Take Back the Tap

The Big Business Hustle of Bottled Water

food&waterwatch

About Food & Water Watch

Food & Water Watch champions healthy food and clean water for all. We stand up to corporations that put profits before people, and advocate for a democracy that improves people's lives and protects our environment. We envision a healthy future for our families and for generations to come, a world where all people have the wholesome food, clean water and sustainable energy they need to thrive. We believe this will happen when people become involved in making democracy work and when people, not corporations, control the decisions that affect their lives and communities.

Food & Water Watch has state and regional offices across the country to help engage concerned citizens on the issues they care about. For the most up-to-date contact information for our field offices, visit *foodandwaterwatch.org*.

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Executive Summary

Many Americans have bought into the myth that bottled water is purer and healthier than tap water, largely because of the bottled water industry's crafty marketing tactics — including targeting vulnerable and lower-income consumers.[1] But the federal government requires more rigorous safety monitoring of municipal tap water than it does of bottled water.[2]

After declining during the Great Recession, bottled water sales and consumption increased from 2010 to 2016[3] — including rapid growth in cheaper, private-label water (store brands).[4] The top beverage companies are now using bottled water as a U.S. profit center, and as a replacement for lagging soft drink sales.

In the face of intense marketing hype about purity and health, most people do not realize that the majority of bottled water sold today (nearly 64 percent) comes from municipal tap water.[5] When bottlers are not selling municipal water, they are pumping and selling common water resources that belong to the public, harming the environment and depleting community water supplies.[6] Most people also do not realize that the drinking water that they can get from their tap for a fraction of the price of bottled water actually comes with more safeguards than bottled water, since the federal government requires more rigorous safety monitoring of municipal tap water than it does of bottled water.[7]

But getting people to kick their bottled water habit in favor of the tap is not enough. Our public drinking water systems desperately need renewed federal investment. Instead, Congress has slashed federal funding. Since peaking in 1977, inflation-adjusted federal funding for water infrastructure has been cut 74 percent.[8] On a per capita basis, that is an 82 percent drop. In 1977, the federal government spent almost $77 per person (in 2014 dollars) on water infrastructure, but by 2014 that support fell to slightly more than $14 per person.[9]

Congress must dedicate long-term public funding for fixing our drinking water and wastewater infrastructure so that communities across the United States can keep or make their tap water clean, safe and affordable.

Key Findings: The Big Business Hustle of Bottled Water

- **In 2016, bottled water became the largest U.S. beverage category by volume, surpassing soft drinks.**[10] Total volume rose to 12.8 billion gallons, bringing bottled water's market share to 39 percent, compared to 12.5 billion gallons for soft drinks.[11] U.S. bottled water sales hit $14.7 billion in 2016.[12]
- **Bottled water remains significantly more expensive than tap water and gasoline.** It can cost nearly 2,000 times the price of tap water, three times the price for a gallon of milk and four times the price of a gallon of gasoline.[13]
- **Bottled water advertising targets people of color, women, mothers, children and lower-income groups.**[14] The industry emphasizes health and wellness trends, as well as concerns about sugary beverages and obesity.[15] It has focused its marketing on women and on children and their moms, especially Latina mothers.[16]

Environmental Footprint of Bottled Water

- **In 2015, about 70 percent of plastic water bottles in the United States were not recycled and ended up in landfills, as litter or incinerated.**[17] Much of this plastic waste ends up in our oceans and surface waters. Municipalities can pay more than $100 million a year for plastic bottled water waste disposal.[18] In 2016, the 4 billion pounds of PET plastic used for bottled water was enough to more than fill the Empire State Building.
- **Bottled water companies profit by depleting local water supplies; Nestlé pumped California water during the recent historic drought,** withdrawing 705 million gallons of water annually — enough to supply nearly 2,200 families per year.[19]
- **In 2016, 4 billion pounds of plastic was used in U.S. bottled water production.[20] Total consumption required an estimated energy input equivalent of 45 million to 82 million barrels of oil.**[21] The plastics industry relies on fracking to produce the ingredients for plastic bottles,[22] and the bottled water industry relies on plastic to package its product.[23]

Introduction

Americans drink nearly 25 times as much bottled water today than 40 years ago.[24] Industry marketing has tried to convince consumers of bottled water's purity and healthfulness compared to tap water.[25] Bottled water has become ubiquitous, and many people buy plastic water bottles rather than drinking from the tap or a fountain. By 2016, Americans drank nearly 40 gallons of bottled water per person annually.[26]

But people may not know that the federal government requires more rigorous safety monitoring for municipal tap water than for bottled water (see "Less Stringent Regulation for Bottled Water" on page 7).[27] The U.S. Food and Drug Administration (FDA) issued 35 bottled water recalls for contamination between 2002 and 2017 (see "Bottled Water Recalls Challenge Safety Myth" on page 10).

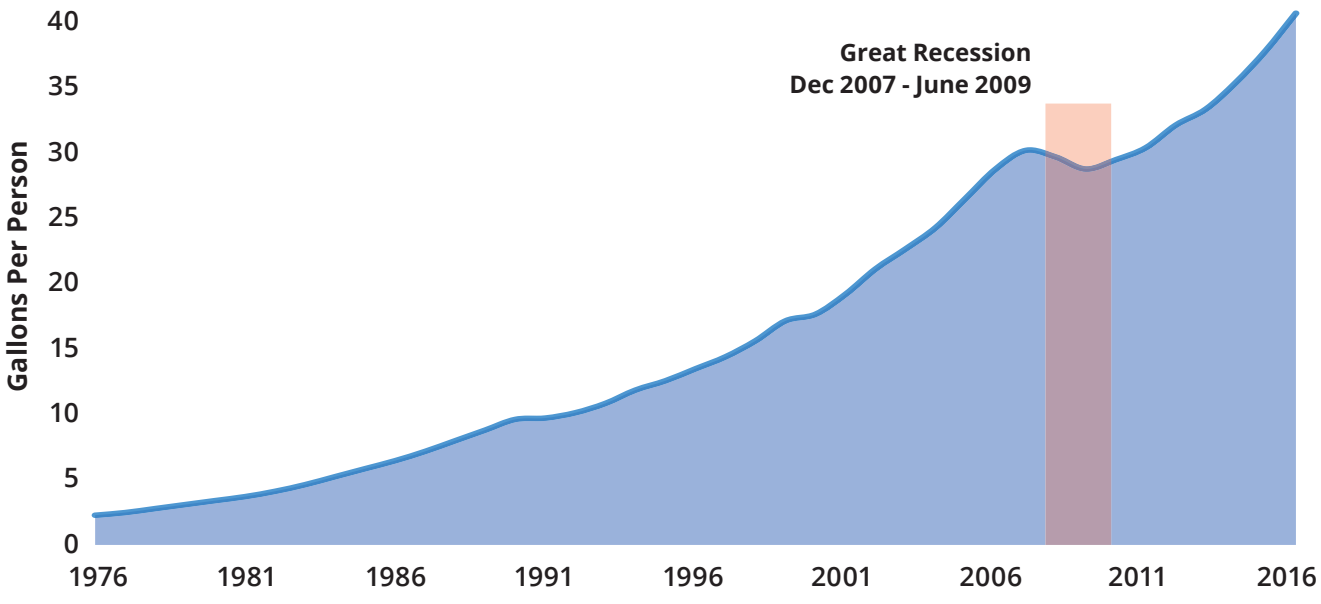
Consumers are wasting money on a product that costs thousands of times more than water from their faucet (see box on page 8), even though about 64 percent of the bottled water comes from municipal water systems.[28]

Pumping and producing bottled water creates significant equity and environmental problems. Bottled water companies profit from misleading advertising, commodifying public water supplies or selling overpriced tap water in environmentally damaging plastic bottles.

