

BANNING PLASTIC STRAWS: THE BEGINNING OF THE WAR AGAINST PLASTICS

*Marcela Romero Mosquera**

I. INTRODUCTION

Plastics have become part of our daily life. Everyone uses plastics, plastics are simply everywhere.¹ They are in vehicles, building materials, electronic devices, and even clothing.² The production of plastic has grown eight percent per year for decades, and since its creation, 8.3 billion metric tons of plastic have been produced.³ The Environmental Protection Agency (EPA) reported “every bit of plastic ever made still exists.”⁴ The world has become dependent on plastic products due to its durability, strength, and lightweight.⁵ However, the problem is that plastics are non-biodegradable, they keep breaking down into smaller parts but never disappear completely, and as a result, it gets accumulated in landfills or the natural environment.⁶

*Marcela Romero Mosquera, Juris Doctorate Candidate May 2020, Barry University - Dwayne O' Andreas School of Law. B.A. Political Science, Minor International Relations, Florida International University, 2016. I am especially grateful to Professor Nadia Ahmad for all the support and guidance provided in the process of writing this note, and her encouragement to become a voice for the Environment. Also, I would like to thank my family, friends and professors for always believing in me. I dedicate this note to my mother, my hero and best friend, because my success is thanks to her love and sacrifice.

¹ Conserving Now, *Plastic Bag Consumption Facts*, <https://perma.cc/65T3-FFKD> (last visited Mar. 13, 2019).

² Christopher Joyce, *Plastic Is Everywhere And Recycling Isn't The End Of It*, THE TWO-WAY BREAKING NEWS FROM NPR (July 19, 2017 5:30 PM), <https://perma.cc/TJT8-63ZL> (last visited Mar. 13, 2019).

³ Roland Geyer, Jenna R. Jambeck & Kara Lavender Law, *Production, use, and fate of all plastics ever made*, AM. ASS'N FOR THE ADVANCEMENT OF SCI., Vol. 28, Oct. 19, 2017, at 133.

⁴ *Ocean Plastics Pollution: A Global Tragedy for Our Oceans and Sea Life*, Ctr. For Biological Diversity, <https://perma.cc/DP5N-Z7ZR/> (last visited Mar. 13, 2019).

⁵ Conserving Now, *supra* note 1.

⁶ Joyce, *supra* note 2.

Human overconsumption of plastic, improper disposal methods, and its non-biodegradable nature have increased the massive problem of plastic pollution in waterways and oceans.⁷ Plastic has been found on each of the five major ocean gyres, “including the well-known ‘Great Pacific Garbage Patch’ that covers an area roughly equivalent to Texas.”⁸ Moreover, scientists have reported that nearly 700 species of animals are threatened due to the risk of ingestion or entanglement with plastic waste, such as marine mammals, birds, reptiles, and fish.⁹ The EPA has reported that one-third to two-thirds of the marine debris found on beaches comes from single-use disposable plastic including plastic cups, bottles, straws, and utensils.¹⁰ Plastic straws currently rate the seventh item mostly collected during beach clean-ups.¹¹ But why pick on plastic straws? Americans use 500 million drinking straws per day,¹² which equates to wrapping the Earth’s circumference 2.5 times per year.¹³ Due to its lightweight, most of the plastic straws do not make it to recycling or landfills and they end up polluting the oceans and killing the marine life.¹⁴ Although Congress has passed legislation to help reduce plastic pollution, more preventive measures are needed starting at the local level to reduce the amount of plastic society uses and produces each year.¹⁵

This note proposes an analysis of current legislative approaches to eliminate the use of plastic straws as an initial measure to help lessen the impact of plastic pollution in the environment. Moreover, it assesses the benefits and alternatives to plastic straw bans to show its potential in

⁷ Claire Le Guern, *When the Mermaids Cry: The Great Plastic Tide, Coastal Care*, (Mar. 2018) <https://perma.cc/8PTA-EDYA> (last visited Mar. 13, 2019).

⁸ Oliver Milman, *Full Scale of Plastic in the World’s Oceans Revealed for First Time*, THE GUARDIAN (Dec. 10, 2014), <https://perma.cc/X6QQ-2XN8> (last visited Mar. 13, 2019).

⁹ Sarah C. Gall & Richard C. Thomson, *The Impact of Debris in Marine Life*, MARINE POLLUTION BULL. 170, (2015) (discussing the plastic pollution impact in marine life).

¹⁰ United States Environmental Protection Agency, *Sources of Aquatic Trash*, EPA, <https://perma.cc/GUF7-66B4> (last visited Mar. 13, 2019).

¹¹ Ocean Conservancy, *Building a Clean Swell: International Coastal Clean Up Report 2018*, <https://perma.cc/9QKU-4A6Q> (last visited Mar. 13, 2019).

¹² National Park Service U.S. Department of Interior, *The Be Straw Free Campaign*, (July 18, 2018), <https://perma.cc/95C2-K2JD> (last visited Mar. 13, 2019).

¹³ Jackie Nunez, *The Sipping Point*, THE LAST PLASTIC STRAW, <https://perma.cc/UT7G-SE6S> (last visited Mar. 13, 2019).

¹⁴ *Id.*

¹⁵ Statutes and Regulations Affecting Marine Debris, U.S. ENVTL. PROT. AGENCY, <https://perma.cc/6GF4-3AUL> (last visited Mar. 13, 2019).

shaping the behavior of society without creating a negative impact on groups of society that depend on plastic straws due to health issues. Cities, companies and local groups are taking actions to lessen the use of plastic straws as an initial measure to reduce plastic waste. However, there is still a great need of stronger and more effective measures to solve the problem of plastic pollution. Even though plastic straws are small in size, they amount to be a significant part of the overall plastic waste due to its popularity among society. Therefore, measures to lessen its use will have a significant impact on the overall use of plastic and help lessen the current environmental threat created by plastic waste.

Part I provides the historical background of plastic straws, which shows its common use as a commodity and its impact on shaping human behavior on making society unconsciously dependent on plastic straws. Part II assesses multiple issues that arise from the use of plastic straws, including ingestion harm to animals, entanglement with plastic waste, lack of proper recycling disposal methods, and its further decomposition into microplastics. Part III presents an analysis of current legislation in multiple cities, as well as companies and local groups' initiatives to explain bans on plastic straws and its effectiveness. Part IV analyzes the benefits and disadvantages of single-use plastic straws to show a balanced analysis of this subject. Part V illustrates the different alternatives to the use of plastic straws available in the market. This note will focus particularly on single-use plastic straws and the current movement of banning its use and distribution as an initial measure to lessen the impact of the overall plastic waste problem.

A. Background History of the Drinking Straw

Even though plastic straws are a modern creation, there are records of humans using “hollow, cylindrical tubes” to consume liquids from centuries ago.¹⁶ The Ancient Sumerians are the oldest confirmed society that used thin tubes made out of precious metals to reach the fermented beer dating back from approximately 3,000 B.C.¹⁷ However, it was not until the 1880s when Marvin Stone, a paper cigarette holder

¹⁶ Sarah Gibbens, *A Brief History of How Plastic Straws Took Over the World*, NAT'L GEOGRAPHIC ENV'T, (July 6, 2018), <https://perma.cc/QM6M-4RK6> (last visited Mar. 13, 2019).

