

Message in a Bottle

Despite the Hype, Bottled Water is Neither CLEANER nor GREENER Than Tap Water

By Brian Howard, Managing Editor of *E Magazine*

Brian C. Howard began his tenure at *E* as an intern and then moved into his current post as Managing Editor three years ago. He has also written for Britain's *Ergo Living* magazine, *Alternet*, *Fairfield County Weekly*, Geological Society of America Abstracts & Programs, the Appalachian Mountain Club and Environmental Defense. He has served as an environmental educator and conducted scientific research on wetland birds and invertebrate fossils. Mr. Howard holds a B.S. in Geology and B.A. in Biology from Indiana University. He grew up in Michigan and Indiana with a passionate love for the outdoors and now lives in coastal Connecticut.

This is the second of two parts. Part one appeared in the July-September issue of the *Bulletin*. This article is reprinted with the permission of the author and *E Magazine*.

Part II

The Green Response

More and more environmentalists are beginning to question the purpose of lugging those heavy, inefficient, polluting bottles all over the Earth. The parent organization of the World Wildlife Fund, the Switzerland-based World Wide Fund (WWF) for Nature, argues strongly that the product is a waste of money and is very environmentally unfriendly. Co-op America concludes: "By far the cheapest—and often the safest—option is to drink water from a tap. It's also the most environmentally friendly option." Friends of the Earth says, "We might as well drink water from the tap and save all this waste."

The WWF argues that the distribution of bottled water requires substantially more fuel than delivering tap water, especially since over 22 million tons of the bottled liquid is transferred each year from country to country. Instead of relying on a mostly preexisting infrastructure of underground pipes and plumbing, delivering bottled water—often from places as far-flung as France, Iceland or Maine—burns fossil fuels and results in the release of thousands of tons of harmful emissions. Since some bottled water is also shipped or stored cold, electricity is expended for refrigeration. Energy is likewise used in bottled water processing. In filtration, an estimated two gallons of water is wasted for every gallon purified.

When most people think of bottled water, they probably envision the single-serve plastic bottle, which has exploded in popularity and is now available almost anywhere food products are sold. The WWF estimates that around 1.5 million tons

Message in a Bottle—Cont'd

of plastic are used globally each year in water bottles, leaving a sizable manufacturing footprint. Most water bottles are made of the oil-derived polyethylene terephthalate, which is known as PET. While PET is less toxic than many plastics, the Berkeley Ecology Center found that manufacturing PET generates more than 100 times the toxic emissions—in the form of nickel, ethylbenzene, ethylene oxide and benzene—compared to making the same amount of glass. The Climate Action Network concludes, “Making plastic bottles requires almost the same energy input as making glass bottles, despite transport savings that stem from plastic’s light weight.”

Andrew Swanander, owner of Mountain Town Spring Water, says, “I’m embarrassed and appalled to see my bottled water products discarded on the side of the road.” In fact, a considerable number of used water bottles end up as litter, where they can take up to 1,000 years to biodegrade. A 2002 study by Scenic Hudson reported that 18 percent by volume of recovered litter from the Hudson River (and 14 percent by weight) was comprised of beverage containers.

Pat Franklin, the executive director of the Container Recycling Institute (CRI), says nine out of 10 plastic water bottles end up as either garbage or litter—at a rate of 30 million per day. According to the Climate Action Network, when some plastic bottles are incinerated along with other trash, as is the practice in many municipalities, toxic chlorine (and potentially dioxin) is released into the air while heavy metals deposit in the ash. If plastics are buried in landfills, not only do they take up valuable space, but potentially toxic additives such as phthalates may leak into the groundwater. “It’s ironic that many people drink bottled water because they are afraid of tap water, but then the bottles they discard can result in more polluted water,” says Franklin. “It’s a crazy cycle.”

Franklin also acknowledges that although her group is a strong advocate of recycling, the very concept may encourage people to consume more plastics. Replacing used water bottles with new containers made from virgin resources consumes energy and pollutes the air, land and water. CRI estimates that supplying thirsty Americans with water bottles for one year consumes more than 1.5 million barrels of oil, which is enough to generate electricity for more than 250,000 homes for a year, or enough to fuel 100,000 cars for a year.