Bottled Water Trends

Bottled water consumption has skyrocketed since the late 1970s (see Figure 1).[29] In 1976, the average U.S. consumer drank less than 2 gallons of bottled water annually; by 2016, consumers drank 39 gallons per person.[30] From 2000 to 2017, the bottled water market has grown by more than 120 percent.[31]

Fig. 1 • Total Annual Per Capita U.S. Bottled Water Consumption



SOURCE: Beverage Marketing Corporation data; Rich (2013).

U.S. bottled water sales have continued to recover since the Great Recession,[32] increasing by 48 percent from 2010 to 2016.[33] Major bottled water companies — Nestlé Waters North America (NA), PepsiCo (Aquafina) and Coca-Cola (Dasani) — had rebounding sales after dipping during the recession, and private-label (store-brand) bottled water (especially Niagara) sales grew at a rapid pace (see Figure 2).[34]

In 2016, private-label bottled water made up more than one-quarter of sales (28.3 percent), more than the bottled water sales of Coca-Cola and PepsiCo combined.[35] Nestlé Waters NA has the largest share of the bottled water market for still water (see Table 1 on page 5).[36] Most bottled water is still water (non-carbonated, not sparkling).

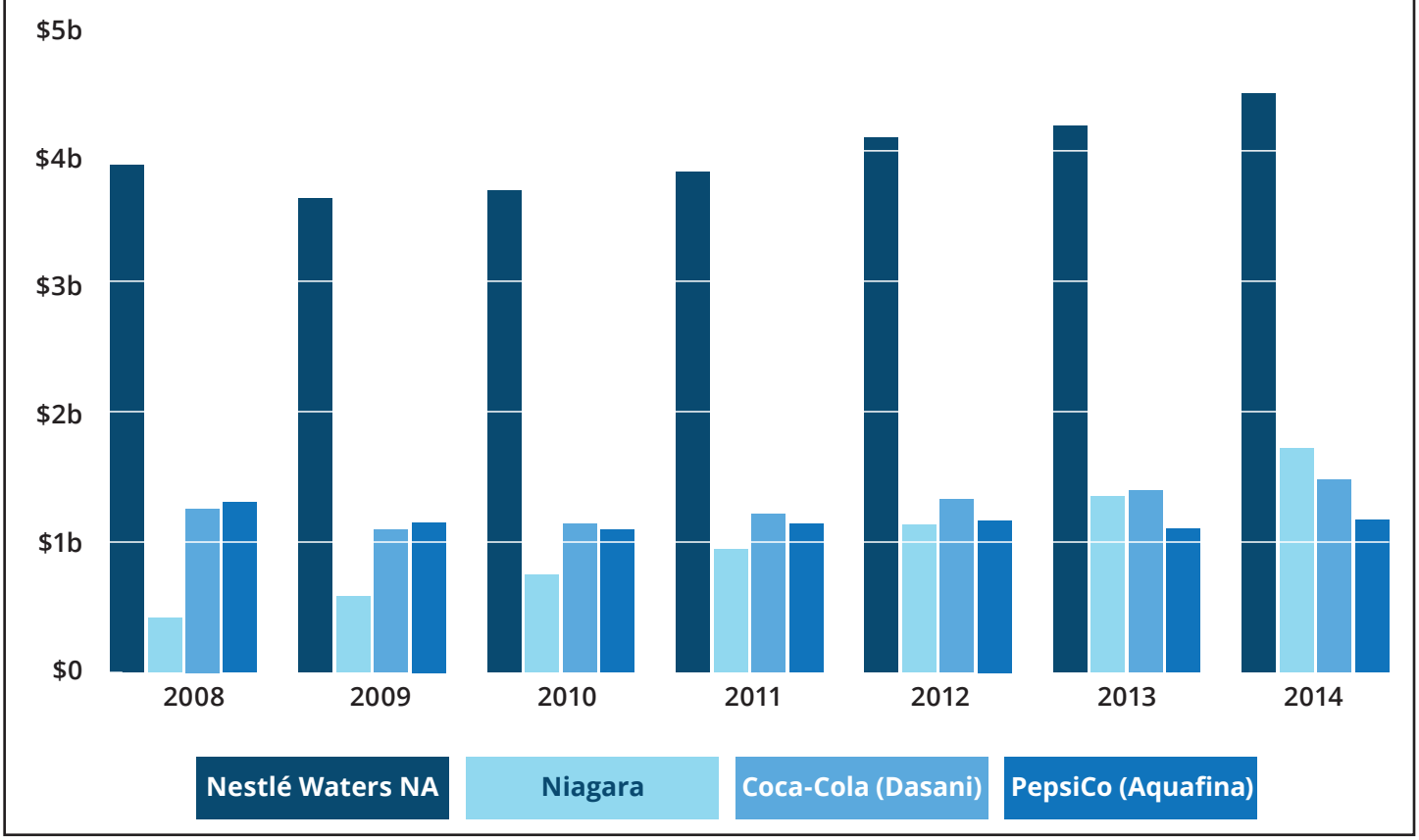
The beverage industry has capitalized on bottled water sales as a profit center, and to replace stagnant soft drink sales.[37] In 2016, bottled water sales surpassed soft drinks for the first time as the largest U.S. beverage category by volume.[38] From 2011 to 2016, the bottled water market grew 39 percent by volume, from 9.2 billion to 12.8 billion gallons, while the soft drink market shrank 8 percent in volume, from 13.6 billion to 12.5 billion gallons (see Figures 3.1 and 3.2 on page 6).[39]

U.S. bottled water industry sales totaled $14.7 billion in 2016, selling 7.6 billion units.[40] In 2016, still water accounted for 77 percent of sales, or $12.6 billion.[41]

The Bottled Water Industry's Latest Marketing Strategies

It takes a lot of advertising to drive demand for a product that is provided as an affordable public service that people can get out of their faucets, and the bottled water industry spends millions of dollars annually on advertising.[43] During the 2017 Super Bowl, where ad spots can cost up to $15 million (including production costs) for 30 seconds of air time, PepsiCo ran an ad for bottled water — a departure from its usual soft drink ads.[44]

Fig. 2 • Top 4 U.S. Bottled Water Companies: Estimated Wholesale Sales *(billions of dollars)*



SOURCE: Beverage Marketing Corporation data.

