Plastic Foam Needs 'To Go'

How Takeout Containers – and Other Types of Plastic Foam – Hurt Our Oceans and Our Health

OCEANA Protecting the World's Oceans

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Executive Summary

Over the last few decades, plastic foam has become an ever-present part of modern life. Plastic foam, formally called expanded polystyrene and sometimes referred to as Styrofoam, can be found when ordering takeout or opening a package. It is fashioned into cups, clamshell food containers, packing peanuts, coolers, and even floating docks, but its widespread use comes at a steep cost to the environment and human health.

Plastic foam is both lightweight and brittle. Because it is so light, when it breaks apart, those tiny pieces can easily be carried far and wide by wind and water, making it one of the most abundant types of plastic pollution found in U.S. rivers, lakes, and marine environments.[1–3] Polystyrene contributes to the 170 trillion microplastic particles floating in our oceans and has been detected in their deepest recesses.[4,5] Polystyrene has even been found in the clouds floating overhead, the water we drink, the air we breathe, and the blood pumping through our veins.[6-9]

Plastic foam is all around us and, increasingly, part of us. Oceana assessed years of research on the pervasiveness and impacts of plastic foam and other types of polystyrene, which will worsen over time if no action is taken to slow its production and circulation.

Plastic foam pollution affects a wide variety of marine animals, primarily through ingestion.[1] Sea turtles, seabirds, shellfish, and marine mammals have eaten plastic foam — and those are just the documented cases.[1] Even when plastic foam is not fatal, it is one more stressor for ocean wildlife that is already feeling the effects of habitat loss, overfishing, climate change, and pollution.

Plastic foam also poses significant health risks for humans because of how it is made. Styrene, the building block of plastic foam, is considered a probable carcinogen, which means styrene probably causes cancer.[10,11] Styrene and other added toxic chemicals are not tightly bound to the foam and can easily leach into food and beverages or be released into the air.[12–15]

As a product of fossil fuels and toxic chemicals, plastic foam harms the climate and exacerbates health risks to the communities that live on the fenceline of production plants. The manufacturing of plastic foam is an energy-intensive process that emits greenhouse gases and hazardous air pollutants.[16,17]

The wide-ranging evidence compiled in this report shows that it is time for a change — and the vast majority of Americans agree. A national poll released in 2025 found that more than three out of four registered U.S. voters, including Democrats, Republicans, and Independents, support policies that reduce single-use plastic foam.[18]

Around the world, there is an appetite for action to tackle plastic foam pollution at its source. Governments and companies are uniquely positioned to make tangible changes by phasing out the production and use of plastic foam. For the sake of our oceans, our health, and the future of our planet, it is time to cut back on plastic foam and use safer alternatives.

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Report Note: Plastic foam is one type of polystyrene, which is a larger category of synthetic plastics. This report primarily focuses on the plastic foam formally called expanded polystyrene, but also includes broader data on polystyrene, particularly for cases where data on plastic foam was limited or unavailable.

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Quick Foam Facts

- More than 8 million metric tons (17.6 billion pounds) of plastic foam are produced globally every year.[16] That is about the same weight as 300 Statues of Liberty.
- Plastic foam was one of the first types of plastic discovered in the ocean.[23]
- Plastic foam fragments, cups, and plates are among the top 10 most littered items found across the U.S.[3]
- Plastic foam contains toxic chemicals and attracts more pollutants from the water, putting wildlife and people at risk.[20]
- Only 1% or less of plastic foam waste is recycled each year in the U.S.[24]
- Worldwide plastic foam production emitted an estimated 48 million metric tons of greenhouse gases in 2019, nearly equal to the emissions of 13 coal-fired power plants.[21,22]
- National polling released in 2025 found that 78% of registered U.S. voters support policies to reduce single-use plastic foam.[18]
- The economic impacts of switching from plastic foam foodware to reusable or certified compostable products are often minimal or net positive.[25,26]

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Introduction

Plastic is just about everywhere scientists look. It floats on the surface of the sea, sinks to the deepest points of the ocean floor, melts out of Arctic sea ice, and circulates in the air and clouds.[4,6,8,27,28] Scientists estimate that 15 million metric tons of plastic pollute the ocean every year.[29] That is about two garbage trucks worth of plastic entering the ocean every minute. In addition, people are eating, drinking, and breathing plastic.[30] Microplastics have been found in everything from produce, honey, and beer to meat, seafood, and salt.[31–36] Plastic production is projected to triple by mid-century, and if nothing changes, the amount of plastic entering the ocean could triple by 2040.[37,38]

Single-use plastic packaging, which includes plastic food containers, bags, and beverage bottles, accounts for the largest share of plastic production. One of the most problematic types of single-use plastic is foam, formally called expanded polystyrene.

