

Nancy West-Brake  
"400 Years Is A Long Time"  
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## 400 Years Is A Long Time

How much water do you drink? We know all the benefits: it detoxes us, helps us maintain energy, reduces headaches, makes our skin better, our digestive tracts work better, and even improves brain function. All the fitness people tote water to the gym, the doctor asks us how many glasses we manage per day, and it's part of everyone's weight loss plan. All good, right? Pat yourself on the back for drinking water. But how are you *carrying* the water you drink? If the answer is an Aquafina bottle or some other store-bought plastic bottle, 'a moment on the lips' is costing both us and our planet.

Let's start with what these bottles are made of. Look at the bottom of your bottle for a number inside a triangle. It is mostly likely a "1", which means it's made from a plastic known as PETE or PET (polyethylene terephthalate), which is produced using oil. Your bottle may only cost you a dollar or two, but the price to make it was far more. 90% of what you pay for bottled water comes from the cost of making the bottle. 17 million barrels of fossil fuel oil are used to make plastic bottles in the USA every year. Another 59 million barrels are used to package, transport, store and dispose of bottled water plastic. Additionally, just putting water into bottles releases 2.5 million tons of carbon dioxide into the atmosphere every year. The good news is that Plastic #1, usually clear and also used to make soda water bottles, mouthwash bottles, salad dressing bottles and peanut butter containers, is picked up by most curbside recycling programs. #2, HDPE (high density polyethylene) usually opaque and found on the bottom of juice bottles, milk jugs, butter tubs and a host of other things in your house, is also accepted by most recycling programs. There are five more number categories for plastic in general; some are accepted for recycling, some not, depending on how dangerous their chemical components.

So if we recycle the bottles, we're okay. Well... no. First off, not that many of us recycle.

According to the EPA, which used data from the American Chemistry Council and the National Association for PET Container Resources, “the amount of recycled plastics is relatively small”: 3.0 million tons in 2017. That’s a little over 8 percent of the amount of plastic generated. How much per year? 35.4 million tons, with 14 million of that from plastic bags, sacks, food wraps and- you guessed it- plastic bottles.

How much, then, do we recycle in the Tarheel State? Not nearly enough. A reported 95 percent of us have access through local government to some kind of recycling, but we only recycle 30 percent of plastic PET bottles. We throw away enough plastic bottles **every week** to line the Outer Banks 28 times. Every 3.9 seconds, we toss enough bottles to reach the height of the Cape Hatteras Lighthouse. And in a year, we discard enough plastic bottles to line the length of I-40 715 times. Americans, in general, open 1,000 bottles of water every second. You get the picture.

Why isn’t more recycling done? While ten states (HI, CA, OR, IA, MI, CT, NY, VT, ME, MA) offer bottle deposits, North Carolina does not. We tried legislation; in 2005, the NC General Assembly passed House Bill 1465 banning the disposal of recyclable plastic bottles effective October 2009. While more than 15,000 people work in the state’s recycling industry, the disposal ban is not enforced. NC landfills are still getting more than a billion recyclable bottles in them every year. Make that two million **tons** for landfills throughout the U.S.

Our landfills weren’t always this full. We used to sell plastic to China. Really. The United States, along with other wealthy countries, used to pay China to take its recycled plastic scrap because it was cheaper than doing it at home. Then, in 2018, after 25 years of taking other countries’ plastic, China put an import ban into effect. (China happens to be #1 in the top twenty countries whose plastic waste ends up in the world’s oceans. United States is #20.)

You've probably seen pictures of dead whales or sea birds with their stomachs full of plastic. It's worse than you know. Plastic waste kills 1.1 million ocean creatures every year. Sea turtles mistake plastic bags for jellyfish, sea birds mistake plastic pellets for fish eggs, and not as much plankton, a marine food source, can grow because the trash blocks the sunlight. Plastic entangles the wildlife and also starves it to death. This is partly because so much plastic ends up there; it's estimated that one tenth of all plastic created is washed downstream or dumped eventually into the oceans. You've heard of the Great Pacific Garbage Patch? If you haven't, look it up. It's actually two distinct collections of trash, primarily plastic, and held together by plastic. One is near Japan and the other is between Hawaii and California. Both are too big to measure and quite a bit is below the surface. About 54 percent of the content come from land, while an estimated 20 percent comes from boats that drop debris, including fishing nets.