Table 1 • Top Bottled Water Companies Selling Still Water in the United States, 2016[42]

Top Vendors	2016 Sales (Millions)	Change vs. 2015	Market Share	Unit Sales (Millions)	Change vs. 2015	Avg. Price per Unit
Nestlé Waters North America	$2,326.00	4.4%	30.2%	689.3	4.5%	$3.37
Private Label	$2,183.00	6.4%	28.3%	824.4	7.9%	$2.65
Coca-Cola Co. (Dasani, Glaceau)	$1,041.30	7.3%	13.5%	385.6	5.5%	$2.66
PepsiCo (Aquafina)	$654.60	10.0%	8.5%	214.5	7.5%	$3.05
Total Bottled Water Category	$7,702.90	6.3%	100.0%	2848.2	4.8%	$2.70

SOURCE: *Grocery Headquarters*. April 2017.

The industry redoubled its marketing push after consumers turned away from pricier, brand name bottled water and even dropped bottled water entirely during the recession. Nestlé lowered prices in response to lagging sales and more rigorous competition from private-label water.[45] The company also has shifted its advertising tactics to promote the healthfulness of water compared to sugary beverages. In addition, it has targeted consumers in the developing world, new immigrants, mothers and children, and women and lower-income consumers.

The Marketing Hype of Bottled Water Purity and Health

Bottled water was once marketed as natural spring water, but today it is mostly filtered municipal tap water. The bottled water industry has promoted the purity of its products to sell tap water under non-specific labels that avoid questions about the origin of the water. This helps companies avoid controversy and potential lawsuits over how they advertise the source of their bottled water. In just five years, the share of bottled water from municipal tap water rose from just over half (51.8 percent) in 2009 to nearly two-thirds (nearly 64 percent) in 2014 (see Figure 4 on page 7).[46]

Companies are promoting bottled water as a healthy alternative to sugary beverages.[47] In 2017, the Beverage Marketing Corporation (BMC) observed that, "amid worries about obesity, diabetes, and other health matters, bottled water's lack of calories and artificial ingredients, convenience, and refreshing taste attracts health-conscious consumers."[48]

This is paired with not-so-subtle suggestions that bottled water is superior to tap water. A BMC executive stated that, "[bottled] water is both a tap water replacement and a refreshment beverage.... It was really one of the very first beverages to start to be consumed for health reasons."[49] Other companies blatantly aim to get consumers to abandon tap water. In 2000, the president of Quaker Oats Co.'s U.S. beverage division, which was acquired by PepsiCo the following year, bragged that, "When we're done, tap water will be relegated to showers and washing dishes."[50]

Targeting Vulnerable Populations

Bottled water companies have honed their marketing to target lower-income groups, people of color and immigrant communities in the United States — especially

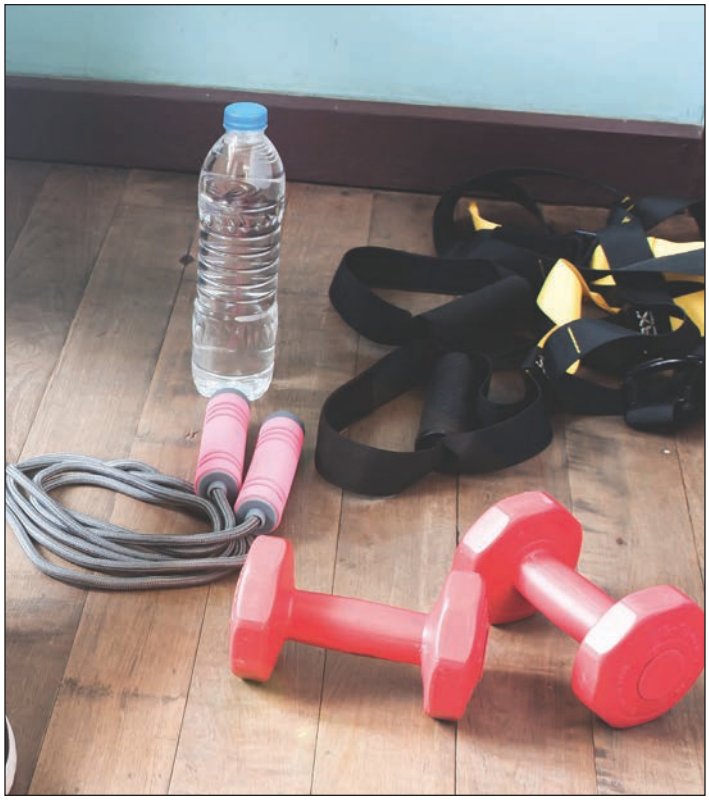
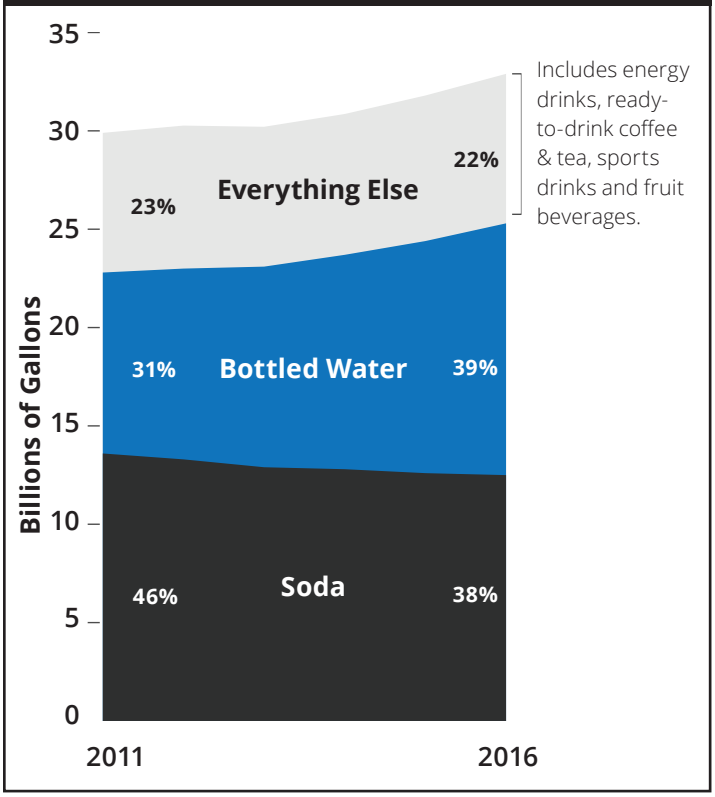
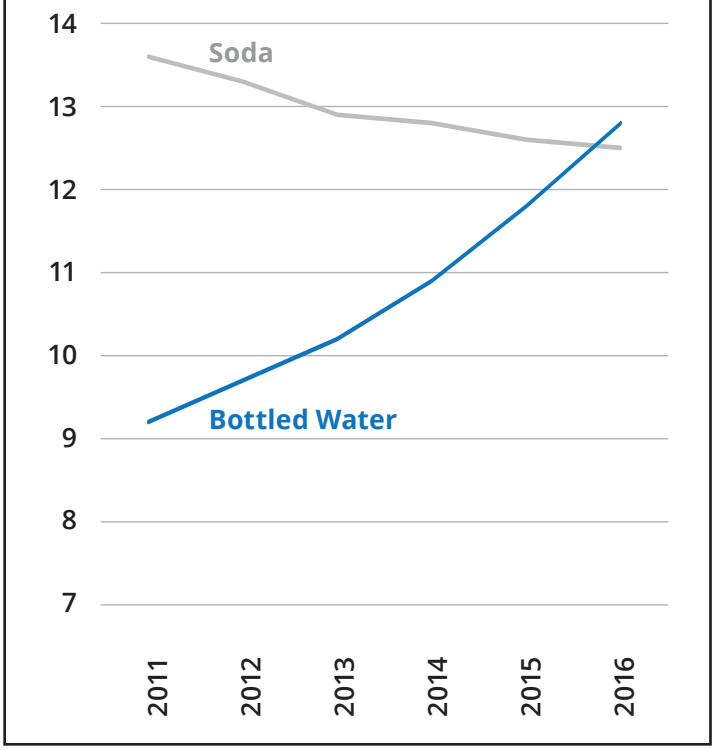