Polystyrene is a type of plastic used in a variety of products, including disposable packaging, single-use foodware and cutlery, and housing insulation. Although a German pharmacist first generated this material in the 1830s, polystyrene was synthesized for commercial use in the 1930s.[39] Industrialized nations, including the United States and those in Europe, tapped the petrochemical and plastic industries to meet demand for supplies during World War II, and these industries continued to flourish after the war ended. Plastic manufacturers began inventing new products aimed at everyday consumers, and the production of polystyrene, including plastic foam, ramped up in the post-war economy.[39]

Now, polystyrene manufacturing is a global industry. In 2019, the material comprised 5% of all the plastic produced globally, accounting for about 23 million metric tons.[16] While it is unknown how much of that polystyrene was made in the United States, data shows that the United States collected more than 3 million metric tons of polystyrene waste in 2019, not including any polystyrene waste that was exported to other countries, mismanaged, or ended up in the environment.[24] That waste mostly included single-use, disposable products, the bulk of which became trash. Approximately 91% of that waste was taken to landfills, 9% was incinerated, and only 1% was recycled.[24] Waste is not the only problem with polystyrene. The production of polystyrene, including plastic foam, takes a toll on the environment and communities. Its creation depends on the extraction of fossil fuels through drilling and fracking. Oil and gas are processed into petrochemicals like styrene, which are later turned into polystyrene pellets. At plants across the United States, manufacturers transform those pellets into plastic foam products, such as coffee cups, takeout containers, building insulation, and shipping materials.

Companies rely on chemical processes to transform oil or gas into plastic foam, and the exact recipe that they follow is often a mystery. Despite this, researchers have uncovered unsettling evidence of what goes into — and comes out of — plastic foam. Plastic foam is made from harmful chemicals and also attracts other hazardous chemicals in the water. These chemicals can leach out of plastic foam products, putting people and wildlife at risk.[40,41]

Researchers are just beginning to discover the extent to which plastic, and plastic foam in particular, hurts human health. However, its effects on animals and oceans have been documented for half a century, with the first case dating back to 1971.[23]

Much of the trade data surrounding plastic foam is kept private, including the exact chemicals used. The evidence is clear, though, that the effects of plastic foam are felt on a global scale. This report compiles a wide body of research on the many complex ways that plastic foam hurts ecosystems, wildlife, human health, and the climate. It also offers a course of action that, if adopted by governments and companies, would help to stop the onslaught of plastic foam pollution.

Microplastics

When expanded polystyrene foam and other types of polystyrene break up into smaller pieces, they turn into microplastics (pieces 5 millimeters or smaller, which is roughly the size of a pencil eraser) and nanoplastics (pieces 1 micrometer or smaller, which is thinner than a strand of hair). Plastic foam products rapidly generate microplastics when exposed to sunlight and friction, such as waves or abrasion from sand.[42,43] These tiny polystyrene particles can sink to the bottom of the ocean when microbes attach to their surface, making the pieces denser and heavier.[44] With microplastic and nanoplastic polystyrene, it can be difficult to tell if the plastic started out as foam or rigid polystyrene, so this report refers to all microplastics and nanoplastics as the broader term, polystyrene.

Photo of plastic foam pellets on a beach.

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Polystyrene Defined

Polystyrene is a synthetic plastic used across a wide range of industries, from food service to boating to construction (see Figure 1). Plastic foam is a type of polystyrene, but not all types of polystyrene are plastic foam. Most polystyrene products, including foamed and rigid polystyrene, are marked with #6 for polystyrene's plastic resin code.

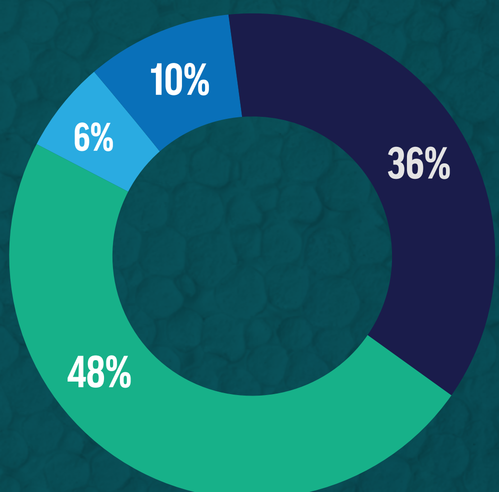

Figure 1

- Expanded Polystyrene (EPS)
- Extruded Polystyrene (XPS)
- General Purpose Polystyrene and High Impact Polystyrene (GPPS & HIPS)
- Other Polystyrene

Note: Figure based on Karali et al., 2024.

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EXPANDED POLYSTYRENE (EPS)

This lightweight, low density, and buoyant plastic foam is more than 95% air by volume.[1] It is made by forcing tiny air bubbles into rigid polystyrene, creating cells that can be molded into a variety of shapes under heat. While the material is malleable, it can easily break apart, especially when exposed to friction or sunlight.[45] Of all the polystyrene produced globally in 2019, expanded polystyrene accounted for about 36%.[16] This report focuses on this type of plastic foam.

Common Uses Include:

- Single-use foodware, such as cups, plates, bowls, and clamshell takeout containers
- Loose-fill packing peanuts and custom cushioning for shipped products
- Inexpensive foam coolers or ice chests
- Beach and pool toys
- Buoys used in waterways for aquaculture, fishing, and navigation
- Floating docks
- Building insulation

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EXTRUDED POLYSTYRENE (XPS)

This is a denser form of foamed polystyrene that is often called by its trademark name, Styrofoam, and can be colored blue or pink. Because this type of plastic foam can be cut without falling apart, it is most often used by the building and construction industries for insulation and flooring materials. Some extruded polystyrene is used in food packaging.[40] When used in housing construction, chemical flame retardants are added to the foam due to its extreme flammability.

