thirdly the council states that the Break Free From Plastic Pollution Act will hinder the development of new recycling technology, as companies will not have the funds to finance this change. Finally, the council states that plastic is needed to develop infrastructure to combat climate change, such as solar panels and wind turbines, and regulating plastic would stall the development of this infrastructure (American Chemistry Council, 2021).

Most of the arguments made by the American Chemistry Council against the Break Free From Plastic Pollution Act can be proven false. Halting the construction of new plastic plants would prevent growth in the plastic sector, however it would promote growth in other industries, such as the aluminum, the glass industry, and the reusables industry as corporations seek for new ways to create packaging. Medical equipment is exempt from any of the regulations in the Break Free From Plastic Pollution Act, so the argument that the act will slow the production of medical equipment is completely false (H.R. 5845, 2020). The Break Free From Plastic Pollution Act also invests millions of dollars in new recycling technology, so the argument that it will stall development of new recycling technologies is false as well. Finally, solar and wind turbines are not made from single use plastics, and therefore the manufactures of those products will not be affected by the Break Free From Plastic Pollution Act (H.R. 5845, 2020). The American

Chemistry Council is simply using the pandemic and climate change as tools to turn Americans against the Break Free From Plastic Pollution Act.

### **Fossil Fuel Industry**

The Fossil Fuel Industry is another major stakeholder against the Break Free From Plastic Pollution Act. Since 20% of all fossil fuels are used for plastic production, pausing plastic production would cause severe economic harm to the industry. As more and more countries switch to renewable sources as a major form of energy, the fossil fuel industry is only going to become more and more dependent on plastic production (Corkery, 2020). Many jobs related to fossil fuels are tied up in the plastic industry as well. Texas, Pennsylvania, and Louisiana all are states that have major plastic production plants, and would likely suffer because of the Break Free From Plastic Pollution Act (Corkery, 2020).

The arguments posed by the fossil fuel industry are something that should be taken into account. As the United States and the rest of the world consume fewer fossil fuels, it will be necessary to help people employed by the fossil fuel industry transition into other forms of work. Luckily if the United States invests in durable goods and recyclables, far more jobs will be created compared to the current jobs available at landfills and incinerators. Repairing durable goods provides 200 times as many jobs as landfills and incinerators, while recycling provides 50 times as many more jobs as landfills and incinerators (Riberio-Broomhead and Tangri, 2021). These jobs also typically pay more and provide more opportunities for people at higher skill levels. This means that people currently employed in the fossil fuel industry or plastic industry could easily find similar jobs in repair or recycling, or acquire more training to get a job at a higher skill level.

### **Marginalized Communities**

In general communities of color and low income communities would benefit from the Break Free From Plastic Pollution Act as it would place greater restrictions on the pollutants that can be emitted into their communities. However, the disabled community is greatly concerned about the Break Free From Plastic Pollution Act. Single use plastics, such as plastic straws have given the disabled community a great amount of freedom, and have allowed many individuals to live independently, instead of being institutionalized or relying on a live-in nurse (Jenks and Orbringer, 2019). Although some bans on single use plastic allow businesses to provide straws to people if they ask for one, the very act of asking for a straw can disclose to others that the person asking has a disability. This can lead to disabled individuals being stigmatized or pitied (Jenks and Orbringer, 2019). Therefore it is extremely important that the disabled community be listened to, as policies surrounding plastic are developed.

The Break Free From Plastic Pollution Act does require that plastic manufacturers consult with the disabled community when developing their management plans. This will provide a way for the disabled community to get their voices heard, and hopefully help them get greater access to the products that they need (H.R., 5845, 2020). It also allows for single use plastics to be used when there is a medical necessity. Retailers will still have single use straws, but they will not be distributed automatically, and a person will have to ask for a straw if they need one (H.R. 5845, 2020). This is something that definitely should be discussed more with the disabled community. While single use plastics should be limited, it is important that the disabled community is still able to maintain privacy when asking for single use plastics. If the Break Free From Plastic Pollution Act is passed, it will be important for community, state, and federal leaders to continue communicating with members of the disabled community, to ensure that they still have access to goods they need and to ensure they are not stigmatized by the legislation.

## **Politicians**

Politicians are the last major stakeholder in the Break Free From Plastic Pollution Act. Currently all the major supporters of the act are Democrats, which is problematic as the bill needs bipartisan support to pass (Corkery, 2020). However, the plastics industry and the oil and gas industry have far more lobbying power than any of the major environmental groups, so it is unlikely that any politicians that rely on funds from the oil and gas industry will support the bill. However, some sections of the Break Free From Plastic Pollution Act are more politically feasible and therefore could pass as separate legislation. For example, most politicians could support changing the way that plastic is labeled so it is easier to tell what can and cannot be recycled (Corkery, 2020). Also, the fact that this bill is being proposed at all is a testament to the power that environmental NGOs have gained in recent years. As environmental issues, such as the climate crisis, have become more publicized and extreme, more and more Americans are supporting environmental legislation. For example over 60% of Americans would be willing to pay 1% more for a product if its packaging is more sustainable (Santhanam, 2019). This means that even if the Break Free From Plastic Pollution Act does not pass this year, it is likely that it or a similar act could pass in the near future.

## **Conclusion**

Over the past fifty years plastic pollution has become a major problem in the United States and across the world. It has caused damage to the environment, to public health, and has specifically targeted marginalized communities. The Break Free From Plastic Pollution Act provides a structured solution to the problems caused by plastic pollution and consumption. It holds plastic producers responsible for the waste they create, ensures single use plastics will be recyclable and made from post consumer material, and provides support for marginalized

communities who have been harmed by various forms of plastic pollution. However, the plastic industry and the fossil fuel industry are pushing the idea that the Break Free From Plastic Pollution Act will damage the economy and not solve the problems caused by plastic pollution. Disabled communities are also concerned that regulations on single use plastic will take away their freedoms, and cause them to be further stigmatized. Therefore it is important that Merkley and Lowenthal, as well as other supporters of the act, work to educate the public on the jobs that will be created by this legislation, and continue to have dialogues with the disabled community, to ensure that their needs are met. If the public learns that there are alternatives to single use plastics they can pressure politicians to put tools in place to help the United States work towards a more sustainable future. Future generations deserve a world free from plastic pollution, by passing the Break Free From Plastic Pollution Act the United States Government could take a big step forward in providing them that.

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