



## Single-Use Plastic and Styrofoam Reduction at Florida International University



**“It’s only one straw” - 8 billion people**

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## *Executive Summary*

Each year, the average American consumes thousands of pounds of plastic and roughly 5% is recycled. The remaining plastics do not biodegrade and often end up in the ocean<sup>3</sup>, as smaller particles and micro plastics through a process called photodegradation<sup>4</sup>. Moreover, in 2018, China stopped buying waste and recycled materials produced by the United States and other western countries to curb their own pollution, further calling into question the efficacy of current recycling practices of plastics in this country<sup>5</sup>. Currently, there are over 5 trillion plastic particles in the ocean, weighing over 250,000 tons<sup>6</sup>. In fact, so much plastic is accumulated in our oceans that there is a Great Pacific Garbage Patch in the ocean holding about 75 thousand tons of plastic in a concentrated area roughly the size of Texas<sup>7</sup>. Unfortunately, garbage patches are not exclusive to the Pacific Ocean and can be found across all of the world's oceans. Plastics and Styrofoam have been detrimental to the world's oceans—contributing to widespread pollution and ecological destruction. Human health has also been adversely affected. According to a study published in 2018, 90% of table salt worldwide contained micro plastics<sup>8</sup>. In addition, plastics release chemicals, pesticides, and pollutants into the tissue of marine organisms, that eventually find their way into the human diet<sup>3</sup>. Microplastics have also been detected in honey, drinking water, seafood, condiments, and cosmetics<sup>9</sup>.

Given their durability, inexpensive manufacturing, and versatility, single-use plastics are the most widely used disposable material in the world.

Florida International University (FIU) is among the top 5 largest and most diverse public universities in the US. FIU must leverage its status as a forward thinking and globally recognized institution to phase out and subsequently ban single-use plastics and Styrofoam on its campuses, putting into practice its slogan “global reach, local roots”. As a microcosm of Miami and a beacon of our community, FIU bears the responsibility to lead in ethical and sustainable strategies that mitigate harm against Miami's coastal environment and human health. Such a strategy involves a drastic decrease in single-use plastics and Styrofoam at FIU. The moral imperative is crucial as a focal point of change at the institutional level when individual behaviors have been inadequate. Companies, cities, states, and countries have taken strides in reducing plastic consumption by imposing bans and taxes in their respective jurisdictions. It is time for FIU to take a leading role and commit to socially responsible and sustainable actions that significantly reduce single-use plastic and Styrofoam in Miami.

## ***What is this policy brief about?***

The purpose of this policy brief is (1) to reduce the use of single-use plastics and Styrofoam at Florida International University (FIU), (2) to mitigate the environmental impacts on South Florida's coastlines, and (3) to encourage FIU leadership to adopt environmentally sound alternatives to the growing plastic problem that faces our community, Miami- Dade County, and worldwide. This proposal aims to reduce single-use plastics and Styrofoam at FIU franchises, FIU owned businesses and FIU events such as meetings, conferences, summits, or conventions at the Biscayne Bay, Modesto A Maidique, and Engineering Campuses. This proposal will provide a coordinated approach on how to smoothly transition away from single-use plastics by January 1, 2021.

## ***What is a single-use plastic?***

Single-use plastics are products that are fully or partially made from plastic polymers and are designed to be used once <sup>10</sup>. Single-use plastics are not intended to be reused multiple times or to be returned or recycled back to the producer for the same purpose to which it was conceived.

## ***How big is the problem?***

While plastic is an important material in the global economy, there is a growing international movement to reduce its over consumption <sup>11</sup>. In 1950, the world was consuming roughly 1.5 million tons of plastic each year. The consumption of plastic has drastically escalated in recent decades to over 320 million tons in 2015 <sup>12</sup>. Plastics have become an increasing threat to wildlife, coastlines, and human health. Moreover, the degradation of plastics to tiny particles creates a challenge for debris removal from the oceans. Consequently, the most effective way to reduce the impact of plastics is through mitigation strategies to decrease their use <sup>13</sup>.

As a shoreline community, FIU shares a social responsibility to address single-use plastics given that 50-80% of coastal debris is plastic <sup>10</sup>.

