Washington University in St. Louis

Bottled Water Ban: Update 2015

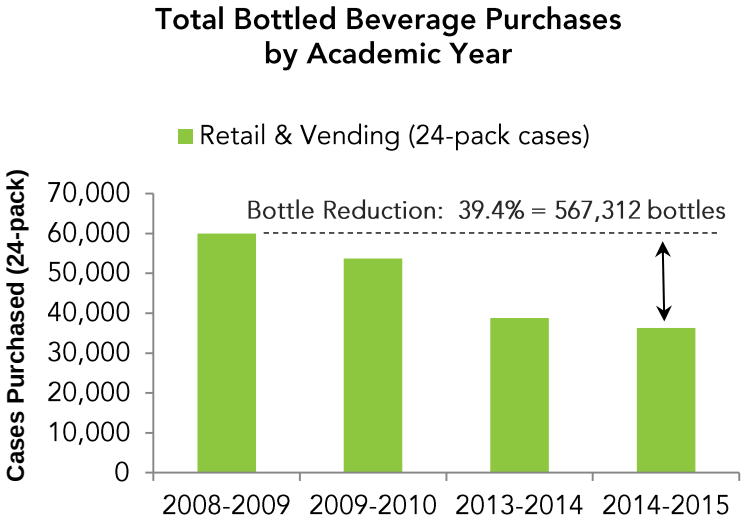
Single-use plastic bottles are associated with a number of major environmental and public health issues including the energy, water, and pollution footprints associated with their production, storage, transportation, and cooling at the point of sale, as well as the waste generated from their use. Due to these concerns, Washington University in St. Louis became the first North American university to ban the sale of bottled water on its campuses in order to reduce the upstream and downstream impacts from single-use bottles. Following months of planning, on January 1, 2009, the University stopped selling bottled water in all retail outlets and vending machines on the primary campus, the Danforth Campus, as well as the administrative West and North Campuses. The School of Medicine campus has continued to sell bottled water in dining locations and vending machines due to concerns about limiting water access for medical patients on the campus. In addition, the University has provided bottled water at a very limited number of special events where other methods of water access proved especially challenging or costly.

To facilitate the transition, Washington University has put significant efforts into expanding access to water bottle filling stations; ensuring first year students are aware of the ban prior to arrival on campus; providing reusable water bottles during Freshman Move-In; and providing signage across campus on the benefits of reusable water bottles.

Following the implementation of the ban, Washington University has periodically analyzed bottled beverage and fountain drink purchases to ensure the ban has had the intended impact. The beverage data summarized below was provided by Washington University's Purchasing Services group and represents the University's total purchases of products which are then sold or distributed to consumers through vending machines, retail outlets, and major campus events. **Washington University's data indicates that since the 2009 bottled water ban went into effect, both bottled beverage purchases and fountain drink purchases have significantly decreased during a time when the University's population has continued to increase.**

Bottled Beverage Purchases

The graph to the right shows Washington University's purchasing history of all bottled beverages for retail and vending from academic year 2008-2009, the year the ban went into effect, to 2014-2015. Purchasing Services was unable to provide data for three academic years – 2010-2011, 2011-2012, and 2012-2013.