¹⁷ Emilyn Rude, *The Backlash Against Plastic Straws Is Spreading. Here's How They Got So Popular in the First Place*, TIME MAG., (July 12, 2018), <https://perma.cc/EVK6-YQLX> (last visited Mar. 13, 2019).

manufacturer, patented the first drinking straw made of wrapped strips of paper glued together and coated in paraffin wax.¹⁸ At least thirty years prior to Stone's straw, other drinking tools were available and more durable such as metal and rubber "drinking tubes."¹⁹ However, the key to Stone's straw popularity was that it was cheaper to produce and disposable.²⁰ The United States was still getting used to the paper straws when plastic manufacturing began to develop.²¹ In 1970, John Wesley Hyatt invented the first plastic products made from celluloid, and in the following decades, other plastic compounds started to bloom.²²

The 1950's changed the history of the straw and gave it the common plastic sheen.²³ During World War II, factories started producing extraordinary numbers of plastic due to its low cost and durability.²⁴ When the war ended, manufacturers in need for new markets, focused on the cheap and growing consumer goods made out of plastic.²⁵ Also, the economic boom after the war promoted the fast-food meals with to-go cups, but the paper straws easily ripped and tore apart.²⁶ Rapidly manufactured by large corporations, plastic straws became cheaper to produce, more durable, and easy to use and throw-away popular products.²⁷ Eventually, plastic straws became the standard in restaurants among the United States, and ultimately across the globe.²⁸ Manufacturers met the high demands of a society looking for items that are more convenient to take on-the-go, and single-use plastic straws were not the exception.²⁹ As David Rhodes, the global business director for the paper straw manufacturer Aardvark Straws stated, "[i]t truly was a better product at a cheaper price, and in that era, no one looked at the future impact it would have on our environment."³⁰

¹⁸ Gibbens, *supra* note 16.

¹⁹ Rude, *supra* note 17.

²⁰ *Id.*

²¹ Gibbens, *supra* note 16.

²² *Id.*

²³ Rude, *supra* note 17.

²⁴ Gibbens, *supra* note 16.

²⁵ *Id.*

²⁶ *Id.*

²⁷ *Id.*

²⁸ Rude, *supra* note 17.

²⁹ Gibbens, *supra* note 16.

³⁰ *Id.*

II. ISSUES PRODUCED BY SINGLE-USE PLASTIC STRAWS

A. Amount of Single-Use Plastic Straws Used

The use of plastic has become a fundamental part of modern society, and the amounts used are alarming. Nowadays, single-use plastic straws can be found everywhere food is served.³¹ The amount of straws Americans consume every day is so high that it could fill the Yankee Stadium nine times per year³² or fill 125 school buses with straws every day, for a total of 46,400 school buses every year.³³ Different market research firms debate between the amount of plastic straws that Americans use per day from 175 million³⁴ to 390 million per day or 63 billion to 142 billion straws per year.³⁵ Even if the numbers do not correlate, these figures are still alarming because although the single-use plastic straws are relatively small, the amounts used really add up to the total plastic waste.³⁶

B. Issues with Recycling

The main issue with single-use plastic straws is that due to its small size and lightweight, plastic straws cannot be recycled, therefore they end up in land fields or the environment. The first global analysis of all plastic discovered that approximately 8.3 billion metric tons of plastic have been produced since its creation, only nine percent has been recycled, twelve percent has been incinerated, and seventy-nine percent or 6.3 billion tons have become plastic waste, and it is accumulated in landfills or the natural

³¹ Radhika Viswanathan, *Why Starbucks, Disney, and Tom Brady are all shunning plastic straws*, VOX MEDIA, (Oct. 24, 2018), <https://perma.cc/W54Q-SVBB> (last visited Mar. 13, 2019).

³² Hugh, *The Environmental Impact of Plastic Straws – Facts, Statistics, and Infographic*, GET GREEN NOW, (Jan. 25, 2018), <https://perma.cc/HG67-S4JL> (last visited Mar. 13, 2019).

³³ National Park Service U.S. Department of Interior, *supra* note 12.

³⁴ Christian Britschgi, *Media, Legislators, Activists Stick By Straw Stats Produced By 9-Year-Old*, REASON FREE MINDS AND FREE MARKET, (Feb. 6, 2018), <https://perma.cc/Y4JW-LHQJ> (last visited Mar. 13, 2019).

³⁵ Niraj Chokshi, *How a 9-Year-Old Boy's Statistic Shaped a Debate on Straws*, THE NEW YORK TIMES, (July 19, 2018), <https://perma.cc/JJ7S-MCHE> (last visited Mar. 13, 2019).

³⁶ National Park Service U.S. Department of Interior, *supra* note 12.

environment.³⁷ Plastic straws are made out of type 5 plastic known as polypropylene, which is recyclable.³⁸ However, recycling facilities do not accept plastic straws because they are too small, flexible and can damage the recycling machinery by falling between the cracks.³⁹ The proper way to dispose of plastic straws is to put them into a large container made out of type 5 plastic, such as microwavable plastic containers or plastic take-out containers.⁴⁰ Although by doing so the plastic straws would not get stuck in recycling machinery, there is no guarantee that all will be recycled.⁴¹ Due to the cheap price to manufacture type 5 plastic, the demand for recyclable products is very low, therefore, most of this type of plastic such as straws, end up as regular waste.⁴²

C. Ocean Plastic Contamination and Harm to Marine Wildlife

Ocean pollution has become a major issue faced by communities due to the alarming amounts of trash and the threat it represents to the environment.⁴³ The EPA stated that the amount of waste from United States consumers continues to rise and when it is disposed of improperly by poor waste management or litter, the trash finds its way into rivers, streams and other waterways that end up in the ocean.⁴⁴ Approximately eight million tons of plastic waste enter the oceans each year which equates to dumping the contents of one garbage truck into the ocean every minute.⁴⁵ This alarming information estimates that in 2025 for every three

³⁷ Geyer, *supra* note 3.

³⁸ Hugh, *Are Plastic Straws Recyclable? [How to Properly Recycle & Dispose Plastic Straws]*, GET GREEN NOW, (Sept. 18, 2018), <https://perma.cc/DT8A-4SVG> (last visited Mar. 13, 2019).

³⁹ Nick Stockton, *How Plastic Straws Slip Through the Cracks of Waste Management*, WIRED, (July 26, 2018), <https://perma.cc/457N-VSM5> (last visited Mar. 13, 2019).

⁴⁰ Hugh, *supra* note 38.

⁴¹ *Id.*

⁴² *Id.*

⁴³ Simon Reddy, *Plastic Pollution Affects Sea Life Throughout the Ocean*, PEW CHARITABLE TRUST, (Sept. 24, 2018), <https://perma.cc/C4YQ-5Q2E> (last visited Mar. 13, 2019).

⁴⁴ United States Environmental Protection Agency, *Sources of Aquatic Trash*, EPA, <https://perma.cc/6GHH-5R43> (last visited Mar. 13, 2019).

⁴⁵ Ellen MacArthur Foundation, *The New Plastics Economy: Rethinking the Future of Plastics*, WORLD ECONOMIC FORUM: INDUSTRY AGENDA, (Jan, 2016), <https://perma.cc/XF8T-8656> (last visited Mar. 13, 2019).

tons of fish, there will be one ton of plastic, and by 2050 there will be more plastic in our ocean than fish.⁴⁶

The single-use plastic straws popularity keeps making straws a common item found among ocean pollution. The EPA stated that one-third to two-thirds of waste found on beaches come from single-use disposable plastic packaging from food and beverage-related goods and services such as plastic cups, bottles, straws, and utensils.⁴⁷ Studies using trash collected on the United States coastlines during cleanups for five years estimate that nearly 7.5 million plastic straws are lying around America's shorelines and from 437 million to 8.3 billion plastic straws are on the entire world's coastlines.⁴⁸

In 2015, the cruel reality of plastic straws harming marine animals became viral when a video showing rescuers removing a plastic straw from a sea turtle's nose in graphic and bloody detail invaded social media.⁴⁹ Marine animals cannot distinguish between food and plastic,⁵⁰ thus many animals end up ingesting plastic and straws among those. Marine animal plastic ingestion is fatal because "it can produce ulcers, infections, and even obstruct the animal's stomach or intestine, causing starvation and death."⁵¹ A study by Plymouth University estimates that almost 700 marine species encounter plastic pollution and are threatened by it on a daily basis.⁵² Other studies showed that plastic waste kills at least 100 million marine animals every year, up to 1 million seabirds, 100,000 sea mammals, marine turtles, and countless fish.⁵³ Plastic straws are so small that unfortunately, they have become part of many marine animals' meals threatening their biological systems.