## ***Who else is taking action?***

The growing concern for plastic pollution has broadened from a strictly scientific and environmentalist concern to one across the wider public <sup>14</sup>. In fact, in 2018 the European Union overwhelmingly approved to ban single-use plastics in a revolutionary legislation by 2021 <sup>15</sup>. In addition, multiple states such as California and Hawaii have implemented bans on certain single-use plastics, such as bags at large retailer stores <sup>16</sup>. On April 3, 2019, Maryland overwhelmingly passed a bill that would ban Styrofoam food containers and cups to take effect January 1, 2021. Any violation of this bill will result in a \$250 fine <sup>17</sup>.

Locally, the City of Coral Gables enacted a plastic bag ban in 2017 (Ordinance No. 2017-13)<sup>18</sup>. In fact, Coral Gables cited that the purpose of this enactment was in "the best interest of public health, safety, and welfare of its residents and visitors to reduce litter and pollutants on the land and in its waters" <sup>19</sup>. Bal Harbour, another town in the South Florida area, unanimously voted to pass the most comprehensive single-use plastic ban in the state

on April 16, 2019. This ordinance will prohibit the use, sale, or distribution of plastics in commercial establishments such as restaurants, apartments, hotels and retail stores<sup>20</sup>. Other examples of countries, cities, and companies that have taken action include:

- Miami beach bans plastic straws and some plastic bags <sup>21</sup>
- San Francisco Airport enacted a zero waste campaign to include the ban of plastic water bottles
- Hotel giant, Intercontinental Hotels Group, will ban miniature bottles of plastic toiletries <sup>22</sup>
- Peru restricts single-use plastics in cultural and natural landmarks <sup>23</sup>
- San Diego bans Styrofoam food and drink containers
- Washington D.C. bans plastic straws
- United Airlines bans plastic straws from flights <sup>24</sup>
- Sea World, Ikea, and Royal Caribbean ban plastics bags and straws <sup>25</sup>
- Seattle bans single-use plastic cutlery and straws, in addition to Styrofoam ban <sup>26</sup>
- Lynn University, Boca Raton, FL enacted a plastic straw ban <sup>27</sup>

As a leading university in South Florida, FIU bears a responsibility to advance current mandates leading to more comprehensive and efficient ban on single-use plastics. A variety of Miami based non-profit organizations have already made attempts to create plastic-free challenges such as Rise Above Plastics, by the Surfrider Foundation <sup>28</sup>. However, stronger and more impactful change must be made across widely known and respected institutions, such as FIU.

### ***How will FIU heavily reduce single-use plastics and Styrofoam?***

Consumption is deeply intertwined with social norms. Successful changes in behavior involve interventions that disrupt the environmental factors that promote such habitual behavior <sup>29</sup>. Thus, this paper provides a two-phased proposal towards heavily reducing single-use plastics and Styrofoam at FIU.

#### ***Phase 1:***

The first phase will be to create a vision for FIU to become more environmentally sustainable by reducing plastics and to incentivize franchises and businesses on-campus. Such incentives can involve marketing strategies that highlight and promote on-campus businesses that are strategically working towards a plastic-free future. In addition, FIU may look to incentivize students with Panther Dining Points to seek food and beverage from facilities that promote reducing single-use plastics. In this phase, FIU can also partner with local catering companies and businesses for on-campus events that have made changes in their business plans that encompass an environmentally sustainable future and less plastics use. This can include joining the Ocean Friendly Restaurants initiative where restaurants meet criteria, such as banning plastics and Styrofoam to increase awareness and drive a change in behavior. The criteria to join this initiative can be found [here](#). The first phase of providing incentives and shifting towards working with environmentally friendly initiatives will be implemented at the start of the fall academic year in 2020.

**Phase 2:**

After providing on campus franchises and business that work with FIU incentives to reduce plastics, FIU will take a stronger stance in phase 2 to further reduce single-use plastics on-campus by imposing a ban on multiple single-use items.

Imposing a ban on certain plastics and Styrofoam from the university can foster change toward sustainable living by removing social norms of using single-use plastic and Styrofoam. The proposed ban date of January 1, 2021 will provide FIU businesses, colleges, and franchises with enough time to exhaust their current stock of single-use plastics and replace these materials with sustainable options.