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GENERAL PURPOSE POLYSTYRENE (GPPS) AND HIGH IMPACT POLYSTYRENE (HIPS)

Both are types of hard polystyrene. These materials, which are denser than water and do not float, are used to make disposable plastic packaging, hard plastic cutlery, rigid cups, small yogurt containers, and durable goods like furniture, toys, and appliances.

Ocean Wildlife at Risk

Plastic foam is among the most abundant forms of marine plastic pollution.[1] In fact, plastic foam was one of the first known cases of marine plastic pollution found in the ocean. In 1971, scientists unexpectedly captured tiny polystyrene foam pellets while towing nets to collect plankton off the coast of New England.[23] These scientists discovered that half of the baby fish and worm species in their nets had eaten the pellets and suspected that the pellets caused blockages in the animals' intestines.[23]

The same study also revealed that plastic foam can act as a toxic sponge by soaking up harmful chemicals in the water. In this case, polychlorinated biphenyls (PCBs) in the water attached to the surface of the pellets, a process known as adsorption. PCBs are hazardous chemicals that were once widely used in electronics but are now banned in the United States because of their harmful effects on humans and wildlife, like cancer and reproductive issues.[46]

In 1974, other scientists found plastic particles, including plastic foam, contaminating the Atlantic Ocean — from New England to the Caribbean.[47] Since the 1970s, polystyrene particles have been increasing in coastal sediments, infiltrating some of the sea's deepest trenches, and invading coastal wetlands and bays, where young fish grow and mature.[48–52] Polystyrene microplastics have even been found in the clouds and air.[6,8]

Scientists have also found polystyrene polluting hydrothermal vents.[53] The discovery of these deep ocean ecosystems broadened the understanding of what it takes to sustain life. Instead of relying on photosynthesis, bacteria living in hydrothermal vents convert sulfur compounds and heat into food and energy for the animals in the vent communities. Polystyrene microplastics are now building up in that food chain, affecting the unique animals that live there like vent crabs and squat lobsters.[53]

Plastic foam pollution harms many species of marine animals, mainly through ingestion.[1] Threatened and endangered sea turtles, protected marine mammals (including porpoise, elephant seals, and Stellar sea lions), shorebirds, mud worms, crabs, mussels, and barnacles have all eaten plastic foam.[1] Animals that consume larger pieces of plastic foam face a risk of intestinal blockage, injury, or death.[54] For example, off Florida's Atlantic coastline, scientists found threatened and endangered sea turtles ingested polystyrene and other plastics shortly after hatching, and half of those turtles died.[55] Seabirds are also vulnerable to polystyrene pollution because floating microplastics can look like fish eggs and other preferred prey.[56]

When aquatic animals consume plastic foam, they are ingesting chemicals from the foam itself as well as other harmful chemicals attached to its surface.[23,57] This toxic mix of chemicals can disrupt hormones and other bodily systems that help keep chronic disease at bay. Water fleas are often used to assess the toxicity of water, since they consume chemicals dissolved in water.[58] In one study, water fleas exposed to chemicals that had leached from plastic foam had reproductive issues, and some even died.[59] Other research found that plastic foam, when combined with the digestive fluid from seabirds and fish, increased the likelihood that female hormone-disrupting chemicals leach off polystyrene, elevating the chemicals' adverse effects — in some cases tenfold.[60,61]

In a range of studies, wildlife exposed to polystyrene microplastics in a lab setting faced complications. For example, polystyrene microplastics inhibited the growth of algae and fish, as well as the ability of fish, sea urchins, and other animals to move and swim.[62,63] This exposure has also been shown to decrease the feeding rate of freshwater water fleas and cause reproductive and oxidative cell damage to worms.[64–66] When exposed to polystyrene nanoplastics, shrimp suffered damage to their cells and immune system, and some died when exposed to slightly higher concentrations of these pollutants.[67] Polystyrene microplastic exposure was even recently found to disrupt hormones and reduce egg production in female fish, while male fish were unaffected.[68] These results confirmed that polystyrene's toxicity can be gender-specific, potentially affecting fish populations.

Farmed fish in aquaculture pens face numerous challenges, including the plastic foam buoys that surround their enclosures. These pens tend to have a higher density of fish than fish populations in the wild, which can increase the risk of disease outbreaks. Fish exposed to a combination of foam microplastics and virus cells in experiments faced deadlier viral infections than those exposed to either the virus or foam microplastics in isolation, which could amplify the risk of disease for fish in pens that are surrounded by plastic foam.[69] In addition, foam buoys used in aquaculture operations may contain toxic flame-retardant chemicals, which have been found to pollute the surrounding waters and muds.[70]

At a time when many marine animals are experiencing harmful effects from climate change, overfishing, and habitat loss, plastic foam pollution is one more stressor that could endanger vulnerable marine life.