Big Footprint

Despite such a sizable environmental footprint, the push to recycle plastic water bottles has not been as successful as many consumers might like to think as they faithfully toss their used containers into those blue bins. As *Utne* magazine recently reported, “Despite the ubiquitous arrow symbol, only five percent of plastic waste is currently recycled in America and much of that must be fortified

Message in a Bottle—Cont'd

with huge amounts of virgin plastic.” One limitation is that recycling plastic causes it to lose strength and flexibility, meaning the process can only be done a few times with any given sample.

Another problem is that different types of plastics are very difficult to sort, even though they can't be recycled together. Common plastic additives such as phthalates or metal salts can also thwart recycling efforts as can too high a ratio of colored bottles (such as Dasani's blue containers) to clear bottles. Because of the challenges, many recycling centers refuse to accept plastics. In fact, a fair amount of America's plastic recycling is done in Asia, where laxer environmental laws govern polluting factories and fuel is spent in international transport.

According to a report recently released by the California Department of Conservation (CDOC), more than one billion water bottles are ending up in the state's trash each year, representing enough plastic to make 74 million square feet of carpet or 16 million sweaters. Darryl Young, the director of CDOC, says only 16 percent of PET water bottles sold in California are being recycled, compared to much higher rates for aluminum and glass. “It's good people are drinking water, but we need to do more outreach to promote recycling,” says Young.

Franklin says one potential deterrent to recycling may be that water bottles are often used away from home, meaning they aren't likely to make it into curbside bins. Young advises people to ask for recycling bins in retail and public spaces.

Industry analysts point out that demand exceeds supply in the market for recycled PET plastic, which is used in a range of goods from flowerpots to plastic lumber. Franklin says deposit systems, or so-called bottle bills, would go a long way to improving the collection of used water bottles, especially since only half the country has curbside recycling available. But only a few states have bottle bills, largely because of strong opposition from the container, beverage and retail industries (and their front group, Keep America Beautiful). While Kay stresses that the IBWA urges consumers to recycle, he says his organization opposes bottle bills because “food retailers shouldn't have to devote any money-making floor space to storing and sorting recyclables, especially as that may lead to unsanitary conditions.”

The WWF says alternatives to bottled water such as boiling and filtering are cheaper and more sustainable in areas that have contaminated tap sources. Co-op America and CRI advise consumers to fill their own bottles to take with them on the go. Glass doesn't leach chemicals, and sturdy plastics can be repeatedly washed, so consumers don't have to worry about breeding bacteria. For a lessened environmental impact, spring and other specialty waters can be purchased

Message in a Bottle—Cont'd

in bulk. But as BBC News concluded, “The conservationists are fighting an uphill battle. The bottled water market is booming... and shows no signs of drying up.”

Battling the Bottlers

Numerous environmental and social activists have recently begun to put up a fight against the expanding bottled water industry, which they claim threatens local wells, streams, wetlands and ways of life. Bottling companies may pump up to 500 gallons per minute, or even more, out of each well, and many wells run 24 hours a day, 365 days a year. Such operations have drawn intense opposition in Florida, New Hampshire, Pennsylvania, Texas, Michigan and Wisconsin. Many residents of these states depend heavily on groundwater for residential, agricultural and fishery use. In Wisconsin, for example, three out of four homes and 97 percent of municipalities obtain their water from the ground.

“Resistance against water bottlers is a classic NIMBY (not-in-my-backyard) issue,” says Kay. The IBWA claims bottlers wouldn’t pump aquifers to depletion because that wouldn’t make good business sense. But civil engineer and hydrologist Tom Ballestero of the University of New Hampshire cautions that surrounding wells and the environment can be negatively impacted before an aquifer is severely depleted. “The groundwater they are pumping and exporting was going somewhere where it had an environmental benefit,” says Ballestero. Geologist David Bainbridge of Alliant International University also points out that there are scant few penalties against users who draw down water tables or deplete aquifers. Due to the long amount of time it takes to naturally replenish aquifers, most scientists consider groundwater a nonrenewable resource.

Much of the opposition to water bottlers has been directed at Nestlé Waters North America, which taps around 75 different U.S. spring sites. A spokesperson for the corporation, Jane Lazgin, says most communities welcome the jobs and revenue brought by bottling operations. Even so, Nestlé lost several bids to set up bottling plants in the Midwest due to intense opposition. Eventually, for its Ice Mountain brand, Nestlé built a \$100 million plant capable of bottling 260 million gallons of water a year from an aquifer in Michigan’s rural Mecosta County, which is about 60 miles north of Grand Rapids. Nestlé paid around \$150 for permits and received substantial tax breaks.