Another problem with plastic both at sea and on land is that it leaches harmful pollutants. Plastic is not biodegradable, meaning that it can't be broken down by anything living. It can be affected by sun and rain, which doesn't get rid of it, but degrades it into small pieces: microplastics. That means its chemical components and toxins are released into the environment, and they **stay there**. Those can sink to the ocean floor; an estimated 70% of marine debris ends up there. And in landfills, it takes exposure to sun and rain to reduce the plastic to microplastics. How long? An original estimate was 400 years, but it may take **up to 1,000 years** for each individual plastic bottle to break down. Why the discrepancy? Because most trash in landfills is buried, either by more trash or other means, where it never sees the light of day.

Feeling a little guilty about your bottled water yet? Let's talk about the water in it.

"It's pure water," you say. "Better than what comes out of my tap." Are you sure? It may have a name that evokes a pure mountain spring or brook, but only half of bottled water companies actually use

spring water, which flows naturally to the surface. The rest is “purified water”, which basically means municipal tap water that has been filtered or treated. Dasani and Aquafina fall into this group, while Crystal Geiser and Arrowhead do use spring water. As far as testing goes, bottled water is actually tested four times less often for microbes and water pollution than the tap water coming out of your sink right now.

And there’s more: you know that microwaving food in plastic may release chemicals into the food. Well, bottled water contains chemicals from its plastic like BPA (bisphenol A, an industrial chemical used to make plastics) and antimony, a chemical used in flame retardant. If reused, the bottles can leach chemicals like DEHA, a possible carcinogen, and BBP, a potential hormone disruptor.

And then there’s the question of the spring water sources. When humans take water from one place, they don’t replace it. Many of the big brand names for bottled water are headquartered in California, so they take their water from there. California occasionally has droughts, and Nestle got into hot water, so to speak, when it was paying the US Forest Service to pump 30 million gallons out of the San Bernadino Mountains during a drought. For how much? \$524 a year. Without a current permit. Bottled water companies reportedly resell water at 2,900 times the price of regular tap water. Fiji Water, Evian and San Pelligrino reportedly import water into the US and sell it here, far from the extraction sites. Entire lakes and aquifers can run dry if water is diverted. Nestle reportedly created a water shortage in Pakistan.

What’s to be done? If we do nothing, the problem will only get worse; a study published last year in Nature predicted that the amount of plastic in the global environment could triple by 2060. To start, just cut back or stop buying bottled water and other single use plastics. If you don’t like the taste of your local water, use a filter. Use a reusable bottle. You’ll save money, possibly your health, and

definitely the health of the planet. And when you do use plastic, take the time to reuse or recycle it. You don't have to wait 400 years.

Resources:

Barrett, Mike. "The Numbers on Plastic Bottles: What do Plastic Recycling Symbols Mean?" Natural Society. 6 February 2013.

"Great Pacific Garbage Patch." National Geographic. Updated 5 July 2019.

Karlstrom, Solvie and Christine Dell'amore. "Why Tap Water is Better Than Bottled Water". National Geographic. 13 March 2010.

Jiang, Hugh. "Environmental Impact of Plastic Bottles & Bottled Water (Facts)". Get-Green-Now.com. 24 March 2019.

McKenzie, Ryan. "10 Plastic Water Bottle Facts You Should Know." Green Living. 25 March, 2011.

Nagdeve, Meenaksi. "14 Benefits of Drinking Water". Organic Facts. 27 July, 2020

Nowlin, Elizabeth. "The Next Steps for North Carolina's Plastic Bottle Recycling Plan." Blog, Nicholas School of the Environment at Duke University. 2017.

"Plastic Bottles." North Carolina Environmental Quality.

"Plastic Water Bottle Pollution: Where Do All The Bottles End Up?" Healthy Human. 2020.

"Plastics: Material-Specific Data." United States Environmental Protection Agency. Updated 30 October, 2019.

"What China's Import Ban on Plastic Waste Means For the Rest of the World." Mitte. 20 Feb. 2019.

"Where Does Your Bottled Water Really Come From?" Blog. Pelican Water. 24 August 2017.