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Impacts on Human Health

Chemicals

Approximately 16,000 chemicals are used to make plastic. A quarter of those are known to be hazardous to human health, and another 10,000 of them have never been tested for human safety.[71] The plastics industry does not disclose all of the chemicals used to make plastic foam, so the public is kept in the dark about some of the risks posed by the production and use of this material. However, several studies reveal links between the known chemicals in plastic foam and harmful health consequences.[40,72,73]

Plastic foam's main building block, styrene, is toxic to the central nervous system and is now "reasonably anticipated to be a human carcinogen" by the U.S. National Institutes of Health.[11] Styrene has been linked to lymphatic cancers and leukemia, and high levels of exposure can cause respiratory and eye irritation, vision and hearing loss, and impaired memory and concentration. Faced with evidence of polystyrene's harmful effects, the American Academy of Pediatrics recommends that parents avoid plastic products made of polystyrene.[72]

The widespread use of polystyrene in the food and beverage industry — including everything from disposable cups to meat and seafood packaging — is cause for concern. Styrene can leach from plastic foam into food or drink, especially when stored in foam for long periods of time or if foods or drinks contain high levels of fat.[40] Styrene can leach out from plastic foam at all temperatures, but higher heat heightens the risk. Drinking piping hot coffee out of a foam cup, for instance, could be akin to drinking harmful chemicals with that morning brew.[40]

Because the transformation of fossil fuels into polystyrene requires a chain of chemical reactions, the chemicals involved — benzene, ethylbenzene, styrene, and more — can remain in a final plastic foam product.[41,74] Many of these hazardous chemicals are ending up in our bodies. In fact, the problem is so pervasive that 90% of the people tested in the United States have the chemical components of styrene and ethylbenzene in their urine.[73]

While companies may treat the chemicals that make up plastic foam as industry secrets, researchers can test the toxicity of these unknown compounds. Experiments have shown that these extracted chemicals are capable of disrupting female hormone and metabolism systems in the human body.[75] An altered metabolism can lead to obesity and Type 2 diabetes, while disrupted female hormone function is linked to developmental and reproductive problems as well as breast and prostate cancers. Other chemicals in polystyrene have induced an oxidative stress response, which is an imbalance of chemicals in the body that may damage tissues and cells and can lead to disease.[76]

Toxic flame-retardants have also been discovered in some plastic foam foodware, suggesting that polystyrene pellets intended for construction purposes may have mistakenly been used in foodware instead.[77] Flame retardants can cause low birth weight in infants, IQ loss in children, and thyroid dysfunction in both children and adults.[78]

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In addition to harming human health, plastic chemicals take a toll on the U.S. economy. Disease, disability, and social costs linked to these chemicals are estimated to cost the U.S. population $249 billion each year, accounting for 1.22% of the gross domestic product.[79]

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Microplastics

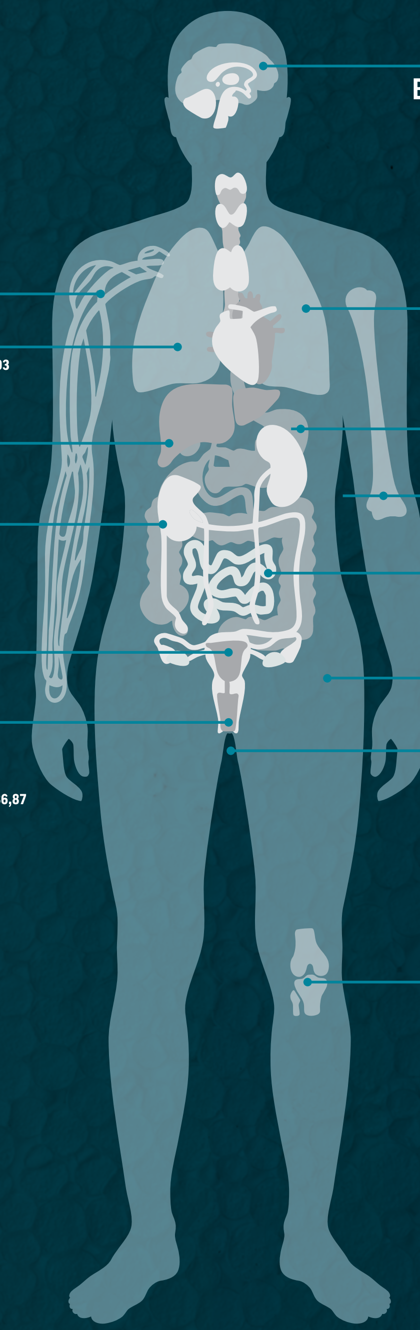
Medical researchers are producing a growing body of evidence about the chemicals in plastic foam and their effects on human health, but microplastic particles — including polystyrene — have only recently been found in our bodies (see Figure 2). Given that plastic foam foodware sheds microplastics, this could be a source of some polystyrene microplastics in food and human bodies.[40] Because research is in the early stages, health risks associated with these microplastics are less understood, but their detection in so many parts of the human body is troubling.