⁴⁶ *Id.*

⁴⁷ United States Environmental Protection Agency, *supra* note 44.

⁴⁸ Seth Borenstein, *Science Says: Amount of Straws, Plastic Pollution is Huge*, U.S. NEWS, (Apr. 20, 2018), <https://perma.cc/29EB-QAN2> (last visited Mar. 13, 2019).

⁴⁹ Hugh, *supra* note 38.

⁵⁰ Earth Day Network for the End Plastic Pollution Campaign, 2018, *Plastic Pollution Primer and Action Toolkit*, EARTH DAY NETWORK, (Mar. 7, 2018), <https://perma.cc/7WSE-JDCM> (last visited Mar. 13, 2019).

⁵¹ Jenna Iacurci, *Update: 700 Marine Species Threatened by Plastic Debris*, NATURE WORLD NEWS, (Feb. 12, 2015), <https://perma.cc/9T76-X6Y6> (last visited Mar. 13, 2019).

⁵² S.C. Gall & R.C. Thompson, *The impact of debris on marine life*, MARINE POLLUTION BULLETIN 92, (Feb. 10, 2015), 170–179.

⁵³ Sea Turtle Conservancy, *Information About Sea Turtles: Threats from Marine Debris*, <https://perma.cc/WYX3-9ZN6> (last visited Mar. 13, 2019).

Marine animals are not only threatened by plastic due to ingestion, but also by entanglement or damage to their habitat. Entanglement can seriously affect marine animals' ability to survive because it can impede them from their freedom.⁵⁴ Moreover, entanglement can produce cuts that could end up in dangerous infections, or it can restrict marine animals from eating, or even breathing. In addition, plastic waste can drastically damage the habitat of marine organisms, especially coral reefs, and sea grass.⁵⁵ Twenty-five percent of the entire marine lives use coral reefs as their home.⁵⁶ The likelihood of coral reefs becoming diseased after coming into contact with plastic waste increases from four percent to eighty-nine percent due to skin infections.⁵⁷

D. Decomposition into Microplastics

One of the biggest issues with plastic is that due to its chemical composition, plastics never bio-degrade and never fully degrade.⁵⁸ It is commonly known that plastics take a long time to disappear completely, straws especially take up to 200 years to decompose.⁵⁹ GreenPeace has stated that every piece of plastic will continue to exist for at least 500 years after its creation.⁶⁰ But even after 200 years have passed, the organism responsible for breaking down organic compounds cannot break the unnatural strong carbon-carbon bonds that form plastic, therefore it never ceases to exist.⁶¹ Plastic cannot biodegrade because its particles cannot naturally break down completely, and it never fully degrades because even

⁵⁴ National Oceanic and Atmospheric Administration Marine Debris Program, *2014 Report on the Entanglement of Marine Species in Marine Debris with an Emphasis on Species in the United States*, Silver Spring, MD, at 28.

⁵⁵ *Id.*

⁵⁶ Coral Reef Alliance, *Coral Reef Biodiversity*, <https://perma.cc/U2M5-BGRL> (last visited Mar. 13, 2019).

⁵⁷ Lamb, Joleah B., et al., *Plastic Waste Associated with Disease on Coral Reefs*, SCIENCE, AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, (Jan. 26, 2018), 460-462.

⁵⁸ Hugh, *supra* note 38.

⁵⁹ Trevor Nace, *Starbucks To Ditch Plastic Straws—Will It Actually Help The Environment?*, FORBES, (Jul 10, 2018), <https://perma.cc/5RB9-DLGH> (last visited Mar. 14, 2019).

⁶⁰ Diego Gonzaga, *Every Single Piece of Plastic Ever Made Still Exists. Here's the Story*, GREENPEACE INTERNATIONAL, (Jan. 6, 2017), <https://perma.cc/4A6C-8S9H> (last visited Mar. 14, 2019).

⁶¹ Natalie Wolchover, *Why Doesn't Plastic Biodegrade?*, LIFE SCIENCE, (Mar. 2, 2011), <https://perma.cc/A28P-MNN4> (last visited Mar. 14, 2019).

if it seems that it has disappeared, plastic keeps breaking down into smaller even invisible pieces known as microplastics.⁶² The worst part of this process is that plastic keeps releasing chemicals that are known to be toxic to wildlife and the environment.⁶³

Society is facing a new dangerous situation with the proliferation of microplastics. Microplastics are found everywhere; they are present in oceans, waterways, the soil and even in the food people eat.⁶⁴ Microplastics are considered to be less than 5mm in diameter and due to their small size, they usually evade filtration systems at water treatment plants and end up in water ways.⁶⁵ Studies show that when organisms eat these tiny particles of plastic, it enters their bloodstream and never gets processed out, traveling up the food chain to the top predator which is usually the human.⁶⁶ Chances are that humans are currently ingesting tiny pieces of plastic by drinking water, eating fish or other seafood and adding salt to meals.⁶⁷

III. LEGISLATION INTENDED TO REDUCE OR ELIMINATE THE USE OF PLASTIC STRAWS

A. Countries

Even though plastic pollution keeps affecting our environment and lives in different ways, there is still hope thanks to the momentum that numerous global and local initiatives provide to help reduce or eliminate the consumption of single-use plastic, especially plastic straws.⁶⁸ Costa Rica, known for its green credentials, intends to be the first country that bans all single-use plastic by 2021.⁶⁹ Its government is investing in research to find greener alternatives to single-use plastic as well as giving

⁶² Hugh, *supra* note 38.

⁶³ *Id.*

⁶⁴ Earth Day Network for the End Plastic Pollution Campaign, *supra* note 50, at 17.

⁶⁵ *Id.*

⁶⁶ *Id.*

⁶⁷ *Id.*

⁶⁸ Earth Day Network, *Global Efforts to End Plastic Pollution: Single-Use Plastics*, (Jan. 10, 2019), <https://perma.cc/LU9Z-LD9R> (last visited Mar. 14, 2019).

⁶⁹ Rosamond Hutt, *Costa Rica wants to be the first country to ban all single-use plastics*, WORLD ECONOMIC FORUM, (Aug. 30, 2017), <https://perma.cc/VBN5-HZ7Z> (last visited Mar. 14, 2019).

incentives to businesses.⁷⁰ Also, Great Britain announced its intentions to ban the sale of plastic straws and other single-use plastics which would be enforced between October 2019 and October 2020,⁷¹ as part of their twenty-five year Environment Plan.⁷² Queen Elizabeth II joined “the war on plastics” by announcing the ban of plastic straws and plastic bottles from the Royal estates in 2018.⁷³ The European Union implemented strategies to restrict the consumption of single-use plastics and make all plastic packaging on the EU market recyclable by 2030.⁷⁴ Additionally, cities among different countries such as United States, Canada, Greece, India, Scotland, Switzerland, and Guatemala have taken similar initiatives to ban or reduce the use of single-use plastic, which includes plastic straws.

B. States and Cities Among the United States

Dozens of cities in the United States have established legislation that intend to ban or restrict the use of plastic straws in restaurants, but only California has been successful in making such a big move.⁷⁵ The Golden State became the first state in the United States to go straw-less by banning plastic straws at sit-down eateries, starting January 2019.⁷⁶ The new law called Assembly Bill No. 1884 specifies that “a full-service restaurant shall not provide a single-use plastic straw to a consumer unless requested by the consumer,” and imposes a fine of \$25 per day or a

⁷⁰ *Id.*

⁷¹ Department for Environment, Food & Rural Affairs, *Government launches plan to ban plastic straws, cotton-buds, and stirrers*, GOV.UK (Oct. 22, 2018), <https://perma.cc/88DM-RPK8> (last visited Mar. 14, 2019).

⁷² GreenMatch, *Effects of the Plastic Straw Ban in the UK: How the Ban of Single-Use Plastic Straws Affects the Environment*, (Jan. 21, 2019), <https://perma.cc/8MLW-B4UQ> (last visited Mar. 14, 2019).

