

What you need to know about plastic

We have a love / hate relationship with plastic. It's cheap, durable, and versatile – it works great. We feel good about dropping our plastic into the blue bin, convinced it is going to be made into something equally as good. But we also see it swirling around in the oceans and we're starting to realize that some of that plastic came from us. We're told that more recycling is the answer but there is so much more to the plastic story.

- **History of Plastic – How did we get here?**

Watch National Geographic's documentary, "A Brief History of How Plastic Has Changed Our World." ([YouTube](#), 5 min)

- **Global Plastic Treaty**

Plastic is a worldwide crisis. In March 2022, at the UN Environment Assembly, 175 countries agreed to adopt a legally binding treaty targeting plastic pollution. They will spend the next two years negotiating the specifics, but the treaty will address the entire life cycle of plastic from extraction through disposal. It is intended to curb plastic production and is the most important environmental deal since the Paris accord. [Lean more](#)

- **Bioplastics**

Bioplastics/biodegradable plastics are often promoted as more environmentally friendly than plastics but [studies](#) have shown they contain similar chemical additives and are just as toxic as conventional plastics. Plastics that are certified as compostable by BPI can no longer contain PFAS chemicals. It is possible to make safe plastics without harmful chemicals and that should be a goal, along with simplifying the chemicals used to make plastic.

- **Chemical Recycling**

The chemical industry is promoting a new kind of recycling called 'advanced recycling' or 'chemical recycling' that it claims can turn plastic waste into new plastic products. But a [report](#) by the Natural Resources Defense Council found that the process uses a lot of energy and produces combustible fuel rather than new plastics. It also generates toxic waste that includes benzene, lead, cadmium, and chromium.

- **Circular Economy**

There is a lot of interest in creating a [circular economy](#) where we recycle plastic things like bottles into new plastic bottles. Companies like [Coca-Cola](#) and [Pepsi](#) are committing to increasing the recycled content of their products. There are three problems with this:

- 1) Plastic is usually made with toxic additives like phthalates and bisphenols to make them pliable or give them strength. PFAS is increasing being used in plastic manufacturing equipment and it contaminates the products that come in contact with it. Until plastic is

made with safer chemicals, recycling them concentrates toxic chemicals in new plastic products.

- 2) Whether plastic is made with virgin or recycled polymers, it still sheds microplastics which gets into our food, water, soil, air, and into us.
- 3) Calling for using more recycled content as a solution keeps the focus on recycling rather than on reducing plastic altogether.

- **Endocrine-disrupting Chemicals**

Plastics are made with and leach hazardous chemicals including the following [endocrine-disrupting chemicals](#) (EDCs): bisphenols, flame retardants, phthalates, PFAS, dioxins, UV-stabilizers, and toxic metals such as lead and cadmium. These chemicals can hijack our hormone systems and threaten our health. They are especially harmful to infants and children because they are going through critical developmental periods. A recent [study](#) found pre-natal exposure to a mixture of bisphenols, PFAS, and phthalates is linked to language delay. A recent study found that the EDCs in plastic are impacting fertility rates. Hear from Dr. Shanna Swan on her fertility study. ([YouTube](#), 18 min)

- **Environmental Justice**

The plastic crisis is a human rights issue. From extraction to disposal, the entire life cycle of plastic impacts everyone but it is impacting marginalized communities in the U.S. and around the world the most. Petrochemicals plants and fracking sites are in lower-income neighborhoods, often in communities of color. That is the same for landfills and incinerators. When plastic waste is exported, it goes to undeveloped countries where it contaminates the environment when it is dumped into waterways or incinerated in open air burn pits. A study found [chicken eggs](#) contaminated with toxic chemicals.

- **E-Waste**

When plastic from electronics is recycled, it often contains brominated flame retardants. They are often recycled into new products, like [toys](#) and [kitchenware](#), and can have high levels of toxic chemicals. In marginalized communities where much of the e-waste is processed, pieces that can't be recycled are burned releasing some of the most toxic chemicals like brominated dioxins and furans, which then contaminate the air, soil, water and end up in the food chain.

- **Exports**

In 2017, China stopped importing plastic waste. At the time it seemed unfortunate, but it uncovered the problem with plastic recycling; very little, less than 10%, is recycled into something new. Plastic waste is still being exported. It is now being sent to countries like Vietnam, Mexico, India, and Indonesia, where it is often burned or ends up in the environment. These countries don't have the infrastructure to handle it and don't want it. The international [Basel Convention Agreement](#), signed by 179 countries, requires that exports of plastic waste stop and it went into effect 1/1/2021. The U.S. continues to export and in 2021, it shipped

557,067 tons. To sign up for the Plastic Waste Trade Watch, click [here](#)

- **Microfibers**

You probably think of plastic packaging when you think of plastic pollution but [a recent study](#) estimated that 35% comes from synthetic clothing and textiles. Washing and drying your clothes causes them to shed hundreds of thousands of microplastic fibers but just wearing them also releases fibers. [One study](#) found wearing the clothes released up to 400 fibers per gram of fabric in just 20 minutes. The best approach to avoid contributing to the microfiber problem is to shop second-hand and wherever you shop, look for [natural fibers](#).