Researchers and the medical community are increasingly concerned about how microplastics and nanoplastics are impacting human health and continue to search for answers in their experiments. Some research has shown that tiny polystyrene particles can pass through cell walls, leaving damage and inflammation in their wake.[95] When polystyrene microplastics are added to digestive cells in experiments, these plastics have gastrointestinal impacts by affecting gut function and the ability of cells to process nutrients and produce energy.[96] Polystyrene nanoplastics may even alter the expression of genes responsible for defending against diseases in developmental cells — changes that could be passed on to future generations.[97] In mice, experiments revealed that prolonged exposure to these microplastics led to hormonal imbalances, lower testosterone levels, and abnormal testicular development.[98]

It can be hard to determine whether certain health effects are caused by the actual polystyrene particles or by the chemicals they carry. In some cases, the two could be intertwined, with harmful chemicals being delivered to human cells and organs via the tiny polystyrene pieces entering our bodies. While more research is needed to understand this complex interplay, the evidence is clear that our bodies are not safe from a material like plastic foam — and the fossil fuels and chemicals from which it is derived.

Polystyrene Particles Found in Humans

Figure 2



[9]Leslie et al., 2022; [80] Nihardt et al., 2025 ; [82] Horvatis et al., 2022 ; [83] Li et al., 2024 ; [84] Guo et al., 2024 ; [85] Zhu et al., 2024 ; [86] Qin et al., 2024 ; [87] Xu et al., 2024 ; [88] Codrington et al., 2024 ; [89] Zhang et al., 2024 ; [90] Zhao et al., 2023 ; [91] Garcia et al., 2025 ; [92] Ragusa et al., 2022 ; [93] Saraluck et al., 2024 ; [94] Zhang et al., 2021

The Problems with Plastic Foam Production

People are largely paying the price for the production of plastic foam. The creation of plastic foam depends on the extraction of fossil fuels, whether from drilling operations on land or in the oceans, including by hydraulic fracturing, or fracking. U.S. taxpayers subsidized oil, gas, and petrochemicals to the tune of $9 billion over the last decade, keeping production costs artificially low for these billion- and trillion-dollar industries and making plastic production a lucrative industry.[99]

In their raw form, crude oil and gas cannot be used to make plastic, so they are processed into separate petrochemicals during an industrial process called "cracking."[100] Two of the end products of cracking, benzene and ethylene, are then combined to create a new compound, ethylbenzene.[100] Through another series of chemical reactions, ethylbenzene is used to make styrene and, finally, long chains of styrene units are strung together to form polystyrene pellets, which are the industrial building blocks of plastic foam products.

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In the United States, dozens of plants make polystyrene pellets, and other factories mix those pellets with chemicals to create tiny bubbles in the pellets. Steam is added to force the bubbles to expand, making the material larger and more lightweight. These expanded pellets are molded into plastic foam items under steam heat. More chemicals are added, many of which are considered "trade secrets," to give plastic foam different properties suited to a variety of foam products.

The production of polystyrene poses problems at all stages. It sends hazardous emissions of styrene, benzene, and ethylbenzene into the air, threatening the health of nearby residents, many of whom are facing multiple environmental and social justice burdens.[101] Most of the conversion of fossil fuels to polystyrene and plastic foam occurs in a concentrated area along the coast of the Gulf of Mexico. The areas surrounding the petrochemical corridors of Texas and Louisiana have some of the highest air emissions of styrene, benzene, and ethylbenzene in the United States.[17] These chemicals are classified as hazardous air pollutants by the U.S. Environmental Protection Agency and carry various health risks.[17]

Benzene exposure can cause cancer of the blood, and industrial air emissions of benzene from polystyrene or other petrochemical factories can exceed health advisory levels.[102-104] Ethylbenzene and styrene are also possible carcinogens, with styrene taking a particularly heavy toll on people who breathe in fumes of these volatile chemicals. Blood tests of workers exposed to styrene on the job show that their styrene levels are generally eight to 20 times higher than the general population.[105]

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Residents in neighborhoods near production plants can also be affected. The 85-mile stretch of land in Louisiana, known as "Cancer Alley," has more than 200 petrochemical plants. Hazardous air pollution from these plants has been linked to higher cancer rates in Black and impoverished communities living nearby.[106] Biomonitoring tests also revealed that the average blood styrene levels of residents in the Gulf Coast petrochemical corridor, from Houston, Texas to Mobile, Alabama, were twice as high as levels seen in the general U.S. population.[17] The highest levels of all in that study were found in non-white people — a group that also suffered from neurological symptoms such as dizziness, nausea, and blurred vision.

The story of polystyrene's production is part of a longer legacy of environmental injustices in the United States, where harmful emissions are imposed on historically disenfranchised communities. Many plastic foam products are used just once before being thrown in the trash. Yet, for people living on the fenceline of plants where these materials are made, exposure to pollutants can cause serious lifelong health impacts that can even be fatal.

Climate Impacts

The production of plastic foam contributes to climate change in addition to the impact of plastic foam on public health, oceans, and marine wildlife. In 2019, polystyrene accounted for 5% of the plastic produced around the world, the manufacturing of which produced 134 million metric tons of greenhouse gas emissions that year, or the equivalent of 35 coal-fired power plants.[16,22] Plastic foam production alone created an estimated 48 million metric tons of greenhouse gas emissions in 2019, the equivalent emissions of almost 13 coal-fired power plants.[16,22] With plastic production predicted to triple by mid-century, these emissions could also triple by 2050 if no action is taken.[37]

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Polystyrene Is a Moving Target