⁷³ James Hitchings-Hales, *The Queen Just Banned All Plastic Straws and Bottles from the Royal Estates*, GLOBAL CITIZEN, (Feb. 12, 2018), <https://perma.cc/BAU6-9YZU> (last visited Mar. 14, 2019).

⁷⁴ European Commission, *Plastic Waste: a European strategy to protect the planet, defend our citizens and empower our industries*, (Jan. 16, 2028), <https://perma.cc/BAU6-9YZU> (last visited Mar. 14, 2019).

⁷⁵ Roey Hadar, *Cities and States Mull Straw Ban*, ABC NEWS, (Jul. 10, 2018), <https://perma.cc/3ED5-T2JS> (last visited Mar. 14, 2019).

⁷⁶ Hilary Brueck, *California just became the first US state to ban plastic straws in restaurants—unless customers ask*, BUSINESS INSIDER, (Sep. 21, 2018), <https://perma.cc/U3LN-AATN> (last visited Mar. 14, 2019).

maximum of \$300 a year.⁷⁷ The downside of the law is that it only applies to full-service restaurants; the law does not apply to fast-food restaurants, coffee shops, bakeries, or take-out restaurants.⁷⁸ However, California's cities, counties, and municipalities are free to make stronger policies involving straws and expand it to different types of establishments.⁷⁹ Similarly, Hawaii tried to pass the Senate Bill 2285, which prohibited the distribution, sale, and provision of plastic straws and fined violators by picking up litter or by performing community service.⁸⁰ Although the bill died during committee discussion in 2018, several establishments in the island are transitioning away from plastic straws to compostable paper straws.⁸¹

Local ordinances are far more prevalent and “as of September 2018, there were 31 ordinances that had been adopted by local governments—13 in California, 7 in Florida, 3 in New Jersey, 2 each in Massachusetts and Washington, and 1 each in Minnesota, New York, Ohio, and South Carolina.”⁸² Out of the 31 municipal ordinances, “16 are full bans, 6 are partial bans, and 9 default choice modifications.”⁸³ After ten years of efforts to reduce plastic use, Seattle became the first major city in the United States to enact a ban on plastic straws along with single-use plastic utensils as of July 1st, 2018.⁸⁴ The Seattle Municipal Code Sec. 21.36.084,⁸⁵ imposes a penalty of \$250 to businesses that violate the new law.⁸⁶ Seattle's 5,000 restaurants are now using reusable or compostable utensils, straws and cocktail picks, but the city keeps encouraging business to consider not providing straws at all or switching to paper

⁷⁷ 2018 Cal ALS 576, 2018 Cal AB 1884, 2018 Cal Stats. ch. 576, 2018 Cal ALS 576, 2018 Cal AB 1884, 2018 Cal Stats. ch. 576.

⁷⁸ Travis P. Wagner, & Patti Toews, *Assessing the Use of Default Choice Modification to Reduce Consumption of Plastic Straws*, DETRITUS MULTIDISCIPLINARY JOURNAL FOR WASTE RESOURCES & RESIDUES, (Jan. 2018), at 5.

⁷⁹ *Id.*

⁸⁰ LegiScan, Hawaii Senate Bill 2285, <https://perma.cc/F4HQ-FAZ6> (last visited Mar. 14, 2019).

⁸¹ Earth Day Network, *supra* note 68.

⁸² Wagner, *supra* note 78.

⁸³ *Id.*

⁸⁴ Brenna Houck, *Why the World Is Hating on Plastic Straws Right Now*, EATER, (July 12, 2018), <https://perma.cc/7VXA-DNYM> (last visited Mar. 14, 2019).

⁸⁵ Seattle, Washington Municipal Code Sec. 21.36.084.

⁸⁶ Houck, *supra* note 84.

straws.⁸⁷ The Seattle straw ban is the result of an ordinance dating back to 2008 requiring restaurants and food-service businesses “to find recyclable or compostable alternatives to disposable containers, cups, utensils, straws, and other products.”⁸⁸ The straw-less became even stronger after the campaign “Strawless In Seattle” led by Lonely Whale in September of 2017, permanently removed 2.3 million single-use plastic straws from the city.⁸⁹

Seattle’s initiatives influenced different cities among the United States to follow suit. Washington D.C. banned plastic straws in restaurants and other food-related businesses starting January 1st, 2019 but businesses have until July to make the transition to alternatives before the fines take place.⁹⁰ Since 2012, in order to cut down litter on the beach, the city of Miami Beach created an ordinance that banned plastic straws at the beach specifically, beachfront hotels and restaurants, with fines from \$50 to \$500.⁹¹ Cities like Saint Petersburg⁹² and Fort Myers in Florida; Malibu, Berkeley⁹³, Alameda, Carmel, San Luis Obispo, Davis, Manhattan Beach, Oakland, Richmond,⁹⁴ and San Francisco in California⁹⁵; Monmouth Beach in New Jersey; and Edmonds in Washington State; are among the dozens of cities that have banned single-use plastic straws,⁹⁶ but other cities such as New York and Los Angeles have pending legislation.⁹⁷

⁸⁷ CBS NEWS, *Seattle becomes first U.S. city to ban plastic utensils and straws*, (July 2, 2018), <https://perma.cc/BH7K-BBGR> (last visited Mar. 14, 2019).

⁸⁸ *Id.*

⁸⁹ Lonely Whale, *The First Campaign of Its Kind Strawless in Seattle*, <https://perma.cc/CS8W-VCE2> (last visited Mar. 14, 2019).

⁹⁰ Jacob Fenston, *Goodbye, Plastic Straws: D.C.’s Ban Is Now In Effect*, DCIST, (Jan. 2, 2019), <https://perma.cc/5HYW-UGAQ> (last visited Mar. 14, 2019).

⁹¹ Kyle Munzenrieder, *Miami Beach Has Banned Plastic Straws*, MIAMI NEW TIMES, (Apr. 20, 2012), <https://perma.cc/RC6U-9CN2> (last visited Mar. 14, 2019).

⁹² U.S. News., *Well-Known Florida City to Ban Plastic Straws*, (Dec. 15, 2018), <https://perma.cc/A9K4-CVF7> (last visited Mar. 14, 2019).

⁹³ Madison Flager, *[Updated] Everything You Need to Know About All The Upcoming Plastic Straw Bans*, DELISH-HEARST MAGAZINE MEDIA, INC., (Sep. 21, 2018), <https://perma.cc/5V2H-S4DB> (last visited Mar. 14, 2019).

⁹⁴ Melissa Locker, *Here are the U.S. cities that have banned plastic straws so far*, FAST COMPANY, (June 1, 2018), <https://perma.cc/TA77-Z4DF> (last visited Mar. 14, 2019).

⁹⁵ Trisha Thadani, *No more slurping through plastic straws in San Francisco*, SAN FRANCISCO CHRONICLE, (July 24, 2018), <https://perma.cc/5B95-UNFA> (last visited Mar. 14, 2019).

⁹⁶ Locker, *supra* note 94.

⁹⁷ Fenston, *supra* note 90.

C. Companies

Americans spend more money eating out than preparing their own meals, which often means that the food they buy comes in plastic or throw-away containers.⁹⁸ Some corporations have decided to avoid using plastic straws and other plastic containers to contribute to the reduction of plastic waste by banning these items.⁹⁹ Starbucks announced that its iconic green plastic straw will be completely off the stores by 2020, a decision taken in part after almost 150,000 signatures from its customers.¹⁰⁰ The Walt Disney Company stated that by mid-2019, it “will eliminate single-use plastic straws and plastic stirrers at all owned and operated locations across the globe, amounting to a reduction of more than 175 million straws and 13 million stirrers annually.”¹⁰¹

Other multinational companies are following the bans on single-use straws.¹⁰² McDonald’s, the world’s largest restaurant company, is taking steps to reduce plastic straws in stores specifically in the United Kingdom,¹⁰³ but the Corporation set a goal to shift 100% of guest packaging—including straws—to renewable or recycled sources by 2025.¹⁰⁴ Aramark, a company that operates in hospitals, schools, prisons and businesses in nineteen countries, vowed to reduce its plastic straw use 60% by 2020, which is nearly 100 million fewer straws annually just in the U.S.¹⁰⁵ Other companies such as “Already, American Airlines, Hyatt, Marriott International, Alaska Airlines, SeaWorld and Royal Caribbean cruise lines” have also banned plastic straws.¹⁰⁶ Additionally, private facilities in the United States such as zoos and aquariums, decided to

⁹⁸ Brueck, *supra* note 76.