Fig. 3.1 • U.S. Liquid Refreshment Beverage Market Share by Volume



SOURCE: Food & Water Watch calculation from Beverage Marketing Corporation data.

Fig. 3.2 • Billions of Gallons of Bottled Water and Soda sold in the United States



SOURCE: Food & Water Watch calculation from Beverage Marketing Corporation data.

Latina mothers, children and women generally.[51] Industry marketing strategies are designed to hype the healthfulness and safety of bottled water to people who historically have lacked access to safe tap water (especially recent immigrants), and they prey upon those who may mistrust tap water and on communities concerned about obesity and sugary beverages.

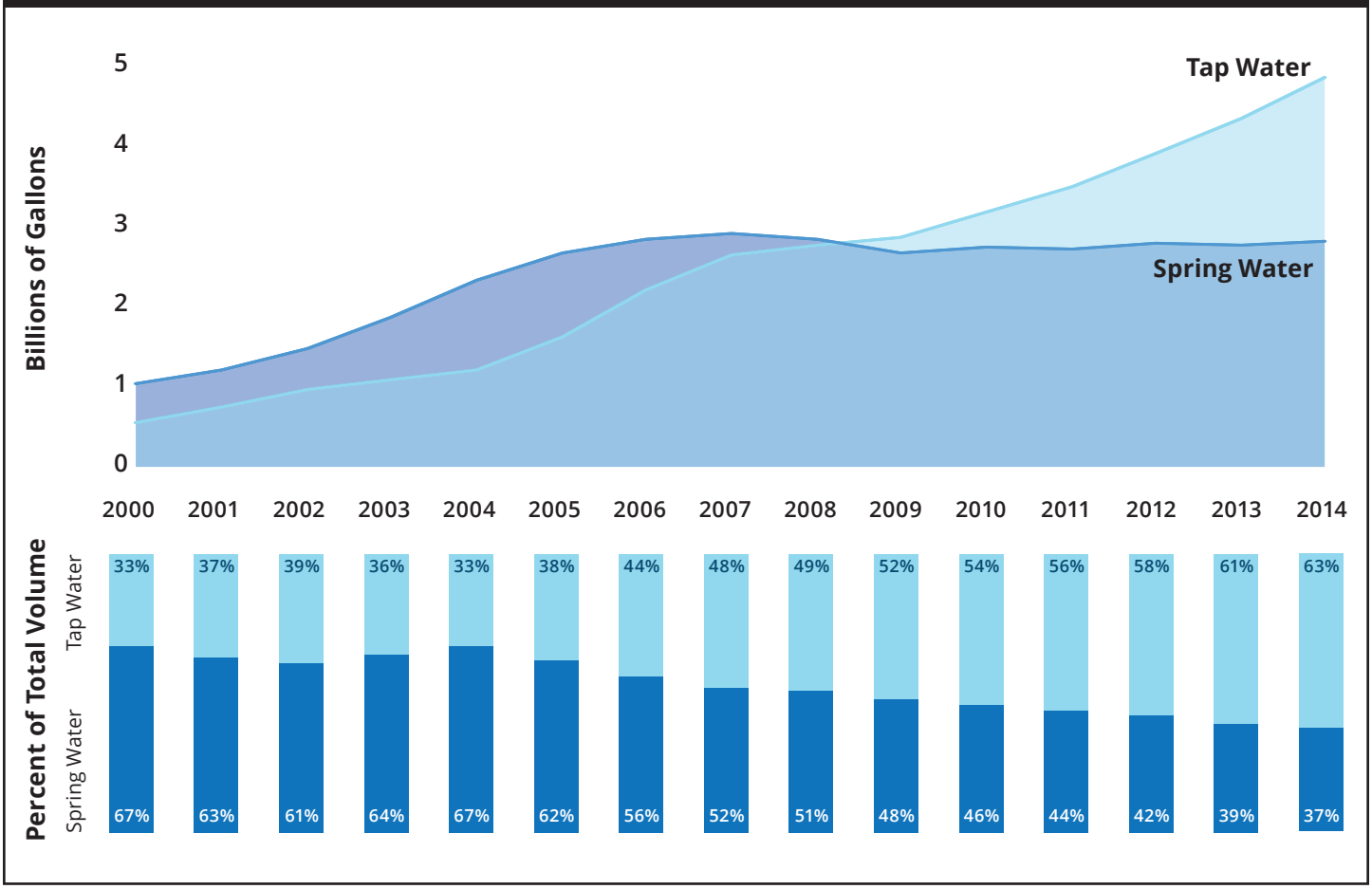
Women: The industry promotes bottled water to health-, beauty- and weight-conscious women. It considers women's concerns about skin health and weight loss as a motivating factor in purchasing bottled water. The marketing research firm Mintel observed that bottled water's association with "feeling full or helping with weight loss also highlights opportunities for cross-branding" and recommends marketing to younger women because of their "concern [for] skin health and weight loss."[52]

Nestlé's long-standing Contrex brand, targeted at women, is advertised as "the ideal water for the weight conscious."[53] The water comes in "shapely, easy-grip bottles" and touts health claims such as "supporting strong bones and steady blood pressure...helping women feel great and look beautiful."[54] In 2013, Nestlé launched Resource water nationwide, which the company's marketing manager bragged was promoted to women "on the trendy side and higher-income side, and the bull's-eye is 35 years old."[55]

Parents, children and young people: The industry is marketing bottled water to children — and to their parents who buy it.[56] Much of the advertising focuses on children's "healthy hydration" and on concerns about child obesity.[57] The industry offers bottles that are sized and shaped to fit into children's hands, with special caps.[58] The companies emblazon these products with cartoon characters, such as Nestlé's "Share-a-Smile kid-designed" bottled water.[59] These infant-to-teenager consumers represent over one-fourth of the U.S. population, which the industry estimated was a population that could consume as much as 14 billion gallons of bottled water a year.[60]

The industry even makes bottled water for babies, such as Comforts for Baby purified water with fluoride added (sold at Kroger stores, among others), which was recalled in 2017 for the possible presence of mold (see box on page 10).[61] However, experts do not advise that babies under six months old drink water because of possible risks of diarrhea, malnutrition, water intoxication and exposure to parasites.[62]

Fig. 4 • U.S. Retail Bottled Water by Source



SOURCE: Beverage Marketing Corporation data.

