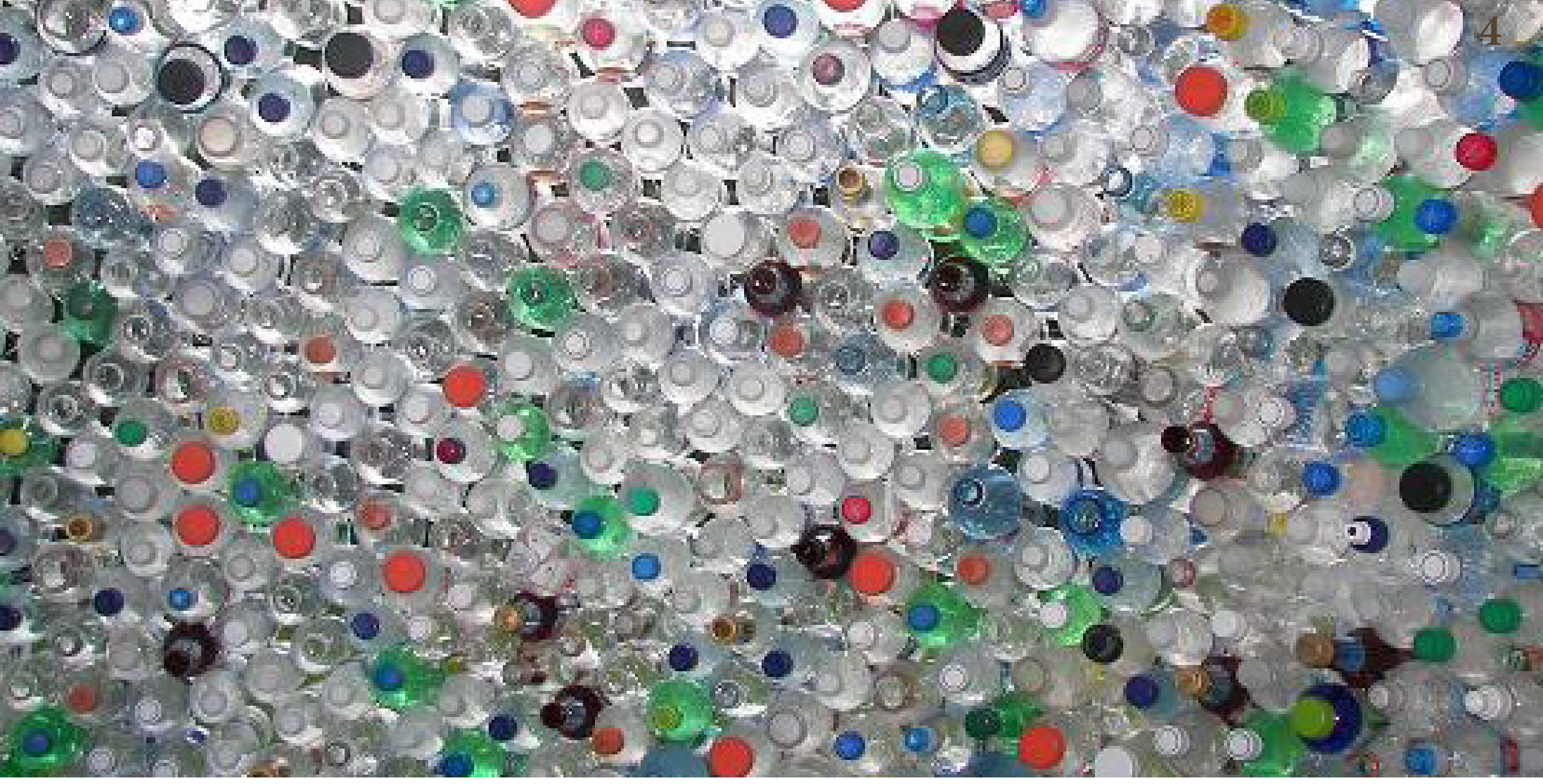


Plastic is Fantastic...Or So We Thought

By Jill Bartolotta

Just like cells are the building blocks of all living organisms, plastic has become the staple material used for manufacturing. And for good reason. The word plastic comes from the Greek word plastikos which means able to be shaped or molded. Plastic is so widely and easily used because it comes in a variety of colors, is easily formed into any shape, and is inexpensive to produce. We use plastic in almost all aspects of life including the medical field, to store and transport food, to build cars, and in clothing; even fleece jackets are often made from recycled bottles. And it works! For example, produce wrapped in plastic will last 3 times longer than produce that is unwrapped. Our society relies on plastic. However, we need to reevaluate our daily relationship with plastic, especially the single-use variety.

Single Use Plastics

Single-use plastics are items made of plastic that are designed to be used only once. Common examples are plastic bags from the store, disposable water bottles, takeout containers, straws, sandwich bags, disposable cutlery, balloons, plastic wrap, disposable plates, and the list goes on and on. Our obsession with single-use plastics came about in the 1950s and was celebrated in Life Magazine as the cover story for the August 1955 edition. Life editors noted, *"The objects flying through the air would take 40 hours to clean, except that no housewife need bother. They are all meant to be thrown away after use."* Polystyrene or Styrofoam, Polypropylene (synthetic clothing), and Polyethylene (plastic bags or plastic film) had all been recently invented and the pace of society was changing. We were entering the period of "Throwaway Living," a time when it was easier and more convenient to dispose of items than repair them, clean them, or reuse them. To this day we maintain this lifestyle to the detriment of our environment and the health of all living organisms including us.