⁹⁹ *Id.*

¹⁰⁰ Richard Kestenbaum, *Is Banning Plastic Straws A Good Strategy For Companies?*, FORBES, (Jul 11, 2018), <https://perma.cc/F4UC-RE9A> (last visited Mar. 14, 2019).

¹⁰¹ Dr. Mark Penning, *Disney Expands Environmental Commitment By Reducing Plastic Waste*, DISNEY PARKS BLOG, (July 26, 2018), <https://perma.cc/H47D-2R9Q> (last visited Mar. 14, 2019).

¹⁰² Flager, *supra* note 93.

¹⁰³ *Id.*

¹⁰⁴ McDonalds Co., *Packaging and Recycling: Thinking circular with more sustainable*, <https://perma.cc/AT4P-MECX> (last visited Mar. 14, 2019).

¹⁰⁵ Erin Noss, *Aramark to Reduce Single-Use Disposable Plastics Across Global Operations by 2022*, ARAMARK, (July 24, 2018), <https://perma.cc/7QKX-Z4ST> (last visited Mar. 14, 2019).

¹⁰⁶ Kestenbaum, *supra* note 100.

follow the same path of banning or phasing out the distribution of plastic straws.¹⁰⁷

D. Global and Local Campaigns

Most plastic produced worldwide is destined to become restaurant packaging products such as foam take-out containers, straws, and lids¹⁰⁸ which not surprisingly are the most common items found in beach clean-ups.¹⁰⁹ Multiple campaigns are targeting plastic straws as a growing global movement to reduce their use.¹¹⁰ One of the first campaigns of its kind, *Be Straw Free*, started in 2011 by Milo Cress, a nine-year-old boy who asked restaurants in his hometown Burlington, Vermont, to stop providing straws to customers unless requested.¹¹¹ Many restaurants agreed and they started seeing a reduction between fifty to eighty percent in the use of straws, and the word spread nationwide.¹¹² Similarly, *The Last Plastic Straw* campaign, a global movement that strives to educate the public about the single-use plastic, and its effects in human health and the environment, challenges individuals to refuse using straws, and also drinking establishments and restaurants by simply stating on their menus “straws available upon request.”¹¹³ The founder states that by refusing to use a straw, it will help reduce the number of plastic straws in the waste-stream overnight and have a positive savings impact for business and municipalities.¹¹⁴

Likewise, the Surfrider Foundation has created its own campaign called *Ocean Friendly Restaurants*, in which it “offers restaurants an easy way to show their commitment to making sustainable choices for our ocean.”¹¹⁵ The restaurants participating in this campaign must follow certain steps such as providing straws only upon request, pay an annual fee depending on the number of employees, and upon compliance are

¹⁰⁷ Paul Rogers, *Plastic to be phased out at major American aquariums*, THE MERCURY NEWS, (Jul. 10, 2017), <https://perma.cc/8E35-JNWB> (last visited Mar. 14, 2019).

¹⁰⁸ Geyer, *supra* note 3.

¹⁰⁹ Ocean Conservancy, *supra* note 11.

¹¹⁰ Jacopo Prisco, *The last straw: Is time for this plastic relic?*, CNN, (Jan. 14, 2018), <https://perma.cc/L3QN-UCWM> (last visited Mar. 14, 2019).

¹¹¹ *Id.*

¹¹² *Id.*

¹¹³ *Id.*

¹¹⁴ *Id.*

¹¹⁵ Surfrider Foundation, *Ocean Friendly Restaurants*, <https://perma.cc/4AQ5-DXEW> (last visited Mar. 14, 2019).

awarded an official recognition.¹¹⁶ Up to date, the Surfrider Foundation Ocean Friendly Restaurants are in seventy different locations in thirteen different states along the coast.¹¹⁷ The program is picking up steam in the United States and has great ideas for moving the program globally including, the creation of a mobile application that would allow customers to find OFR restaurants close to them, partnership with sustainable recognition and certification agencies, and a data base of prefer vendor partnerships specialized in quality and affordable eco-friendly alternatives of packaging materials.¹¹⁸

Currently, the most popular campaign is the social media challenge called #StopSucking, which intends to spark the now global movement to refuse the use of single-use plastic straws.¹¹⁹ The #StopSucking challenge consists multiple steps. First, the person takes picture “with your last ever plastic straw, your reusable alternative or simply your empty cup” Second, they copy and paste the pledge on their social media “I pledge to #StopSucking and never use a plastic straw again.” Lastly, they tag three friends to inspire others to spread the word so they #StopSucking, and help tackle the global plastic problem.¹²⁰ This campaign is supported by the Strawless Ocean initiative, part of the Lonely Whale organization which also empowered the “Strawless In Seattle” and sparked Seattle’s ban on single-use plastic straws.¹²¹ The Strawless Ocean initiative and its social media challenge #StopSucking has reached global support from collaborators based in the United Kingdom, European Union, Asia, Central, and South America.¹²² There are many other local and national campaigns encouraging businesses and individuals to stop using plastic straws including National Skip the Straw Day, Straw Wars, Straws Suck, One Less Straw, and No Straw Please.¹²³

¹¹⁶ *Id.*

¹¹⁷ Trend Hodges, *Surfrider’s Ocean Friendly Restaurants Program Picks Up Steam*, SURFRIDER FOUNDATION, (Mar. 29, 2018), <https://perma.cc/DRK8-6PV2> (last visited Mar. 14, 2019).

¹¹⁸ *Id.*

¹¹⁹ Lonely Whale, *A Collective Global Initiative: Strawless Ocean*, <https://perma.cc/3SM9-RELB> 6PV2 (last visited Mar. 14, 2019).

¹²⁰ Plastic Free Me, *#StopSucking*, <https://perma.cc/QX62-PRM3> (last visited Mar. 14, 2019).

¹²¹ *Id.*

¹²² *Id.*

¹²³ Wagner, *supra* note 78.

IV. BENEFITS AND DISADVANTAGES OF SINGLE-USE PLASTIC STRAW BANS

A. Benefits

The single-use plastic straw bans seeks to prohibit the use or distribution of plastic straws at specific businesses or establishments, thus becoming the strongest possible method to reduce the use of straws.¹²⁴ Bans are usually easy to enforce, but without enforcement, compliance is scarce, and the goal of reducing plastic contamination would not be achieved.¹²⁵ Nevertheless, plastic straw bans are feasible because there are other environmental alternatives available, as well as customer's voluntary actions of avoiding completely the use of straws, and educating the community about the environmental effects of plastic pollution.¹²⁶

Furthermore, the bans of disposable plastic straws seek to lessen the impact on plastic waste and the harm of microplastics.¹²⁷ Plastic straws have an alarming lifespan of roughly twenty minutes, and a plastic stirrer used to swizzle coffee or tea is used for no longer than four seconds.¹²⁸ Using one straw may seem insignificant, but if a person uses one straw a day for the next ten years, then 3,650 pieces of plastic straws find their way into the landfill or oceans;¹²⁹ and what if the 328.5 million Americans¹³⁰ think the same, or just the 7.5 billion people¹³¹ around the world? The estimates show that the average person uses 1.6 straws per day¹³²; imagine if 25,000 people stop using disposable straws, 5,000,000 straws would be prevented from getting tossed into landfills or entering the ocean and harming the environment.¹³³ Even though plastic straws weigh so little, the reality is that they “make up about four percent of the plastic trash by piece.” The most frightening fact is that plastic straws

¹²⁴ *Id.*

¹²⁵ *Id.*

¹²⁶ *Id.*

¹²⁷ Square Inc., *Why Plastic Straws are Being Banned*, SQUAREUP, <https://perma.cc/JPD9-GD6X> (last visited Mar. 14, 2019).