The dangers of styrene and polystyrene production are not limited to the areas where these materials are made. Styrene, an extremely flammable substance, spilled from a train car near Cincinnati, Ohio, in 2024, prompting the evacuation of local residents due to the dangers of inhaling the noxious vapors and the risk of an explosion.[107] This incident followed another massive spill in East Palestine, Ohio, in 2023, during which vinyl chloride – a flammable gas used to make plastic – went up in flames and contaminated the environment and community after a train derailed.[108] People living along railroads are at risk every time a train carries toxic and flammable plastic chemicals through their communities. Like chemicals that make up plastic foam, polystyrene pellets can also spill into the environment while being transported from one factory to the next. At factories and along transport routes, unregulated plastic pellet spills happen routinely.[109] In fact, plastic foam pellets have been turning up in coastal waters and harming fish since 1971.[23]

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The False Promise of Recycling Plastic Foam

Part of the reason plastic foam has become such a widespread pollutant is because so little of it can be recycled. In fact, 1% or less of all polystyrene waste, including foam, is recycled in the United States each year.[24,110,111] Its bulkiness makes it economically impractical to transport to recycling plants, and plastic foam foodware is often too contaminated with food to be recycled. Recycling plastic foam costs more than making the material from scratch, further contributing to its abysmally low recycling rate.[112]

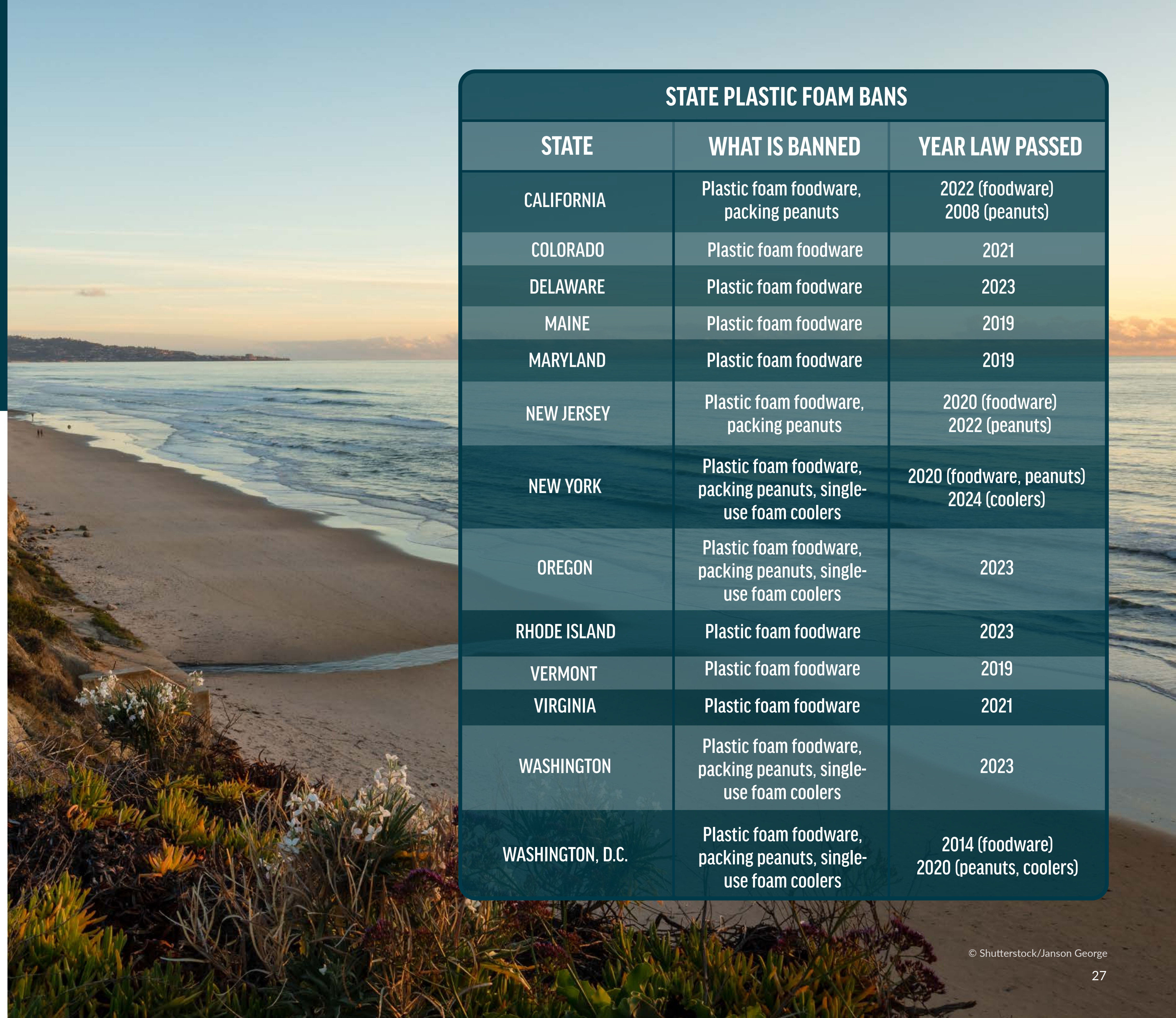
Hardly any U.S. communities collect single-use plastic foam as part of curbside recycling programs. A limited number have designated drop-off locations for the recycling of rigid plastic foam packaging used to cushion electronics, appliances, or other bulky products, but most recyclers do not accept packing peanuts or single-use foam foodware and coolers.