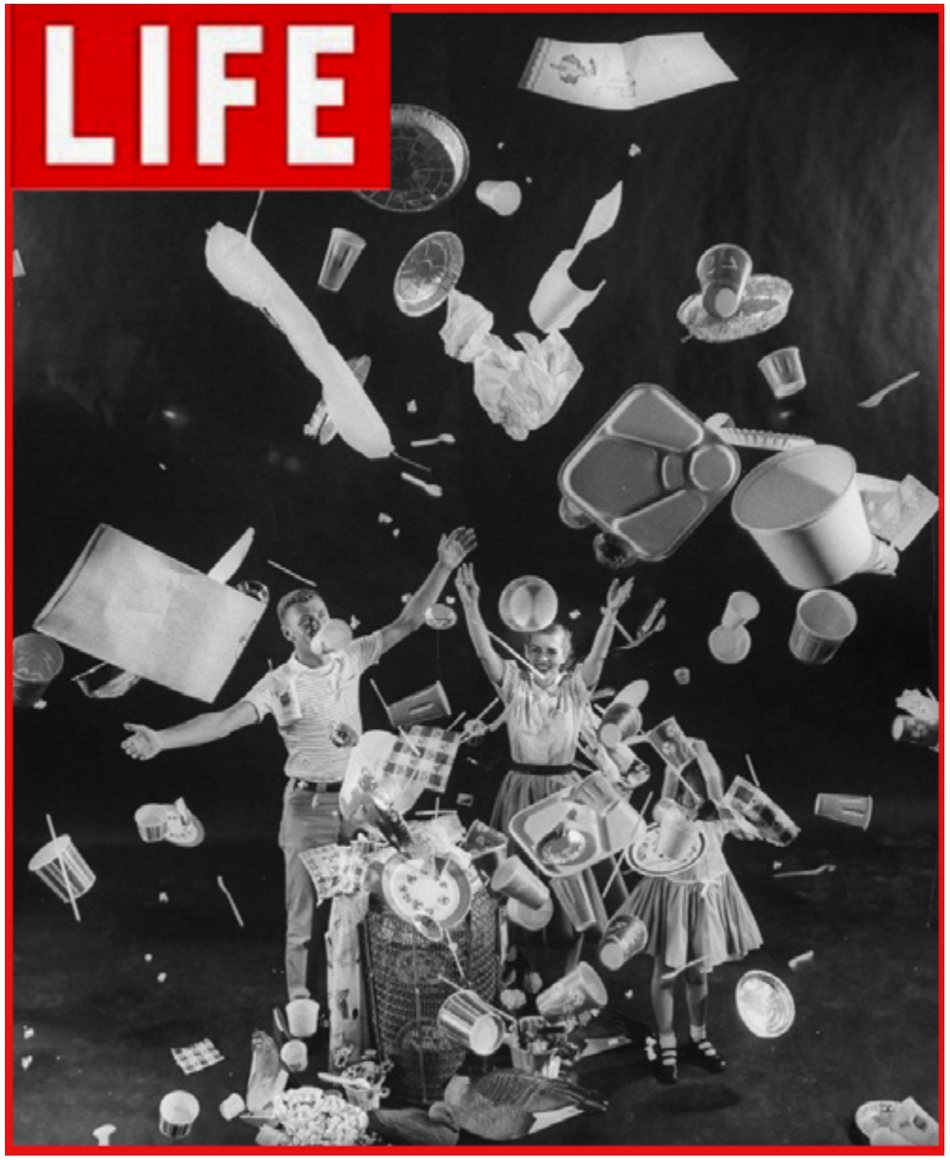


Photo: Peter Stackpole for Life Magazine 1955

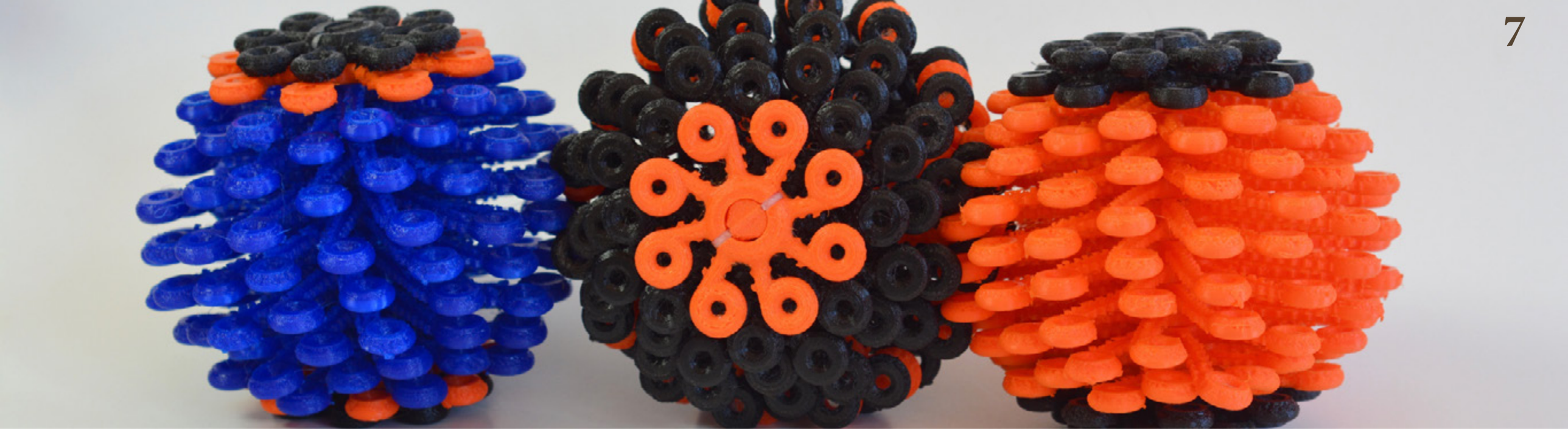
Plastic was never intended to end up in the natural environment. As plastic breaks down with the assistance of sunlight, through the process of photodegradation and erosion it becomes smaller and smaller. Plastic does not release nutrients as it breaks down but rather chemicals we know to be carcinogens and endocrine disruptors. These small plastics are known as microplastics. Microplastics are any piece of plastic that is 5 mm or smaller. A lentil or pea is roughly 5 mm. These microplastics are then broken into five categories to help identify their source.

