

Author's note: A somewhat shorter version of the discussion below was submitted to the Bozeman Daily Chronicle a little more than two weeks before the recent election for consideration as a guest column. After an initial exchange with a BDC staff member regarding the submission, the author heard nothing from the Chronicle. A pro-bag-ban guest column was published shortly before the election, but the discussion below was not.

Bozeman's Proposed Plastic Bag Ban – What are the Costs and Benefits?

By Randy Rucker

In the upcoming election, one item on the ballot is a [proposal](#) to ban “single-use” plastic grocery bags, Styrofoam, plastic straws, and plastic silverware. The discussion below examines some of the benefits and costs of the ban on grocery bags (plastic straws and silverware will continue to be available upon request, and the Styrofoam ban is a story for another day). Similar bans and taxes on plastic grocery bags have been implemented in approximately 12 states and 500 U.S. cities, not to mention in a considerable number of foreign countries.

Consider first, the benefits of the proposed ban for Bozeman. From the time the first similar U.S. program was passed in San Francisco in 2007, claimed benefits from such bans have been reduced litter, often with concern expressed for waste that ends up in waterways and oceans. More recently, attention has been focused on health issues related to microplastics—very small particles of plastic that separate themselves from plastic products and are distributed throughout our environment. Finally, there are claims that banning single-use plastic grocery bags will reduce our consumption of oil.

Plastic bag bans and taxes were initially designed to reduce plastic bag litter in places like China and Ireland. Although such bans do reduce single-use plastic bag litter, Bozeman is not a community where litter is an important problem. In my daily six-mile commute down Cottonwood, if I look hard, I might see a few pieces of litter, but not many, and typically none

are single-use plastic grocery bags. Out of curiosity, I also drove through a couple of the controversial urban camper “communities” around town, and again saw relatively little litter and virtually no discarded plastic grocery bags. Consistent with my observations, [litter studies](#) in various locales have found that considerably less than 1 percent of the items collected were plastic grocery bags. In other areas, there have been concerns over a shortage of landfill space. There is ample potential landfill space in the Gallatin Valley, and [research](#) has found that single-use plastic grocery bags comprise a miniscule fraction of U.S. waste generated annually. Banning single-use plastic grocery bags will not fix a nonexistent litter or landfill space problem.

Regarding the sea-life issue, it is of course certain that not a single littered plastic grocery bag (nor any straws or plastic spoons) from Bozeman will end up in the ocean to endanger sea-life. An interesting [factoid](#) on ocean plastics is that roughly 95 percent of all plastic in the ocean comes from one country, and 90 percent of all ocean plastic originates from one river in that country. The country is China, and the river is the Yangtze. No U.S. river contributes close to 1 percent of the plastic in the world’s oceans. A bag ban in Bozeman (or any other community in the United States, for that matter) has no impact on the ocean plastic problem.

Turning to microplastics, health concerns stemming from these are a primary focus on the website of MT Plastic Free, one of the entities supporting the proposed bag ban. Although research suggests microplastics are virtually everywhere, their [current concentration levels](#) are too low to present actual health risks and future health effects are speculative at present. To get a sense for the likely impacts of a plastic bag ban in Bozeman on the incidence of these particles, consider the following. In 1987, an archeologist named William Rathje undertook a research project in which he dug extensively through landfills in Arizona. Among many other items, [Rathje found newspapers](#) from the 1960s that were in pristine condition—they looked just like

this morning's newspaper that is delivered to your front door or mailbox. Plastic bags in Bozeman primarily end up either in recycling bins at local grocery stores or garbage cans, the contents of which are transported to the landfill at Logan. There, like the newspapers Rathje found, they will remain intact, possibly for hundreds of years. So, banning plastic grocery bags will have no measurable effect on the microplastics problem. Indeed, if we are truly concerned about the health effects of microplastics, maybe we should be thinking about banning such items as plastic water bottles, lipsticks that contain microplastics, and our ubiquitous athletic shoes, whose soles are made of plastic.

What have been the responses in other communities to plastic bag bans? Before addressing this question, it is important to point out a couple features of these nefarious bags. First, the average cost of producing one of them is about one cent. Second, "single use plastic grocery bag" is a misnomer. Many people (including myself) use and reuse these bags for such tasks as carrying their lunches or sweaty gym clothes, lining small home garbage cans, and picking up dog litter. Turning to observed responses to bag bans, consumers alter their behavior in various ways. Some buy heavier weight garbage bags at the grocery store to line their small home garbage cans or fill with groceries, some will shop more in Belgrade which has no bag ban, some may shift to consuming more take-out food, and so forth. On the shift to heavier weight plastic bags, research on bans in both New Jersey and California has found that, following the implementation of their bans, overall plastics usage for bags in [New Jersey](#) and garbage bags thrown away (by weight) in [California](#) have actually increased!

Possibly the most common response to a bag ban will be for consumers to purchase "environmentally friendly" reusable grocery bags. Consider two issues with these bags. First, [research](#) has found that in San Francisco, after a bag ban was implemented, the incidence of

bacterial-induced illness (and deaths) increased significantly. People were using their reusable bags to carry, e.g., raw chicken one trip, and fruits and veggies the next trip, without cleaning the bag in the interim. Other similar negative health experiences have been identified. This experience is consistent with a recent account from a local cashier who described to me the foul smell emanating from some of the reusable bags he currently handles.

Second, the resources required to produce these bags (including plastics for some of them) can cost hundreds of times as much as the one-penny single-use bags. A reusable bag that costs \$1 to produce would have to be used a hundred times to break even with the resource requirements of the one-penny single-use bags. [One study](#) identified reusable bags that would have to be used 20,000 times to break even! In a recent trip to a local grocery store, I found two readily available reusable bag options—one for \$6.99 and one for \$20. Moreover, most consumers buy several reusable bags. Then they forget them at home or in the car and purchase additional bags. Finally, washing reusable bags requires resources—certainly more than a penny’s worth per load. If a conscientious consumer washes his bags after every shopping trip, the break-even usage level with single-use plastic bags will never be reached! [One research study](#) suggested that the largest cost of bag bans is the opportunity cost of consumers’ time as they endlessly re-wash their bags.

On the [oil consumption](#) issue, almost all single-use plastic bags are made from natural gas, not oil, whereas one of the primary types of reusable bags is made from oil. Research has found that between consumers switching to heavier duty plastic bags and the increased production of plastic-containing reusable bags, one consequence of plastic bag bans is an increased use of fossil fuels.

Given the preceding, consider the following three thoughts. First, it is conceivable that the much-maligned single-use plastic grocery bags are actually a resource-efficient alternative for carrying groceries (and then being used for other home activities). Second, a considerable number of people at Bozeman grocery store checkout lines currently have reusable bags. Let me continue to use, re-use, and recycle single-use plastic grocery bags, and let others continue to use their reusable bags. Third, if one's objective is to reduce or eliminate the use of single use plastic grocery bags in Bozeman, then a bag ban will be effective. If, however, one's objective is to reduce the use of plastic in general, then, given the experiences with bag bans in other locales where plastic usage and waste have increased, voting for the Bozeman ban makes no sense. The proposed ban is a symbolic, feel-good program whose net benefits are almost surely negative.

Randy Rucker is a Professor Emeritus in the Department of Agricultural Economics and Economics at Montana State University, where, for almost 30 years, he strove to teach students to think rationally and objectively about policies like the proposed bag ban. As a native Montanan, he has fished Montana's rivers, streams, and lakes for more than 50 years, finding few plastic grocery bags along the way.