- **Microplastics**

Scientists have found [microplastic](#) particles everywhere. They are defined as plastic pieces smaller than 5 millimeters across which is about the size of a grain of rice. They're killing seabirds and they're accumulating in our soil. They've been found in our food, including [honey, salt, and beer](#). They are found in shellfish. One researcher decided to [test the tea bag](#) she uses and found that it shed more than 11 billion microplastics and 3 billion nanoplastics. A new study found microplastics in the [blood](#) for the first time which lets them travel around the body and lodge in [organs](#). Researchers also found that [baby bottles](#) shed microplastics and that babies may be consuming 1.5 million microparticles a day. Microplastics are found in our organs. They can also cross the blood brain barrier and have been found in the placenta. Babies are born pre-polluted with plastic. Also concerning are nanoplastics, which is 1000 times smaller than microplastics. More research is needed into the health effects of microplastics and nanoplastics but a precautionary approach seems appropriate given the unknown health impacts.

- **Overconsumption**

The U.S. has 4% of the world's population; we use 24% of the world's resources; and we generate [12% of the trash](#). [Earth Overshoot Day](#) is when our use of resources exceeds earth's ability to regenerate those resources. In 2021, that occurred for the entire planet on July 29th. If everyone lived like the U.S. does, the date would be March 13th.

- **Plastic Disposal and Recycling Myth**

All plastic eventually ends up as trash. Globally 9% of plastic is recycled and it may become something new like a t-shirt or carpet but after that it joins the other 91% of plastic that is buried in a landfill, burned at an incinerator, or ends up in the environment. The recycling label with [chasing arrows](#) was devised by the fossil fuel industry as a way to allay people's concern about plastic trash in 1990's. It gives the false impression that everything with the symbol will get made into something new which is far from the truth. California just passed a ['truth in labeling'](#) law to stop greenwashing. Worldwide we produce 300 million tons of plastic every year and that is expected to grow. The amount is unsustainable, and we need to rethink how we use plastic. Some suggest moving to an ['essential use'](#) only approach because of the detrimental impact plastic is having on the planet.

- **Plastic is the New Coal**

Worldwide we produce 300 million tons of plastic every year and that is expected to double by

2050. The fossil fuel industry calls plastic its Plan B. ([video](#)) A new [report](#) by Bennington College's Beyond Plastics project says emissions from plastics was equal to 116 coal-fired plants.

- **Plastic Production and Cancer Alley**

Plastic causes pollution throughout its life cycle but some of the worst effects are felt by frontline communities where it is produced. Check out the '[Toxic Tour](#)' of Cancer Alley in Louisiana. Every piece of plastic produced, whether it recycled or not, has an impact on communities and people are paying the price with their health.

- **Producer Responsibility for Packaging**

In 2021, [Maine](#) and [Oregon](#) passed producer responsibility for packaging bills. They require brand owners to pay a fee for the packaging that they use. The fee is used to offset the cost of collecting and managing all the packaging. It is also used to upgrade recycling equipment and to pilot reuse and refill programs. It incentivizes producers to use less packaging, to make it more recyclable and to get toxic chemicals out. This is an important step to reduce unnecessary packaging and to redesign packaging altogether.

- **Reuse / Refill Systems**

Before plastic bottles became the norm, sodas and other drinks were sold in returnable glass bottles. Companies are now starting to experiment with reuse and refill systems and returnable containers. [Unilever](#) introduced a refillable stainless steel deodorant container. Bulk items are available at many grocery stores and co-ops. [Forever Ware](#) is a company that provides reusable stainless steel take-out containers for restaurants. The best approach to tackling plastic pollution is to prevent it. Reuse and refill systems are one solution for that.

- **Single-Use Plastic**

The U.S. has the highest rate of plastic waste generated per person. Yet the U.S. is far behind the rest of the world in plastic regulations. More than [90 countries](#) have established or are working on bans for single-use plastic, which accounts for 40% of all plastic produced. More than [1 million plastic bags](#) are used every minute.

- **Toxic Chemicals in Plastic**

Toxic chemicals like phthalates and bisphenols are used as additives to make plastic pliable or stiff. Plastic may look inert, but these chemicals leach into food and drinks. The chemicals are part of the plastic and can't be washed off. As plastics age, the rate of leaching increases. Also, [heating plastic](#) causes chemicals to leach at a higher rate.