According to the European Union directive published in 2018 for the reduction of single-use plastics, there are three categories for which single-use plastics fall under. This proposal will focus on the one of the categories; “the items for which there are available sustainable alternatives, the objective is to promote less harmful activities”. The items recommended to fall under the single-use plastics and Styrofoam ban at FIU are specific to what consumers receive when purchasing a meal or are provided at FIU events. The following single-use items include:

- Plastic silverware (forks, knives, spoons)
- Plastic straws
- Plastic bags
- Plastic cups
- Plastic ramekins
- Plastic coffee lids
- To-go plastic food containers
- Styrofoam cups
- Styrofoam food and/or take out containers
- Styrofoam plates or bowls

In order to enact and maintain this ban, FIU can enact penalties, similar to how the City of Coral Gables has enforced its plastic bags ban <sup>19</sup>. FIU could impose fines, as listed below, to any franchise, college, or event on campus that uses the above listed items.

(a) First violation.....	\$50.00
(b) Second violation.....	\$100.00
(c) Third violation.....	\$200.00
(d) Any subsequent violation.....	\$400.00

***What are alternatives to single-use plastics and Styrofoam?***

There are multiple cost effective options to replace single-use plastics that work well with everyday life. Paper plates, cups, bags, and food containers are the easiest and most widely known alternative for single-use plastics. While paper products cannot replace all items on the ban list, other viable alternatives include: glass, wood based products, palm leaf, wheat straw, etc.

Large manufacturers of eco-friendly disposable cutlery sell wooden spoons, knives, and forks that can be as cost effective as \$0.05 per utensil (compared to \$0.016 for traditional plastic cutlery) by purchasing these items in bulk through brand items including Eco-Grecko. As an example, Eco-Grecko produces wooden cutlery from re-harvested birch wood from plantation forests. The cutlery is completely biodegradable, free of coatings, waxes, chemicals, and is accepted at composting facilities <sup>30</sup>. A more extensive list of sustainable and alternative products can be found in Appendix A, created and maintained by Debris Free Oceans.

### *What are some challenges faced with reducing single-use plastics and Styrofoam?*

Behaviors are difficult to change. Asking people to change their behaviors for a socially just cause is often met with aggravation, hostility, or apathy. Lobbying groups for plastic have also argued that plastic alternatives create a higher carbon footprint in the production stages. However, 8 of the 9 most collected items in coastal clean ups are single-use plastics and Styrofoam such as plastic bags, bottles, lids, and Styrofoam take out containers <sup>31</sup>. Another argument against reducing single-use plastics is that shifting away from single-use plastic utensils, straws, and Styrofoam packaging may initially be burdensome for businesses. However, this should not deter FIU from incentivizing on campus events and franchises to opt for alternative solutions to single-use plastics.

### *How will a single-use plastic and Styrofoam ban benefit FIU?*

FIU has the potential to become a leading university in the fight against pollution and its adverse consequences. The movement of single-use plastics extends beyond environmentalists, clinicians, and climatologists, and has become a mainstream public concern. Taking serious strides toward sustainable and environmentally friendly initiatives will also make FIU more appealing to prospective students. Millennials and Generation Z students are more likely to support a movement by FIU to ban single-use plastics and Styrofoam, as indicated by ongoing walk outs to support climate action happening across college campuses worldwide <sup>32</sup>.

FIU can further enable this change by selling reusable items at on campus stores. Some reusable items are already sold on campus such as metal and steel water bottles. However, to further promote sustainable practices, FIU can also sell the following reusable items:

- Reusable steel, metal, bamboo or paper straws
- Reusable snack bags
- Reusable on-the-go cutlery

- Bamboo toothbrushes
- Reusable Shopping bags
- Reusable to go food containers

### *Steps moving forward*

FIU leadership can announce the move to reduce and subsequently ban the listed single-use plastics and Styrofoam to its franchises, colleges, and on campus events and distribute alternative reusable options as listed in Appendix A. Businesses within FIU do not have to use the listed items in Appendix A. However, it will be their responsibility to find an eco-friendly alternative by January 1, 2021. Providing sufficient time for the transition away from single-use plastics and Styrofoam is key as it will enable all parties involved to make the necessary changes toward a more sustainable campus in an efficient and effective manner.

Phasing out and subsequently banning single-use plastics and Styrofoam is the most efficient strategy toward preventing further damage to the environment<sup>33</sup>, preventing adverse health impacts, and decreasing pollution to South Florida's beautiful coastline. FIU's slogan "global reach, local roots" highlights the need for action toward a more ethical and socially responsible strategy that emphasizes our strong ties to Miami Dade County community and promotes FIU's leadership around the world.

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## *Appendix A*

### [Alternative Reusable Options](#)

The list provided in the link is created and maintained by Debris Free Oceans, a non-profit organization.