People of color, lower-income groups and immigrant communities: According to a 2014 market research report, adults that consume large volumes of bottled water are more likely than average to be African American, and Latinos make up the key customer base for bottled water.[63] Researchers from the Medical College of Wisconsin and the University of Wisconsin found that Latino and African-American parents were more likely to buy bottled water than white parents, and they are dishing out more money on bottled water primarily because of perceived health benefits.[64] According to the researchers, these "patterns may produce adverse health effects and exacerbate economic disparities."[65]

The bottled water industry markets to Latino immigrants — despite admitting that tap water is much cheaper and usually safer — in part by exploiting bottled water as part of the immigrant "heritage" of coming from places with less access to clean drinking water.[66] Nestlé Pure Life's target audience is recent Latin-American immigrants, particularly mothers.[67] In 2014, Nestlé spent over $5 million advertising Pure Life — the most advertised U.S. brand — and three-quarters of this spending ($3.8 million) went to Spanish-language television advertising.[68] In 2015, Pure Life initiated a campaign to encourage children to drink more water.[69]

Less Stringent Regulation for Bottled Water

Contrary to the industry's marketing, bottled water is not necessarily a purer, safer, healthier alternative to tap water.[73] Federal oversight of bottled water is weaker than for tap water. The FDA regulates bottled water as a "food" under the Federal Food, Drug, and Cosmetic Act, whereas the Environmental Protection Agency (EPA) regulates tap water under the Safe Drinking Water Act.[74]

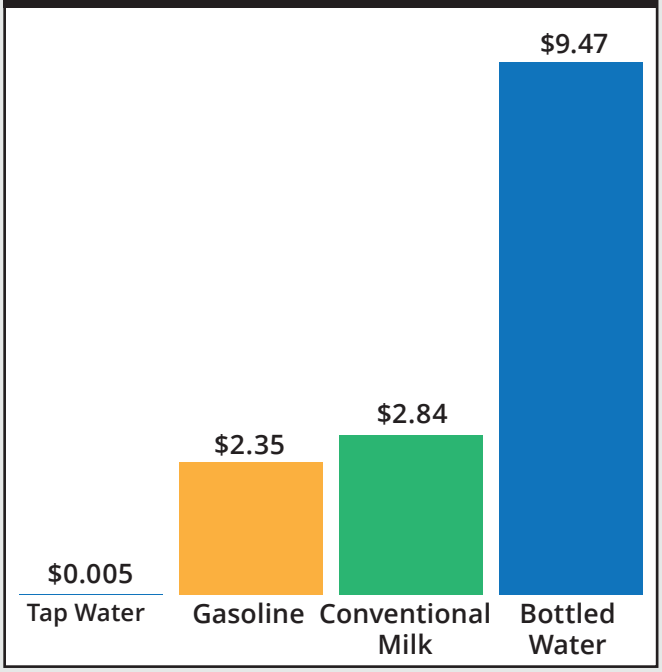
The U.S. Government Accountability Office (GAO) found that the FDA places low priority on bottled water and devotes fewer resources to it than to food, because the agency considers it a lower health risk compared

The Price of Tap vs. Bottled

Bottled water is expensive. The average cost per gallon of municipal tap water is half a penny — about $0.005 in 2015.[70] This is the cost to pump, treat and send water to the faucet.[71] Water itself is a common resource and is priceless.

On the other hand, the price for a single-serve bottle of water ranges from $1.00 to $1.50. Using an average of $1.25, a gallon's worth of single-serve bottled water costs almost $9.50 — nearly 2,000 times the price of tap water, three times the national average price for a gallon of milk and four times the national average price for a gallon of regular-grade gasoline (see Figure 5).[72]

Fig. 5 • Cost per U.S. Gallon



SOURCE: Food & Water Watch calculation from AAA, *New York Times* and USDA data.

to many food products.[75] Between fiscal years 2000 and 2008, the FDA averaged fewer than three full-time employees devoted to inspecting bottled water plants.[76]

Federal law requires the EPA to oversee state regulation of tap water.[77] The 1974 Safe Drinking Water Act protects public drinking water supplies.[78] It enables the EPA to establish and enforce health standards for contaminants in public drinking water and mandates public notification of any violations and public distribution of annual quality reports.[79] Specifically, the EPA's Maximum Contaminant Level (MCL) establishes legal limits on the level of contaminants allowed in drinking water.[80]

Federal law does not give the FDA authority to oversee state regulation of bottled water, only bottled water sold across state lines,[81] leaving out the 60 to 70 percent of water bottled and sold within a state.[82] For the bottled water that the FDA regulates,[83] it requires bottlers to test their source water once a week for microbiological contaminants, unless the water comes from a municipal source, in which case it has to meet EPA testing requirements for tap water.[84] Bottlers must test their source water only once a year for chemical contaminants and once every four years for radiological contaminants.[85] States have enacted their own laws and regulations for bottled water, but these are less consistent and comprehensive than the regulations for tap water.[86]

The FDA also inspects bottling plants irregularly, with some district offices inspecting them only once every two or three years, and others inspecting plants even less frequently.[87] Unlike public drinking water systems, which maintain water testing records for 5 to 10 years, the FDA requires bottling facilities to keep test records for only 2 years.[88] Records could be destroyed faster than the FDA inspects the plants, and the FDA may never learn of contamination problems.[89]

When inspectors do go to bottled water plants, they commonly find problems. The most recent review of FDA bottled water inspections by the GAO reported that more than one-third of FDA inspections found potential problems between 2000 and 2008, but the GAO has not revisited this issue since 2009.[90] Yet, the FDA infrequently took any action to enforce its standards, and often asked companies to voluntarily address issues.[91] In a few cases, the FDA turned investigations over to state health inspectors.[92]

Bottled Water Industry Lobbying

The bottled water industry has spent millions lobbying the U.S. Congress and federal regulators. From 2014 to 2016, the industry spent nearly $29 million on in-house and hired lobbyists (see Table 2 on page 9).

The International Bottled Water Association (IBWA), Nestlé Waters NA, Nestlé USA and Coca-Cola lobbied Congress on bottled water specifically and on related issues such as water infrastructure, California drought relief and a National Park Service (NPS) policy that allowed parks to ban bottled water sales, among others.