¹²⁸ Nick Mallos, *The Last Straw: Reduce Your Plastic Footprint and Hydrate Trash-Free*, OCEAN CONSERVANCY, (Oct. 5, 2012), <https://perma.cc/6EUR-332F> (last visited Mar. 14, 2019).

¹²⁹ *Id.*

¹³⁰ United States Census Bureau, *US and World Population Clock*, (Mar. 14, 2019), <https://perma.cc/4HBP-K8BK> (last visited Mar. 14, 2019).

¹³¹ *Id.*

¹³² National Park Service U.S. Department of Interior, *supra* note 12.

¹³³ Square Inc., *supra* note 127.

never disappear completely, as other types of single-use plastic, plastic straws break down into smaller pieces called microplastics that can be consumed by humans and animals without even noticing.¹³⁴ So, knowing the number of straws used every day, and the impact they have on the environment, individual actions of avoiding their use can make a difference on the plastic waste problem overall.¹³⁵

People think that avoiding the single-use plastic straw would not make a difference in the overall plastic waste pollution, but as the actor Adrian Grenier said in the video launching the #StopSucking campaign, “a straw may be small, but it’s the DNA of carelessness and it just might be a gateway to solving the much larger issue of plastic pollution.”¹³⁶ Plastic straws are the perfect “gateway plastic” to start the conversation about the large and more serious problem of plastic waste.¹³⁷ The reality is that single-use plastic straw bans are not going to save the ocean or stop the plastic pollution, but they can be the jump-start needed to encourage the behavioral change of stopping completely the use of plastic.¹³⁸ Bans on single-use plastic straws would start the “spillover” effect, which is the idea of engaging in a single behavior that can psychologically motivate humans to engage in more or less similar behaviors.¹³⁹ After people start following the plastic straw ban, they may become more environmentally aware and decrease their use of other single-use products or support environmental policy changes, which are the main goals of the multiple social campaigns and straw bans.¹⁴⁰

Single-use plastic straw bans reduce the use of straws, which eventually will reduce the number of straws in the oceans, the harm to the wildlife and the environment. Plastic straws end up in the ocean primarily due to human error, and the lack of appropriate disposal or recycling methods make it even easier for plastic straws to find their way to the oceans and contribute to plastic pollution.¹⁴¹ As it was previously

¹³⁴ For A Strawless Ocean, *Understanding Plastic Pollution*, LONELY WHALE, <https://perma.cc/V628-2U5Z> (last visited Mar. 14, 2019).

¹³⁵ Square Inc., *supra* note 127.

¹³⁶ Bryan Pearson, *The Last Straw - The Tide is Turning at Last*, NEWS NATION, (June 14, 2018), <https://perma.cc/3AMD-S2EG> (last visited Mar. 14, 2019).

¹³⁷ Dune Ives, *The Gateway Plastic*, Global Wildlife Conservation, (Oct. 19, 2017), <https://perma.cc/P4SJ-DJDR> (last visited Mar. 14, 2019).

¹³⁸ Viswanathan, *supra* note 31.

¹³⁹ *Id.*

¹⁴⁰ *Id.*

¹⁴¹ For A Strawless Ocean, *supra* note 134.

explained, the plastic pollution is harming and killing the marine life, and plastic straws form a significant part in this issue. Also, a recent study from the University of Hawaii discovered that plastic emits greenhouse gases methane and ethylene when exposed to sunlight.¹⁴² Furthermore, the research found that polyethylene, a common type of plastic used in the production of plastic straws and other single-use items, was found to be “the most prolific emitter of both gases.” Therefore, avoiding the single-use plastic straws is a positive measurement to lessen the plastic pollution and avoid the alarming statistics of having more plastic than fish by the year 2050.¹⁴³

B. Disadvantages

Due to the consumer, communities, and governments success to end the use of plastic straws, many businesses are providing alternatives such as paper straws to their clients, but those are still harmful to the environment.¹⁴⁴ Paper straws are made of raw wood from trees, which is a renewable resource but if not grown sustainably, it equates to more deforestation and habitat damage.¹⁴⁵ The production of paper has a negative impact on the environment because it requires four times as much energy and three times the amount of water to produce it compared to plastic.¹⁴⁶ The financial burden at producing paper straws, usually borne by the establishment, is greater than for plastic straws, because paper straws cost five to twelve cents per unit, while plastic straws cost less than two cents each.¹⁴⁷ Even though paper straws are more expensive to make, they degrade naturally within a decade while plastic never ceases to exist, therefore plastic straws create a greater long-term impact on the environment.¹⁴⁸

¹⁴² Sarah-Jeanne Royer, Sara Ferrón, Samuel T. Wilson, David M. Karl, *Production of methane and ethylene from plastic in the environment*, PLoS ONE, (Aug. 1, 2018), <https://perma.cc/NFB2-8H5E> (last visited Mar. 14, 2019).

¹⁴³ For A Strawless Ocean, *supra* note 134.

¹⁴⁴ Allie Molinaro, *Paper or Plastic? Why the Answer Should be “Neither”*, Clean Water Action, (June 25, 2018), <https://perma.cc/HF82-MTNS> (last visited Mar. 14, 2019).

¹⁴⁵ *Id.*

¹⁴⁶ CleanAway, *Paper or plastic? Which is better for the environment?*, (July, 8, 2018), <https://perma.cc/5648-HDKR> (last visited Mar. 14, 2019).

¹⁴⁷ Molinaro, *supra* note 144.

¹⁴⁸ *Id.*

For many people with disabilities, the use of straws represents “a matter of life or death” and the alternatives are not as efficient as plastic straws.¹⁴⁹ Some people have physical or medical conditions which make it impossible for them to lift a cup to their mouths, so straws are an essential tool for their survival.¹⁵⁰ Many alternatives to plastic straws are available on the market—paper, biodegradable plastics, and reusable straws made from metal, silicone, or glass—but these often fall apart too quickly, are not flexible enough, need to be washed, present some allergy concerns, conduct heat and cold easily, or pose a safety risk to the user.¹⁵¹ Even though most of the single-use plastic straw bans have special exceptions for people with disabilities, disability advocates have expressed their fears of exclusion from the movement because there is no guarantee that the businesses will follow the law so the business establishment may not have plastic straws available for them.¹⁵²

Moreover, plastic straw bans limit customer choices and regulate people’s behavior. It is common for governments to “enact policies to incentivize consumers away from behaviors with negative externalities, at the expense of consumer convenience.”¹⁵³ Usually, environmental policies intend to motivate the public to spend time, effort and money in conserving energy, reducing waste, and recycling.¹⁵⁴ In particular, these policies demonstrate that when the environment and consumer choice or convenience are conflicting with one another, policymakers typically trade consumer convenience to save the environment.¹⁵⁵ Bans regulating consumer choices in a sense restrict people’s right to choose what should be part of the “Consumer Bill of Rights.”¹⁵⁶ Aside from the health care

¹⁴⁹ Tove Danovich & Maria Godoy, *Why People with Disabilities Want Bans on Plastic Straws To Be More Flexible*, NPR STATION, (July 11, 2018), <https://perma.cc/XB5G-5GF5> (last visited Mar. 14, 2019).

¹⁵⁰ S.E. Smith, *Banning straws might be a win for environmentalists. But it ignores us disabled people*, VOX MEDIA, (July 19, 2018), <https://perma.cc/C9SD-X9UG> (last visited Mar. 14, 2019).

¹⁵¹ Danovich, *supra* note 149.

¹⁵² *Id.*

¹⁵³ Rebecca Taylor, *Giving Plastic Bags the Sack: The Hidden Costs of Changing Behavior*, JOB MARKET PAPER, at 1, (Jan. 15, 2017), <https://perma.cc/X6LB-MKGM> (last visited Mar. 14, 2019).