Turning the Tide on Plastic Foam

State and local governments across the United States are starting to acknowledge the problems of plastic foam and taking action to reduce its use and production — and the evidence shows that these policies are working. After Washington, D.C. passed a single-use plastic foam ban in 2014, the Anacostia River that runs through the city saw a 50% reduction in plastic foam pollution following the first year the law was implemented. After five years, foam pollution fell by 88%.[19]

Similarly, Maryland's Baltimore Inner Harbor saw an 80% reduction in foam pollution collected by "Mr. Trash Wheel," a giant trash interceptor, following a statewide single-use foam foodware ban.[113] After Charleston, South Carolina banned foam takeout boxes in 2018, the city saw a 20% decrease in this type of trash during beach clean-ups in 2019.[114]

Momentum is building in the United States. By the end of 2024, 12 states and more than 250 counties and cities, including the city of Los Angeles and New York City, had passed policies to curb single-use plastic foam.[115] Globally, more than 65 countries have passed policies to reduce single-use plastic foam, including China, Australia, Zimbabwe, and every nation of the European Union. These policies are leading to cleaner oceans. The amount of surface-level plastic foam seen floating in China's marine environments dropped to nearly zero after the country enacted measures to curb plastic foam.[116]

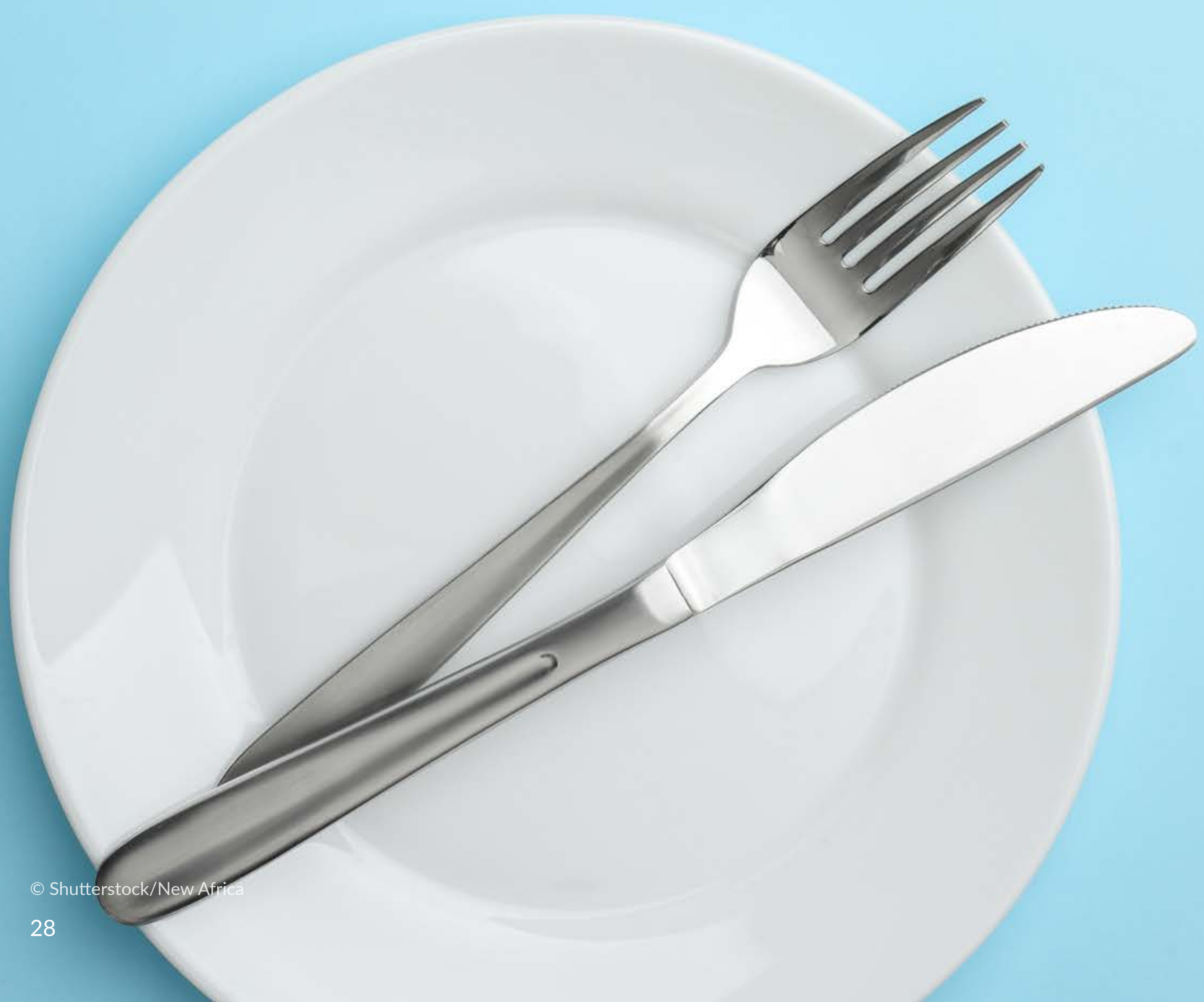


STATE PLASTIC FOAM BANS

STATE	WHAT IS BANNED	YEAR LAW PASSED
CALIFORNIA	Plastic foam foodware, packing peanuts	2022 (foodware) 2008 (peanuts)
COLORADO	Plastic foam foodware	2021
DELAWARE	Plastic foam foodware	2023
MAINE	Plastic foam foodware	2019
MARYLAND	Plastic foam foodware	2019
NEW JERSEY	Plastic foam foodware, packing peanuts	2020 (foodware) 2022 (peanuts)
NEW YORK	Plastic foam foodware, packing peanuts, single-use foam coolers	2020 (foodware, peanuts) 2024 (coolers)
OREGON	Plastic foam foodware, packing peanuts, single-use foam coolers	2023
RHODE ISLAND	Plastic foam foodware	2023
VERMONT	Plastic foam foodware	2019
VIRGINIA	Plastic foam foodware	2021
WASHINGTON	Plastic foam foodware, packing peanuts, single-use foam coolers	2023
WASHINGTON, D.C.	Plastic foam foodware, packing peanuts, single-use foam coolers	2014 (foodware) 2020 (peanuts, coolers)

Plastic Foam Alternatives

Plastic foam is a harmful product that is often used once and then thrown away. As governments, businesses, and institutions move away from single-use plastic foam, it presents an opportunity for more sustainable, safer, and reusable products.



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FOODWARE

For food service products such as cups, plates, and bowls, switching from single-use plastic items, including foam, to reusable ones could reduce waste, litter, and pollution while potentially saving businesses money in the process.[117,118] Some of the benefits of making this switch to reusables could include:

- Cost savings for businesses that no longer need to repurchase disposable items;
- The creation of good jobs that bolster local economies;
- Reduced exposure to chemicals;
- A lower impact on land use, resources, and the climate;
- Lower greenhouse gas emissions over the lifecycle of a reusable item compared to that of a single-use, disposable item.

A national study of reusable foodware in cafeterias found that a school system in Minnesota saw significant cost savings by replacing single-use foam foodware with reusables.[25] Similarly, a restaurant in California saved nearly a thousand dollars in one year after replacing disposable foam cups with reusable ones.[26] For many businesses, shifting away from single-use plastic and other single-use items has a positive impact. Often, businesses even see economic benefits after making this switch. The start-up costs for reuse systems, including purchasing reusable products and dishwashers, can be recouped in only a few years, and businesses can also save on garbage collection fees.[118]