- Microbeads are pieces of plastic that are used in beauty products for the purpose of exfoliation or to serve as a filling agent. They are smooth and perfectly circular. They enter the environment when they are washed down the drain after use.
- Microfragments form when larger pieces of plastic break down. They are often jagged and in a variety of different shapes. Sometimes we can identify what item the microfragment used to be, but often not. They enter the environment when larger pieces of plastic are intentionally or accidentally placed outside.
- Microfibers come from synthetic clothing such as fleece jackets and nylon workout clothing. During the regular wear and tear of these clothing items plastic fibers are shed. However, the majority of the shedding occurs during the washing process. Several studies have shown that one garment can shed tens of thousands to hundreds of thousands of fibers per wash. They enter the environment when they are washed down the drain or through the shedding process that occurs when they are worn.
- Microfoams come from larger pieces of foams. Foams can be in the form of food containers, floats, and toys. These foams break down into smaller pieces and are often found to be floating in the water. They enter the environment

when larger pieces of foam are intentionally or accidentally placed outside or through the degradation of floating buoys in the water.

- Nurdles or preproduction pellets are round pieces of virgin plastic that will be molded into plastic products. Nurdles enter the environment through transportation accidents when trucks, trains, or freighters have spilled loads of nurdles on land or on the water allowing these plastic pieces to enter the system.

The smaller the plastics become the harder it is for us to clean them up and the more likely they are entering our bodies and the bodies of all living organisms. Over the past several years it has come to the attention of the scientific community that animals are beginning to ingest plastics. Fish are known to eat plastic, birds feed it to their chicks, camels have been found with plastic rope in their stomach, and more recently the smallest animals on the planet, zooplankton, have been shown to ingest microplastics. As organisms eat plastic, the plastic and the chemicals associated with plastic move up the food web eventually reaching the top predators. These predators include sharks, whales, and us. A recent study found plastic in fish, drinking water, beer, honey, sugar, and sea salt. Sea salt actually has the highest concentration of plastic in it. We are eating, drinking, and breathing in these microplastics, mostly in the form of microfibers, every day. At this point we do not know the harmful effects of consuming plastic. This research is being conducted right now by scientists all over the world. We know plastic is around us and an important material for our society, but we need to rethink our current use of it. There are many simple actions you can take every day that will



limit our dependency on plastic, the amount of plastic being thrown away, and most importantly the amount of plastic in the natural environment.

Use reusable bags every time you shop, whether you are at the grocery store or the clothing store. We often forget our bags at home or in the car. No problem. Hand carry your items out or use a box from the produce section.

- Use beauty products that do not have microbeads in them. The US banned microbeads from being used in beauty products in July of 2017, but this was only for three items: toothpaste, face wash, and shampoo. I recently found out that there are microplastics in my deodorant! Check for the ingredients polyethylene or polypropylene. Use products that have natural exfoliants in them such as salt, sugar, oatmeal or nut or seed shells.
- Do you like to go out to eat? If you know that you often have leftovers, bring your own container to take your food home. Say goodbye to Styrofoam and plastic clamshell containers. When you go out does it seem like straws just keep appearing out of thin air. Skip the straw! Kindly let the wait staff know that you do not need a straw. If you must use a straw, choose a reusable alternative. You can find reusable straws at many grocery stores or online.
- Put a lid on it. It is inevitable that the majority of us will still have garbage to throw out. Unless you choose to live a zero waste lifestyle you will have garbage. Reduce, reuse, recycle, and compost as much as you can, but when you do have trash make sure it is securely stored in your trash bin. Animals, the wind, and water are very good at moving trash around causing unintentional litter.
- Wash less. When washing synthetic clothing consider using a soon-to-be-available product by the Rozalia Project, a ***Cora Ball***, which is placed in your washing machine so it can catch the majority of plastic fibers. At the end of the washing cycle the fibers can be removed out of the Cora Ball and put in the trash or sent back to Rozalia Project to be recycled.

Plastic is fantastic when used sparingly, reused, and disposed of properly. It is up to us to make sure it stays fantastic and out of the natural environment. Scientific research has proven we have a plastics problem but there are dedicated people working together to solve this issue. Small changes, by lots of people, make a big difference. ■

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