

Cigarette Butts Are Everywhere. Is Banning Filters a Viable Solution?

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Cigarette butts litter a beach in Florida. Photo: Zuma Press Inc/Alamy

Shelly Ericksen was handing out supplies for a beach cleanup in San Francisco one morning several years ago when a volunteer said he would pick up only cigarette butts, and wandered off. Ten minutes later he was back, his cupped hands overflowing. "That kind of turned the lightbulb on in my head," Ericksen says. Now program lead for the San Francisco chapter of Hold Onto Your Butt, a campaign of the environmental nonprofit Surfrider Foundation, Ericksen works to eliminate what she calls the "last socially accepted form of litter."

In spite of decades of efforts to discourage cigarette butt litter, discarded filters remain the **single most common** item collected in environmental cleanups worldwide, well ahead of plastic bottles and grocery bags. Discarded butts are easily carried by water and wind, often winding up in sewers and then waterways. Ocean Conservancy **reported** that 2.4 million of them were collected in coastal cleanups in 2017 alone.

And while the environmental impacts of items like microbeads and plastic straws have drawn a public outcry and inspired sweeping bans in recent years, cigarette butts remain uniquely stubborn—ever present, and yet seemingly invisible. Many people don't realize the magnitude of the problem, Ericksen says, or understand what a cigarette butt really is: a piece of plastic loaded with toxic chemicals.

"I used to be a smoker and I would flick my cigarette butts everywhere, and I had no idea of the environmental harm and impacts of that," Ericksen says.

Cigarette filters are typically made of about 12,000 strands of cellulose acetate, the same plastic used in sunglasses. The material breaks apart when exposed to ultraviolet rays, but it can take a long time to biodegrade—if it does at all. Used filters also carry hundreds of chemicals, including heavy metals like lead and cadmium, which can leach into runoff water that's discharged from sewers, even if the butts themselves are captured.

While scientists don't fully understand the environmental impact of the leachate, they have begun to parse its effects on individual species. Studies **have shown** leachate can be deadly to a prey species of crustacean known as a water flea, as well as to three species of tidepool snails. Depending on its concentration, the leachate can stunt development of frog embryos and mosquito larvae, or kill them outright. Yet another **study** showed that the leachate of just one cigarette butt in a liter of water could kill half the fish swimming in it.

David Booth, a marine ecologist at the University of Technology Sydney, has studied the effects of cigarette butt leachate on tidepool snails. Booth said in an email that the impact of leachate could extend further up the food chain than we know, including to birds. Since chemicals like heavy metals can accumulate in the tissue of sea snails and other prey animals, birds and other predators could be exposed to toxic chemicals through their normal diet, though it's unclear whether these levels would be enough to cause harm.

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While evidence that discarded filters pose environmental risks mounts, the issue remains socially intractable. Thomas Novotny, professor emeritus of public health at San Diego State University and CEO of the Cigarette Butt Pollution Project, says cigarette butts are unique as far as litter goes. For one, they carry toxic chemicals. But the fact that smoking is an addiction—and smokers want to get rid of butts immediately—makes flicked butts an especially persistent problem, he says.

"It's normalized behavior," Novotny says. "[People] traditionally have just tossed their butts and expected them to either go away or be picked up by somebody else."

Efforts to deal with the problem have taken many forms, including smoking bans and increases in the legal age for purchasing tobacco products. Tacking litter fees onto the cost of cigarettes, as the city of San Francisco has done, passes the cost of cleanup on to smokers. Programs like Hold Onto Your Butt work to clean up tobacco waste and make proper disposal options, such as butt cans, more widely available to smokers.

But as evidenced by the amount of cigarette butts still littering public spaces, these efforts might not be enough. "I really think that cleanups, take-backs, and downstream approaches are not the right answer," Novotny says. The solution, he says, is to ban cigarette filters altogether.

The idea is gaining traction in California, where Assemblymember Mark Stone introduced a bill that would ban the sale of cigarettes with single-use filters in 2014, 2015, and 2018. Stone's bill, which was voted down in committee each time, was based largely on an environmental argument related to the pollution and cost associated with discarded butts. But a public health argument can also be made: While cigarette filters block larger tar particles, they might also make smoking more dangerous to smokers.

The Surgeon General's 2014 **report** on smoking concluded that the risk of adenocarcinoma, a type of lung cancer, increased after the use of filters jumped in the 1950s. Studies show that filters allow smokers to inhale more deeply from cigarettes, drawing carcinogens deeper into the lung tissue.

"It's not easy for people to get," Novotny says, "because cancer in general has gone down because people stopped smoking. But that particular type of cancer, which is more aggressive, has actually gone up as a result of the filter."

Miriam Gordon, program director for Upstream, which works to eliminate waste at its source, says lack of public awareness about filters hurts the effort to ban them. "Everyone has a common perception that the filter helps protect the smoker," she says.

Another challenge to a filter ban, Novotny says, is "enormous opposition" from the tobacco industry.

But despite these obstacles, Heidi Sanborn, executive director of the National Stewardship Action Council, thinks the tobacco industry itself could be held responsible for cigarette waste. The council's California affiliate organization previously backed **a law** requiring the pharmaceutical industry to collect and dispose of unused drugs. The law withstood industry challenges all the way to the Supreme Court, but Sanborn says the crux of the legal argument was the government's right to protect public health and safety. And when it comes to cigarette butts and the associated pollution, she says, "I don't see how you can't make the connection to public health."

Like Novotny, Ericksen would ultimately like to see cigarette filters banned. And while cigarette butts might never spark the environmental outrage that other plastics do, there might be more than one avenue to eliminating them altogether. In the meantime,

Ericksen is working to educate people about those that are already circulating in the natural environment. “[At first] people might not notice cigarette butts on the ground,” she says, “but once you see them you can’t unsee them.”

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