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PACKAGING MATERIALS

Companies that package and ship their items can also take a page from these food service success stories. Loose-fill packing peanuts, for example, can be replaced with reusable or recyclable paper filler.

Conclusion

Single-use plastic foam is not just unnecessary, virtually unrecyclable, and wasteful — its presence in all aspects of our lives is toxic to our health and oceans, and its continued use comes at a cost.

These consequences include the cost of disease and ailments tied to the production and use of this material, the costs associated with its disposal and widespread pollution, and the cost of greenhouse gas emissions and climate change impacts. Plastic-related chemical exposures alone are estimated to cost hundreds of billions of health care dollars each year, placing an enormous strain on people treated in the U.S. healthcare system.[79]

A material that threatens people and wildlife, pollutes the air, fills the oceans with trash, and accelerates climate change should be phased out. As the plastics industry continues to produce single-use plastics, including plastic foam, the problems are likely to escalate if no action is taken.

With each new study about the harmful effects of polystyrene on both human health and wildlife, the calls for change grow louder. Businesses, scientists, governments, and non-governmental organizations agree that plastic foam must be reduced or eliminated, whether it is by passing bans or by adopting alternatives like reusable products that have a proven track record of reducing waste.[119] In the U.S., there is overwhelming bipartisan support for policies that would do just that, with a dozen states and more than 250 cities and counties having taken action so far. Intergovernmental bodies, such as the Nordic Council of Ministers, are developing criteria for tackling problematic, unnecessary, and avoidable plastic items like single-use plastic foam.[120]

When confronted with plastic foam's widespread problems, it becomes clear that alternatives are needed. Case studies show that safer and more sustainable options exist, many of which have been implemented with great success. Many businesses that swapped out their single-use products for reusable ones recouped their investments and even saved money. Eliminating a material that causes pollution, environmental degradation, and disease would also yield enormous cost savings for society.

In an era of endless choices, companies and governments have the chance to make the right one for our health, our communities, and our oceans by curbing the production and use of single-use plastic foam.

Recommendations

Phasing out the production and use of plastic foam is the most effective way to tackle plastic foam pollution. This requires action from governments and companies, including the plastics industry. Companies must shift to reusable and refillable alternatives that do not harm the environment, marine life, and human health.

To achieve this goal, Oceana recommends that governments:

- Phase out the sale and distribution of single-use plastic foam – including foodware, packing peanuts, and foam coolers – at the local, state, and national level;
- Encourage reusable and refillable systems in place of single-use packaging and products.

Additionally, Oceana recommends that companies:

- Stop producing and using single-use plastic foam;
- Give customers choices that are free of plastic foam;
- Explore alternatives to using plastic foam in docks, buoys, and other marine uses, and until then, fully encapsulate any plastic foam to reduce the risk of pollution.

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