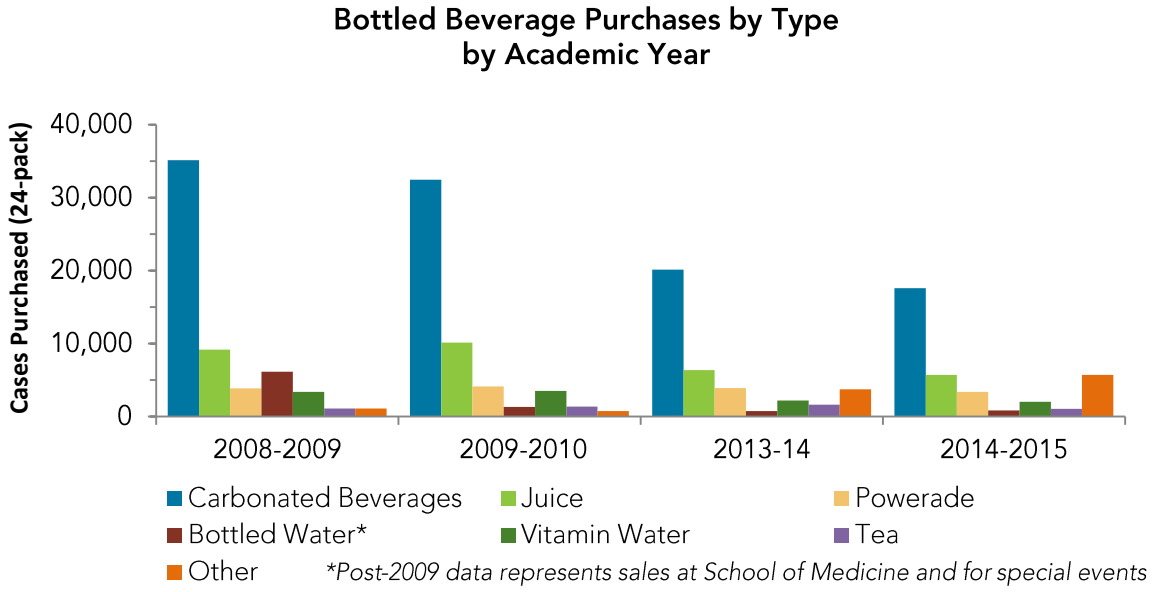


During the 2008-2009 academic year, 59,962 cases (24 bottles) of bottled beverages were purchased, comprised largely of sodas, juices, bottled water, tea, and lemonade. Bottled water made up approximately 10% of the purchases, at 6,162 cases. As of the 2014-2015 academic year, purchases of all bottled beverages decreased to 36,324 cases. The remaining bottled water purchases for the School of Medicine and special events made up just 2% of total bottled beverage purchases at 845 cases.

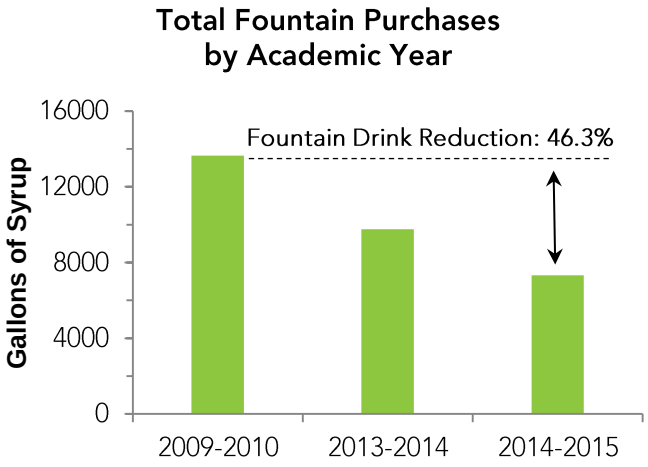
A common environmental concern regarding bottled water bans is that they will lead to an increase in the consumption of other bottled beverages, resulting in no or minimal net decrease of plastic bottles. Our data indicates an overall 39.4% decrease in the University's purchase of all bottled products in academic year 2014-2015 relative to academic year 2008-2009. As indicated in the graph on the following page, carbonated beverages make up the largest portion of Washington University's bottled drink purchases in all years and have had the most significant

decrease. In the 2008-2009 academic year, 35,117 cases were purchased; by 2014-2015, that number had fallen by 49.9% to 17,578 cases. All types of bottled product purchases decreased from 2008-2009 to 2014-2015, with the exception of the "Other" category. According to the University's beverage vendor, the "Other" category includes the following products: Illy Coffee, VitaminWater Energy, Nos/Full Throttle Energy, Core Power Protein Drink, Glaceau Fruit Water, Dasani Sparkling Water 12oz cans, ZICO Coconut Water, and Minute Maid Lemonades. The increase in the sales of these products is offset more than six-fold by the decreases in the other categories.

With the initial goal of the ban being to decrease the number of single-use plastic bottles consumed at the university, the significant drop in total purchases of bottled beverages confirms the success of the ban. In total number of bottles, there were 1,439,088 million bottles purchased during the 2008-09 academic year; by 2014-15, the number had fallen to 871,776 bottles, a reduction of 567,312 bottles purchased annually. This decrease supports the university's commitment to waste reduction and reduction of Scope 3 greenhouse gas emissions.