Local activists, mobilized by the newly formed Michigan Citizens for Water Conservation, protested the plant on the grounds that the facility would take too heavy a toll on the surrounding environment and quality of life. Although Nestlé claims it conducted “exhaustive studies for nearly two years to ensure that the plant does not deplete water sources or harm the ecosystem,” the activists pointed out that the state has no authority to limit the amount of water that is actually removed.

Message in a Bottle—Cont'd

Three Native American tribes sued the state on the basis that rivers, and ultimately, the Great Lakes, would be affected. Michigan Citizens for Water Conservation and a few local residents also filed a lawsuit, claiming that the Mecosta operations violate state and federal water rights. The controversy became a hot topic during the 2002 gubernatorial election. As *Grist* reported, “Both major party candidates publicly and repeatedly expressed their resolve to modernize state water policy to block other multinational corporations from privatizing, bottling and selling hundreds of millions of gallons of Michigan’s groundwater annually across state lines.” A ruling on the case is expected soon, and is believed to have far-reaching ramifications.

In Florida, Nestlé angered many people, including the group Save Our Springs, when it took over Crystal Spring, which is near Tampa. The company fenced out the public, which had enjoyed the water for generations. After five years of bottling operations, the spring level has dropped. Some officials are worried, since the spring feeds the source of Tampa’s water. Nestlé blames the change on dry spells and local development.

Local residents have also fought Nestlé in rural northeast Texas, where they complain that a well across the street from the company’s bottling site went dry five days after Nestlé began operations. Nestlé’s Lazgin claims that well dried up because it was old and shallow, and that it was not on the same aquifer as the bottling plant. Critics counter that aquifer geology is a fairly subjective science. The Texas Supreme Court ruled in favor of Nestlé under the state’s “rule of capture.” Save Our Springs President Terri Wolfe told *The Northwestern*, “The poor people whose wells run dry because of [bottlers] can’t afford that water.”

What’s the Quencher?

A host of environmental groups are joining resource managers in the call for Americans to cut back on bottled water and instead look to tap systems to provide our daily needs. As the NRDC points out, incidents of chemical or microbial contamination in tap water are actually relatively rare. In a recent review of the nation’s public drinking water infrastructure, researchers at the Harvard School of Public Health concluded, “Reasonably reliable water is currently available to nearly all 270 million U.S. residents.”

Writing in *The Kansas Lifeline*, Scott Hooper expresses frustration on the part of municipal water managers, who are increasingly shackled with negative reputations despite their actual accomplishments. Hooper advises managers sarcastically, “What are you waiting for? Turn a few valves, install a bottling plant and begin to make the big bucks. You could sell your water for half of what the other bottler down the road is charging and still make a bundle. With no meters or

Message in a Bottle—Cont'd

mains to maintain, no monthly billing, lower lab bills, why, you could afford a top-dollar advertising campaign telling folks how much better your water is than the stuff that used to come out of the tap.”

It's true that tap water does face numerous threats, including possible contamination from the potentially harmful byproducts of chlorination, the specter of pollution and a lack of adequate funding. Stresses from global warming, urban sprawl and population increase also must be factored in, as well as the looming threat of terrorism. The WWF argues that governments should focus their limited energies on repairing current tap water infrastructures and on protecting watersheds from harmful farm, industry and urban pollutants. Many public water supply advocates feel that tax dollars should be paying to deal with tap water's challenges. We certainly need to think twice before handing off the public water trust to private companies that put it in attractive bottles at a high price.

Call for Submission of Resolutions to the House of Delegates

Any CSA member may submit a resolution to the House of Delegates (your elected representatives) on any issue that you deem important. The deliberations pursuant to these resolutions influence the course of action of the CSA during the ensuing year. For assistance in formulating a resolution, you are welcome to contact Linda B. Hertzberg, M.D., Speaker of the House of Delegates.

The House of Delegates will meet on Saturday, May 14, 2005, as part of the Annual Meeting of the CSA/UCSD at the Hyatt Regency Embarcadero Center in San Francisco, California. A reference committee meets Friday evening to hear testimony on all matters to be considered by the House. For more information, contact the CSA office (650) 345-3020, (800) 345-3791, fax (650) 345-3269.

The deadline for submissions is April 14, 2005.