The IBWA has been particularly opposed to the NPS bottled water ban.[103] In 2011, the NPS implemented the ban to combat bottled water plastic waste at national parks.[104] The burden of this pollution is magnified in remote parks that pay premiums for waste removal.[105] By 2013, major national parks such as the Grand Canyon were participating in the ban, and the IBWA significantly increased its lobbying expenditures.[106] Bottled water allies in Congress unsuccessfully tried to derail the NPS policy every year from 2015 to 2017, but failed.[107]

In August 2017, however, the Trump administration reversed the NPS policy.[108] The NPS justified the action by claiming that the ban removed healthy options while allowing less-healthy options, such as soft drinks, to remain at parks.[109] A month later, an NPS report showed that the ban policy had worked, yet the Trump administration maintained its reversal.[110] According to the report, the bottled water ban had prevented up to nearly 2 million plastic bottles from entering the waste stream per year — avoiding up to almost 112,000 pounds of plastic waste and up to 141 metric tons of carbon dioxide emissions, and saving up to 419 cubic yards of landfill space each year.[111]

Bottled Water Is Not Better Water

Bottled water is usually no safer than tap water, and in many cases it can be less safe. A study by researchers at the Medical College of Wisconsin and the University of Wisconsin-Milwaukee found that children who drank primarily bottled water were more likely to get sick from acute diarrhea than children who drank primarily tap water.[112] The researchers suggested that this might be due to contamination of bottled water.[113]

The Environmental Working Group confirmed these contamination concerns in 2008, its most recent investigation of bottled water contaminants. It looked at 10 major brands of bottled water and found 38 chemical contaminants (averaging 8 per brand) that can be harmful to human health, including: disinfection byproducts, caffeine, pharmaceuticals, heavy metals and minerals (e.g., arsenic and radioactive isotopes), fertilizer residue containing nitrate (an ingredient associated with blue-baby syndrome and other health problems) and ammonia, and other industrial chemicals such as solvents, plasticizers and propellants.[114] Nine brands contained industrial synthetic chemicals, including isobutane, octane, hexane, toluene and acetaldehyde that could cause cancer, liver and kidney damage, and neurotoxicity.[115]

Single-serve bottled water is commonly packaged in polyethylene terephthalate (PET) plastic, which contains compounds such as benzene, toluene and xylenes.[116] PET bottles can leach toxins including acetaldehyde, antimony[117] and formaldehyde.[118] Acetaldehyde is a possible human carcinogen that can cause genetic mutations, and formaldehyde can cause DNA and chromosome damage.[119] Antimony has endocrine-disrupting effects.[120] High temperatures, long shelf life and low pH levels may drive toxins to leach into bottled water.[121]

Table 2 • Bottled Water Industry U.S. Lobbying Expenditures, 2014-2016

Company/Trade Association	International Bottled Water Association	Coca-Cola Company	Nestlé Waters North America	Nestlé USA	Total
2014 Lobbying Expenditures	$360,000[93]	$9,320,000[94]	$130,000[95]	$1,226,871[96]	$11,036,871
2015 Lobbying Expenditures	$420,000[97]	$8,670,000[98]	$120,000[99]	N/A	$9,210,000
2016 Lobbying Expenditures	$580,000[100]	$7,930,000[101]	$120,000[102]	N/A	$8,630,000
Total 2014-2016	$1,360,000	$25,920,000	$370,000	$1,226,871	$28,876,871

Total lobbying expenditures for bottled water industry, including lobbying on bottled water legislative issues by either or both in-house and hired lobbying firms.

SOURCE: Center for Responsive Politics.

Bottled Water Recalls Challenge Safety Myth

Between 2002 and 2017, the FDA issued 35 bottled water recalls — averaging more than two annually — due to contamination from dangerous substances, such as bromate and arsenic[122] (which may increase cancer risks), as well as the presence of E. coli, mold, pieces of plastic and milk allergens.[123] Recent recalls included:

- In 2015, Niagara recalled nearly 40 million bottles of water from 14 brands, across 15 states, after the source spring water tested positive for E. coli.[124]
- Coca-Cola had two Dasani recalls in 2014 and 2015 — totaling nearly 8 million bottles — due to "the appearance of mold" and possible pieces of plastic in some water.[125]
- In July 2017, Kroger recalled its bottled water for babies, "Comforts for Baby Purified Water With Fluoride," because it "may show signs of mold."[126]

Impacts to Essential Water Resources and the Environment

Water bottlers like Nestlé present a threat to the environment near their bottling facilities: they deplete community water supplies either by pumping groundwater, or by taking municipal water at a significant discount.

Bottlers' groundwater pumping operations can harm the local environment as well as natural resources that communities rely on for drinking water, farming, recreation and other uses.[127] Groundwater sources are usually connected to surface waters,[128] and when an aquifer is over-pumped, the water levels of a connected surface water body can fall and water flows can change.[129] State officials have said that large-scale groundwater extraction, such as for water bottling plants, could reduce the availability of local groundwater and surface water supplies to the detriment of the natural resources that depend on them.[130] When bottled water companies extract groundwater sources, they do not replenish what they take.[131]

Community Conflict and Nestlé's Pursuit of Public Water

Nestlé is on the hunt for water across the United States. Public opposition to groundwater extraction has led the company to turn to municipal tap water.[132]

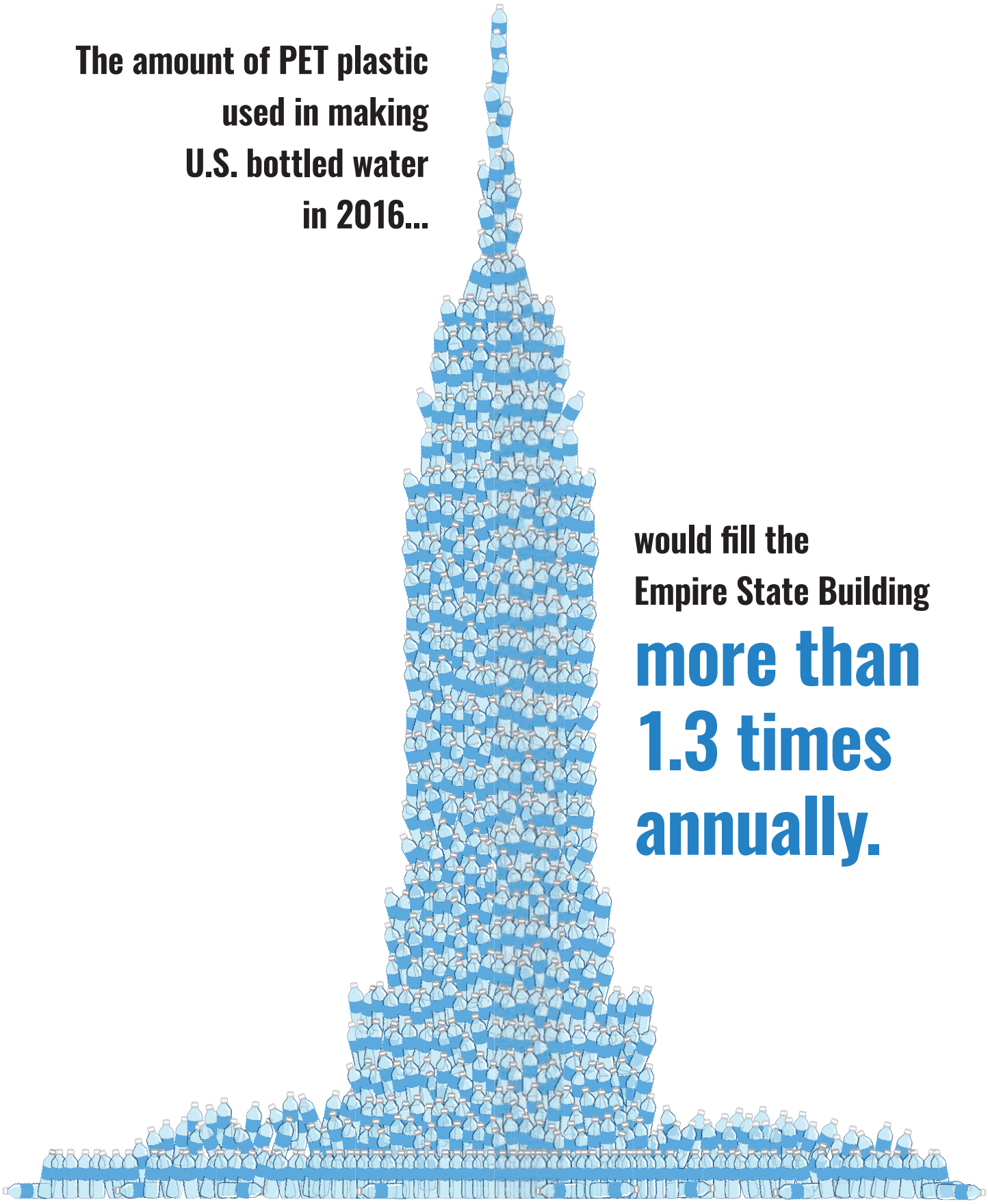
Companies that bottle water from municipal sources often pay less per gallon than households pay for water service. Other water ratepayers essentially subsidize the cost of providing tap water to companies that then sell it for a profit.[133]