¹⁵⁴ *Id.*

¹⁵⁵ *Id.*

¹⁵⁶ David Lazarus, *56 years later, Kennedy’s call for a consumer bill of rights is forgotten under Trump*, LOS ANGELES TIMES, (Mar. 15, 2018), <https://perma.cc/L9W7-UGTH> (last visited Mar. 14, 2019).

limitations or people with disabilities, single-use plastic straws have become a cultural commodity and is not a necessary accommodation to consume liquids.¹⁵⁷

V. ALTERNATIVES TO PLASTIC STRAWS

Most of the time, straws are not a necessity when drinking liquids, so the most eco-friendly alternative is to avoid using them.¹⁵⁸ Notwithstanding, if a person needs to use a straw or likes to use it, there are many alternatives available in the market.¹⁵⁹

A. Voluntary Actions Refusing to Use Straws

“Voluntary actions are primarily cooperative efforts undertaken without government intervention to achieve a certain desired goal.”¹⁶⁰ People and businesses usually engage in voluntary actions if they promote economic benefits such as an increase in sales, or social benefits that become popular.¹⁶¹ Avoiding the use of straws is a type of voluntary action that benefits the government and the target communities by allowing independence to take the required actions, it can provide greater flexibility at being easy to modify or end the voluntary actions, as well as achieving the desired goal of reducing plastic waste at a lower cost.¹⁶² In addition, individual voluntary actions of refusing to use straws imposes no cost to consumers and can help businesses save money by not having to buy more straws.¹⁶³ The disadvantage is that because the action is voluntary, this approach may be limited to a number of people or establishments, therefore the results are smaller or slower to show positive effects.¹⁶⁴

¹⁵⁷ Wagner, *supra* note 78.

¹⁵⁸ David Carrig, *Glass straws? Straw straws? Here are some eco-friendly alternatives to plastic*, USA TODAY NETWORK, (May 25, 2018), <https://perma.cc/6HNQ-6DTR> (last visited Mar. 14, 2019).

¹⁵⁹ *Id.*

¹⁶⁰ Wagner, *supra* note 78, at 4-5.

¹⁶¹ *Id.*

¹⁶² *Id.*

¹⁶³ *Id.*

¹⁶⁴ *Id.*

B. Paper Straws

Paper straws have existed even before plastic straws were invented.¹⁶⁵ Nowadays, they come in different colors and designs to be more appealing to customers.¹⁶⁶ The downside of paper straws is mainly its cost since it ranges between two to ten times more than traditional plastic straws.¹⁶⁷ Paper straws are also known for becoming soggy and limp, and they are not as resistant as plastic straws.¹⁶⁸ Just because they are made of paper, it does not mean that they are automatically suitable to be recycled. In reality, most paper straws are chemically treated which makes them stronger, and therefore they cannot be recycled.¹⁶⁹ Nevertheless, there is still hope, *For a Strawless Ocean* campaign recognized Aardvark Straws as the preferred brand for its “flexible, customizable, durable and biodegradable paper straws that decompose in just 45-90 days.”¹⁷⁰

C. Corn-based Plastic Straws and Compostable Straws

After the bans against single-use plastic straws, the corn-based plastic straws may finally have their moment of glory well over a decade after their creation.¹⁷¹ “Corn plastics are formed from a substance known as polylactic acid or PLA,” which as the name implies are made of corn, a natural renewable resource.¹⁷² In theory, straws made from PLA are fully compostable; they break down into harmless natural components but only under the right circumstances.¹⁷³ Compostable is not equal to biodegradable, which means that “compostable plastic will not break down any faster than regular plastic unless it is disposed of in a proper

¹⁶⁵ Square Inc., *supra* note 127.

¹⁶⁶ *Id.*

¹⁶⁷ Wasserstrom, *Alternatives to Plastic Straws: A Definitive Guide*, WASSERSTROM BLOG, (Aug. 17, 2018), <https://perma.cc/3RG5-VXVY> (last visited Mar. 14, 2019).

¹⁶⁸ *Id.*

¹⁶⁹ *Id.*

¹⁷⁰ For A Strawless Ocean, *Make the Switch From Plastic to a Marine Friendly Alternative*, <https://perma.cc/RG33-4ACL> (last visited Mar. 14, 2019).

¹⁷¹ Wasserstrom, *supra* note 167.

¹⁷² *Id.*

¹⁷³ *Id.*

commercial composter.”¹⁷⁴ In order to break down this type of plastic, the commercial composters need to provide the specific conditions in regards to “temperature, how densely the material is packed and the availability of the right mix of digestive microbes.”¹⁷⁵ Unfortunately the problem does not end there, in the United States, there are only over 100 qualified composting centers that can process this type of plastic.¹⁷⁶ Moreover, corn-based plastic is more expensive than regular plastic straws, and some customers allege that it has a tendency to break more easily.¹⁷⁷ Even though compostable straws are one of the most popular items because they look and feel similar to the single-use plastic straws, there is still a long run until they can be fully safe for the environment.¹⁷⁸

D. Metal Straws

Metal straws are among one of the most eco-friendly alternatives to plastic straws due to its durability and strength.¹⁷⁹ The most appealing characteristic is that metal straws are reusable, and many have brushes available for easy cleaning.¹⁸⁰ Also, they do not retain flavors or odors.¹⁸¹ The metals used to make this type of straws include aluminum, stainless steel and titanium, and their designs even allow some to bend.¹⁸² The main disadvantages are its high cost at between \$10 to \$20 per straw, not a feasible solution for restaurants.¹⁸³ Moreover, they easily conduct heat or cold, which could be dangerous in cases when the drink is too hot thus burning someone’s mouth.¹⁸⁴

¹⁷⁴ Nina Golgowski, *Why Those Compostable Straws May Not Be As Green As You Think*, HUFFPOST, (July 13, 2018), <https://perma.cc/5UQV-533E> (last visited Mar. 14, 2019).

¹⁷⁵ Wasserstrom, *supra* note 167.

¹⁷⁶ *Id.*

¹⁷⁷ *Id.*

¹⁷⁸ Square Inc., *supra* note 127.

¹⁷⁹ *Id.*

¹⁸⁰ Carrig, *supra* note 158.

¹⁸¹ Flavia Galeotti, *This Sucks - The Case Against Straws*, THIRST MAGAZINE, (Jan. 2, 2018), <https://perma.cc/ZF3B-67DM> (last visited Mar. 14, 2019).

¹⁸² Carrig, *supra* note 158.

¹⁸³ Wasserstrom, *supra* note 167.

¹⁸⁴ Galeotti, *supra* note 181.

E. Bamboo Straws

Bamboo straws are an upgrade to paper straws.¹⁸⁵ Straws made of bamboo, are durable, strong, reusable, and lightweight.¹⁸⁶ Organic bamboo straws are the one of the cheapest alternatives to plastic straws, and even though they are supposed to last for a long time, the consumer would not feel bad for losing them or throwing them away because they are 100% organic.¹⁸⁷ Most importantly, bamboo straws have become “a popular choice for disposables since it is a renewable, compostable and biodegradable resource.”¹⁸⁸ Bamboo straws are a great alternative because Bamboo is a very sustainable material due to the qualities of being one of the fastest growing plants on Earth.¹⁸⁹ Also, bamboo straws are among the safeties alternatives with no sharp edges and no risk of breakage.¹⁹⁰ The drawbacks on bamboo straws are its inability to bend, no uniformity in design, some wider or straighter than others, and the cost of over \$2 a piece.¹⁹¹

F. Glass Straws

Glass straws have also become a popular alternative to plastic straws, due to their reusability and durability.¹⁹² They can be made in different shapes, straight or bent, and various widths and colors, to provide appealing options for customers.¹⁹³ In addition, they are easy to clean, do not retain flavors or odors, and they are non-toxic.¹⁹⁴ The downsides of using glass straws are the risk of breakage, high cost, and its probability

¹⁸⁵ Margaret Wong, *7 Eco-Friendly Straw Alternatives so You Can Skip the Plastic*, FOOD NETWORK, (Jan. 19, 2018), <https://perma.cc/CGL6-BWHG> (last visited Mar. 14, 2019).