Fountain Drink Purchases



A common public health concern regarding bottled water bans is that they may lead to increases in consumption of sweetened beverages and high-calorie juices. Although the bottled beverage purchase data discussed above indicates a significant overall decrease in the consumption of these products, we felt it was important to analyze fountain drink data to understand if the Washington University community's shift away from bottled products was coupled with a shift towards sugar-sweetened fountain drinks. Purchasing Services was able to provide fountain drink purchase data, measured in gallons of syrup, for academic years 2009-2010, 2013-2014, and 2014-2015. Although the dataset is incomplete, it indicates a trend of significant decreasing consumption of fountain drinks similar to the trend for bottled beverages. The 2009-10 academic year saw a total of 13,643 gallons of syrup purchased; by 2014-15, fountain drink purchases decreased by 46.3% to 7,326 gallons. This substantial decrease, coupled with the decline in sugar-sweetened bottled beverage purchases, eliminates our concern that the bottled water ban has resulted in the unintended public health consequence of increased consumption of sugar-sweetened beverages.

Supporting Initiatives

In tandem with the bottled water ban, Washington University invested time and capital in a number of strategies that support and reinforce the effort to shift consumer habits away from single-use bottled products. Our ongoing initiative to retrofit drinking fountains with water bottle refill stations has provided easier access to tap water. To date, we have retrofitted approximately 108 water fountains throughout the Danforth Campus with simple goose-neck bottle fillers, a low-cost upgrade to existing fountains. Additionally, drinking fountain areas in new construction include refill stations, often of the type shown to the right.

We have also been working to build a strong culture of reusable water bottle use among students, faculty, and staff. Prior to arriving on campus, new students receive at least 2-3 publications that highlight the water bottle ban, as well as our campus culture of reuse. When students arrive on campus, many will receive a reusable water bottle provided by campus organizations and departments. New students will learn about the University's water bottle ban and commitment to waste reduction through our team of 30 Green Ambassador peer-educators who welcome students to campus; our many Residential Advisors who receive sustainability training; and our 12 Eco Reps who lead sustainability efforts in our Residential Colleges throughout the year. In addition, our Director of University Nutrition has partnered with Dining Services for years to promote positive nutrition education, including the importance of drinking water. As part of the effort, we recently joined the Healthier Campus Initiative through the Partnership for a Healthier America.

Opportunities for Improvement

Our largest campus events that include thousands of campus visitors in short periods of time remain a challenge for the bottled water ban. For some events, such as Convocation, successful planning and campus partnerships have produced a well-received alternative: water coolers provided by a student-run business and compostable paper cups, along with staffed "Green Waste Stations" to ensure the cups are composted. However, for extended large events such as Commencement, efforts are still being made to find suitable alternatives to provide to the guests. Compromises initially included smaller bottles, right-sizing purchases, and a subsequent shift to canned water.

Conclusion

Washington University in St. Louis's bottled water ban has been incredibly successful without the unintended environmental or public health consequences that have commonly been raised when such bans are considered. Since the ban went into effect, Washington University's bottled beverage purchases have decreased far more significantly than would be expected due to the elimination of bottled water alone – bottled water only accounted for 22.5% of the overall decrease of 567,312 bottled beverages each year. Concurrently, purchases of higher calorie sweetened beverages, in bottles and as fountain drinks, decreased significantly. Our data is not granular enough to exactly quantify the reduction of sweetened beverages; however, it is likely around a 35-40% reduction.

Although we do not have enough data to draw clear causal relationships between the bottled water ban and the subsequent overall reduction of bottled beverages and sweetened beverages, our experience indicates that bottled water bans, when coupled with a range of supporting initiatives, may have positive ripple effects that accelerate an overall shift away from single-use bottled products and unhealthy drinks.

As an institution of higher education with a deep commitment to sustainability, it is our goal to foster knowledge, commitment, and lifelong habits that advance environmental health and public health. Washington University became a model for many other higher education institutions when it first adopted the bottled water ban in 2009. We hope that our evolving story told through data and campus initiatives will continue to shed light into the potential positive impacts of policy-level shifts away from single use bottled beverages.

Written by Marisa Vasquez, Jen Carter, and Phil Valko
Washington University in St. Louis, Office of Sustainability, sustainability.wustl.edu, sustainability@wustl.edu