Fights over water bottling plants have erupted across the country as communities stand up to companies.

Pumping groundwater during California drought: During the historic California drought, some bottled water companies — such as Nestlé Waters NA's Arrowhead brand and Otsuka's Crystal Geyser brand continued to take and bottle groundwater throughout the state.[134] Nestlé's California water use increased by 19 percent during the 2011 to 2014 drought years, withdrawing 705 million gallons of water annually — enough to supply nearly 2,200 families annually.[135] Nestlé Waters NA's CEO refused to consider moving bottling operations outside of California, stating: "Absolutely not. In fact, if I could increase it, I would.... If I stop bottling water tomorrow, people would buy another brand."[136]

Nestlé drew particular criticism during the drought for pumping on a permit that had been expired for nearly three decades, taking water from the San Bernardino National Forest to sell under its Arrowhead brand.[137] The company paid only $524 annually in permit fees to pump, amounting to $0.00002 per gallon for the nearly 25 million gallons pumped in 2014.[138]

The amount of PET plastic used in making U.S. bottled water in 2016...



would fill the Empire State Building

more than 1.3 times annually.

** not to scale*

SOURCE: Food & Water Watch calculation from Gleick and Cooley, U.S. EPA, U.S. EIA, Beverage Marketing Corporation, Empire State Building and plastics industry data.

Nestlé not welcome in Columbia River Gorge: Nestlé has tried to open a bottling plant in the Columbia River Gorge for nearly a decade, but has failed. The town of Enumclaw, Washington rejected Nestlé's overtures in 2008.[139] The company's seven-year campaign in Cascade Locks, Oregon for a plant that would pump 100 million gallons annually was rejected by a county referendum in 2016 that banned water bottling, but Nestlé continued to press for the plant in 2017.[140] In Waitsburg, Washington, the city council told Nestlé in 2016 that it was not interested in a 150 million gallon per year bottled water plant.[141] In 2017, the mayor of Goldendale, Washington rejected a similar Nestlé plant proposal.[142] At each step, communities fought to keep Nestlé out of the Columbia River watershed, despite aggressive and well-financed efforts to secure new plants.

Michigan's battle with Nestlé: Michigan residents and Indigenous communities near Osceola Township have been fighting Nestlé's plans to nearly triple a local plant's extraction to 210 million gallons annually.[143] Nestlé only pays an annual $200 water use fee and a one-time $5,000 application fee to extract hundreds of millions of gallons.[144] Nestlé's cheap extraction of Michigan water is in contrast to high water service fees paid by Flint residents for contaminated drinking water and by Detroit residents, tens of thousands of whom experience water shutoffs over unaffordable water bills each year.[145] In 2017, Osceola Township blocked a permit that Nestlé needed to increase pumping, and although the permit remained under review in 2017, public opposition has delayed approval.[146]

Bottled Water and Emergencies

When disasters like hurricanes damage water treatment plants and distribution systems, or when communities like Flint, Michigan experience a crisis in their water infrastructure that puts public health at risk, some communities may need to rely on bottled water for a short period of time. But it is important to be clear: the role of bottled water in providing access to safe water during an emergency does not make it an acceptable substitute for daily use in communities that are not experiencing an emergency.

Communities without safe tap water need resources to rebuild damaged infrastructure — to a standard that makes our water systems more resilient in the face of future threats. While this rebuilding takes place, there are options besides bottled water to make sure that people have access to clean water for drinking and sanitation — ranging from small treatment systems to bulk water distribution.[147]

Bottled Water Industry Litter Pollutes Oceans

Plastic bottles from the expanding bottled water industry mostly end up as litter and in landfills. In 2016, 4 billion pounds of PET plastic was used for bottled water production — enough to more than fill the Empire State Building — and 43 percent more than the 2.8 billion pounds used in 2007.[148] In 2015, the majority of PET plastic water bottles — an estimated 70 percent — were not recycled; these bottles ended up in landfills, as litter or incinerated, amounting to nearly 3 billion pounds of waste.[149] The cleanup burden falls to local governments, which spent over $100 million to dispose of non-recycled plastic bottled water waste in 2016.[150]

Much of this plastic waste ends up in our oceans and surface waters. A 2017 study calculated that 18 trillion pounds of plastic has been produced globally between 1960 and 2015, 79 percent of which (about 14 trillion pounds) has accumulated in landfills or the natural environment, including in our oceans.[151] In the Pacific Ocean, a "plastic soup" dubbed the "Great Pacific garbage patch" circulates among four ocean currents — it is the world's largest dump.[152] High concentrations of plastics pollution are also reaching the Arctic Ocean.[153]

This plastics pollution damages ocean ecosystems and marine life. In 2017, one scientist filmed the moment when plankton ingested plastic, documenting it

entering the food chain.[154] A 2013 study showed that fish suffered liver toxicity from ingesting plastics pollution.[155] A 2014 University of Ghent study estimated that regular human mussel and oyster consumers ingest between 1,800 to 11,000 microparticles of plastic annually.[156] By 2012, nearly two-thirds of seabird species had ingested plastic and had plastic debris in their organs, which can cause gut blockages and organ damage.[157]