¹⁸⁶ *Id.*

¹⁸⁷ Lauren Levy, *The Best Reusable Straw Is Made of Silicone and Burns Into Biodegradable Ash*, THE STRATEGIST, (July 2, 2018), <https://perma.cc/A7LM-UVY9> (last visited Mar. 17, 2019).

¹⁸⁸ Wasserstrom, *supra* note 167.

¹⁸⁹ Bamboo Straw Girl, *Why Bamboo*, <https://perma.cc/FS7H-WHYG> (last visited Mar. 17, 2019).

¹⁹⁰ *Id.*

¹⁹¹ Wasserstrom, *supra* note 167.

¹⁹² Square Inc., *supra* note 127.

¹⁹³ *Id.*

¹⁹⁴ Galeotti, *supra* note 181.

to conduct heat easily which might cause issues with hot beverages.¹⁹⁵ However, glass straws are a great reusable alternative created to fit multiple uses.¹⁹⁶

G. Silicone Straws

Silicone straws “are made from food-grade silicone,” with designs intended to look and feel similar to single-use plastic straws.¹⁹⁷ Their characteristics include being firm but bendable and strong while providing a soft material to be reusable and durable.¹⁹⁸ This is a perfectly safe alternative for kids who chew on their straws.¹⁹⁹ In addition, they are dishwasher safe, but cleaning thoroughly is required to avoid mold or germ build up.²⁰⁰ Silicone straws are non-toxic by being free from harmful chemicals that usually plague regular plastic straws.²⁰¹ More importantly, silicone straws are resistant to cold and heat and do not leak chemicals the way plastic straws do.²⁰²

H. Hay Straws

One of the most surprising materials to make straws is hay or wheat stalks, fully degradable and compostable.²⁰³ Hay straws share the same form and function as bamboo straws, do not get soggy, but are also inflexible and have an inconsistent design. The only difference is that hay straws can only be used one time and then they must be disposed.²⁰⁴ Moreover, the price of hay straws is not as high as other types of alternative straws; it usually costs \$8 for a 100 pack.²⁰⁵ Hay Straws are perfect use for all types of beverages, hot or cold.²⁰⁶

¹⁹⁵ Wasserstrom, *supra* note 167.

¹⁹⁶ *Id.*

¹⁹⁷ *Id.*

¹⁹⁸ *Id.*

¹⁹⁹ Square Inc., *supra* note 127.

²⁰⁰ Wasserstrom, *supra* note 167.

²⁰¹ *Id.*

²⁰² *Id.*

²⁰³ *Id.*

²⁰⁴ *Id.*

²⁰⁵ Hay Straws, *Get your Business Plastic-free*, <https://perma.cc/C48W-CHWJ> (last visited Mar. 14, 2019).

²⁰⁶ Wasserstrom, *supra* note 167.

I. Edible Straws

Edible straws are one of the greatest alternatives to plastic straws available in the market. There are many varieties such as licorice sticks such as Twizzlers or Red Vine that you bite off or clip the ends to make an edible straw perfect for sweet drinks, or others made from hard candy.²⁰⁷ Meat straws, which are basically rolled jerky beef, are commonly used to complement adult beverages such as the Bloody Mary.²⁰⁸ One of the craziest ideas that really would work is homemade Ice Straws.²⁰⁹ Amazon and other online retailers sell the ice straw molds for about \$10, becoming a potential alternative for cold drinks.²¹⁰ However, the most promising alternative is the LOLISTRAW, “the world’s first edible, hyper-compostable, marine-degradable straw,” made with seaweed, 100% plastic free, with a duration up to 24 hours on a beverage, hyper-compostable which means that it breaks down completely in 60 days, and it is also edible and zero calories.²¹¹ It also comes in six different colors that represent different flavors like vanilla, coconut, and citrus. This product is currently not available on the market, its designers are raising funds on Kickstarter while preparing for mass manufacturing.²¹² The price would not match the one for plastic straws, but it will compete with paper and compostable straws.²¹³

VI. CONCLUSION

Single-use plastic straws are everywhere, from coffee shops to high-end restaurants, this small item has become part of our daily lives. Even though it is highly used by most communities, disposable plastic straws are not essential, nor necessary to achieve the simple task of drinking beverages, unless the person has a physical or medical condition that

²⁰⁷ *Id.*

²⁰⁸ Benny’s Original Meat Straw, *About Us*, <https://perma.cc/S9JC-2B8M> (last visited Mar. 14, 2019).

²⁰⁹ Wong, *supra* note 185.

²¹⁰ *Id.*

²¹¹ Indiegogo, Lolistraw by Loliware, <https://perma.cc/SK7U-4RNV> (last visited Mar. 14, 2019).

²¹² Adele Peters, *After You Finish Your Drink, You Can Eat This New Edible Straw*, FASTCOMPANY, (Dec. 5, 2017), <https://perma.cc/86ZY-PCTE> (last visited Mar. 14, 2019).

²¹³ *Id.*

makes it difficult to do. Surprisingly, the design of the commonly known straw has been around for ages and different materials have been used to make them, but the plastic straw, a modern invention, overcame the others by its low cost, durability, and flexibility. It all sounds great until people started realizing the different problems suffered by the environment due to the overuse of such simple and common item. The amounts of straws used in America are not exactly clear, but the different statistics and its results are still alarming. The reality is that plastic straws cannot be recycled as many other types of plastics, and it is not due to its components, but for its light weight, small size and volume, which puts the recycling machinery at high risk when the plastic straws fall into the cracks.

Due to not being recycled, plastic straws end up in landfills where they usually escape through waterways that end up in the oceans. The problem does not end there, animals cannot distinguish between food and plastic, so they end up ingesting it, becoming fatal to their bodies because they cannot digest plastic. Many animals and their habitats are suffering the consequences of plastic pollution through ingestion, entanglement, or just by having contact with plastic waste. Due to the chemical properties, plastic straws keep breaking down into smaller particles, microplastics, while still releasing toxic chemicals into the environment. Plastic pollution is harming the environment, and even though plastic straws are not a significant source of plastic waste compared to other bigger and voluminous items made of plastic, plastic straws are still a great start for a much-needed solution.

Plastic pollution is a reality that affects every living being in some way. Notwithstanding, slowly but surely society is taking positive steps to lessen its effects. Different countries, cities, companies, and campaigns have created policies towards the avoidance of using and distributing plastic straws among their jurisdictions. Government regulations often take time to evolve, which demonstrates why the United States only has a small number of straw ordinances while the global arena has a significant interest in reducing single-use plastics, especially straws. Nevertheless, private businesses, global and local campaigns, are taking faster and stronger measures towards reducing the use of disposable plastic straws as their compromise to save the environment. All these actions taken from big to small countries, cities, businesses, and communities, are showing the rest of the world that avoiding disposable plastic straws is a feasible alternative to lessen the global problem of plastic pollution.

As any other measures, single-use plastic straw bans create positive and negative consequences, however, in this case, the benefits outweigh the disadvantages. For most of the people, disposable plastic straws are superfluous, and its use can be highly avoidable unless the person has some physical or medical condition that requires its use. Thus, single-use plastic straws are perhaps the easiest plastic item to be targeted for reduction. Nonetheless, if a person needs or likes to use straws the market is full of alternatives ranging from materials, durability, flexibility, eco-friendly, flavors, colors, and even textures. The different alternatives available nowadays on the market are not only environmentally friendly, but also exceed the plastic straws quality. The silicone straws are among the most popular for its reusable quality and colorful design while still resembling the basic plastic straws at being bendable. It is feasible that the highly popular disposable plastic straw will be overthrown completely by other similar more environmentally-friendly alternatives or completely forgotten as society becomes more committed to lessening the effects of plastic pollution.