Plastics, Energy and Fracking

It takes a lot of energy and fossil fuels — mostly from fracked gas — to make billions of pounds of plastic water bottles annually. A Pacific Institute study found that, in total, the manufacture, production and transportation of bottled water is 1,100 to 2,000 times as energy intensive as the treatment and distribution of tap water.[158] Based on this research, 2016 U.S. bottled water consumption used the energy input equivalent of about 64 million barrels of oil (a range of 45 million to 82 million barrels).[159] The gasoline from 64 million barrels of oil could more than fuel the round-trip commutes of the population of the entire Detroit, Michigan metropolitan area for one year.[160] This amount of gasoline is also equivalent to the annual greenhouse gas emissions from nearly 2.5 million passenger cars, or nearly 11.5 million metric tons of carbon dioxide emissions.[161]

The bottled water industry relies on PET plastic to package its single-serve bottles, and the plastics industry has reaped under-the-radar benefits from the environmentally destructive fracking boom.[162] Plants that convert natural gas into petrochemicals such as plastics emit massive amounts of air pollutants including polycyclic aromatic hydrocarbons, carbon dioxide and ozone-creating volatile organic compounds (such as benzene and toluene) and nitrogen oxides.[163] This petrochemical production has human health effects. Several studies have demonstrated that exposure to these pollutants is associated with heightened cancer risks, acute irritative symptoms (such as nausea and eye and throat irritation) and respiratory-related illnesses, especially in children.[164]

Conclusion: Take Back the Tap

The production of bottled water causes significant equity and environmental problems, including taking water from communities that depend on it, polluting the environment, contributing to global warming and creating billions of empty bottles that end up as waste.

Instead, federal, state and local governments need to protect the quality and integrity of our water sources so that everyone has access to safe, affordable tap water that they trust.

Our public drinking water systems desperately need federal investment, but federal funding for water and sewer systems is decreasing. Reliance on bottled water may make people less inclined to support public investment in municipal water systems, even though nearly two-thirds of bottled water comes from municipal sources.[165] Multinational bottling companies benefit from public disinvestment, as the chairman of Nestlé Waters stated in 2009: "We believe tap infrastructure in the U.S. will continue to decline.... People will turn to filtration and bottled water for pure water needs."[166]

The nation's drinking water pipes span approximately 1.5 million miles, and most public networks were built at least half a century ago.[167] This infrastructure is wearing out, and many pipes have reached the end of their usefulness, with much of the rest expected to wear out within the next few decades.[168]

In total, our drinking water, wastewater and stormwater systems need a $35 billion per year investment over the next 20 years.[169] Since peaking in 1977, real, inflation-adjusted federal funding for water infrastructure has been cut by 74 percent as of 2014. On a per person basis, it has dropped 82 percent — in 1977 the federal government spent almost $77 per person (in 2014 dollars), but by 2014 that support fell to just under $14.[170]

From 2010 to 2014, while U.S. bottled water increasingly came from municipal tap water sources, total federal funding for public water infrastructure fell from $6.9 billion in 2010 to nearly $4.4 billion in 2014, a 37 percent drop.[171] Per capita funding fell from just under $23 in 2010 to just under $14 in 2014, a drop of nearly 39 percent.[172]

While there has been growing recognition of the need for investment in the United States' aging infrastructure, how we will finance it is less clear. Plans that rely on privatization including public-private partnerships, such as those advanced by the Trump administration, are not acceptable. Private control of our water systems will lead to rate hikes, job loss, lack of accountability and poor service. It is imperative that we dedicate long-term federal funding to our water and wastewater systems to ensure that all people have access to safe, affordable and locally managed tap water.

The following steps must be taken to safeguard our essential water resources:

- **Consumers should "Take Back the Tap," reclaiming the water that flows from our faucets.** Tools like Food & Water Watch's *Guide to Safe Tap Water and Water Filters*, annual quality reports from public water systems, and filtration systems that can improve the taste and quality of tap water can help people make informed choices about their tap water.
- **Students should also "Take Back the Tap," and organize to get colleges and universities to eliminate bottled water on campus.** Over 70 U.S. colleges and universities have passed full or partial bottled water bans, and many more have increased access to public tap water by installing on-campus water bottle filling stations.
- **The U.S. Congress should pass the Water Affordability, Transparency, Equity and Reliability Act (WATER Act)**, which would dedicate federal funding to our drinking water and wastewater infrastructure and help ensure that everyone has safe tap water.
- **Surface and groundwater resources must be managed under a public trust framework.** The public trust doctrine enables sovereign states to hold and protect natural resources.[173] Under this doctrine, running water — just like the air we breathe and the sea — is a common resource[174] and should be protected and preserved for the public.[175]
- **America must move OFF fossil fuels and achieve 100 percent renewable energy by 2035.** We must end reliance on dirty fossil fuels like fracked natural gas and oil, as well as highly polluting plastics made from petrochemicals.

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Campus Campaigns to Ban Bottled Water

College students are often champions of activism, and today many are successfully fighting the bottled water industry. The production, consumption and distribution of bottled water contribute to a host of social, environmental and economic problems. Fortunately, students are a driving force in the movement to ban bottled water and stop the commodification of public water. To date, 73 campuses nationwide have enacted bottled water bans, and students have led efforts at over 100 schools to organize their communities and change how their campuses consume water. Learn how you can become a student organizer and launch a Take Back the Tap campaign on your campus by visiting **foodandwaterwatch.org/campus-program**.

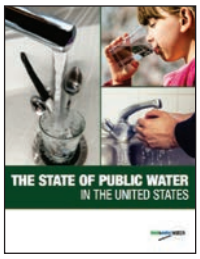
More Food & Water Watch Research on Water

Water. Jobs. Justice. The Case for the Water Affordability, Transparency, Equity and Reliability (WATER) Act

The WATER Act is the most comprehensive approach to improving our water systems and helping ensure that every person has access to safe and clean water in the United States. We need a major federal investment in our public water infrastructure to renovate our nation's old and lead-ridden water pipes, stop sewage overflows and avert a looming water affordability crisis. The WATER Act will simultaneously deliver water justice to the millions of people in the United States who lack access to safe water, while creating nearly a million jobs.

How Fracking Supports the Plastic Industry

The fracking boom has produced an oversupply of cheap ethane in the past few years. This surge has been a boon for the plastics industry, which relies on petrochemical manufacturing to turn ethane (a hydrocarbon present in natural gas) into plastics. In 2012, chemical companies started aggressively investing in petrochemical plants and export facilities focused on tapping the ethane glut. The petrochemical industry produces hydrocarbon-based chemicals derived primarily from processed natural gas and, to a lesser extent, crude oil. Petrochemicals are the building blocks to manufacture a wide range of goods, including plastic packaging, beverage bottles, tires and more.



The State of Public Water in the United States

Food & Water Watch reviewed eight years of data from the Federal Safe Drinking Water Information System to document the ongoing annual shift toward public ownership. Food & Water Watch also conducted a comprehensive survey of the water rates of the 500 largest U.S. community water systems and found that large for-profit, privately owned systems charged 59 percent more than large publicly owned systems. This is the largest water rate survey of its kind in the country.

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