

Assessing Efforts to Reduce Single-Use Plastic Water Bottles

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Used plastic water bottles placed in an overflowing bin.
Photo credit: Mr.Tin MD

Overview

As major sources of greenhouse gas emissions and water pollution, the production and use of plastics are pervasive and long-lasting threats to both human health and the Earth.¹ In Ontario, over 1.5 billion plastic bottles rest in landfills and the environment annually,² necessitating a move away from single-use plastic bottles.

While other universities have looked to ban single-use plastic bottles, they saw mixed results; in some cases, a ban resulted in increased sales of other bottled beverages.³ McMaster's Bring Your Own Bottle (BYOB) initiative aims to reduce the use of single-use plastic bottles and encourage water bottle reuse.⁴ To support the BYOB initiative, the goal of our project was to assess the current status of water bottle refilling and reuse by students living in McMaster residence.

Objectives

1. Identify residence students' water bottle use habits from survey data
2. Track on-campus bottled water sales data
3. Monitor refill station use in student residence buildings

Reporting

To achieve our first objective, we analyzed responses to Residence Life survey data and found that in Fall 2021, 70% of students report 'never' purchasing bottled water, which rose to 73% in 2022. This is consistent with roughly 80% who say they use a refillable bottle daily. However, in Winter 2022, 59% of students reported 'always' or 'sometimes' storing cases of bottled water in their rooms. The discrepancies in self-reported measures indicate a need to track other data sources.

To achieve our second objective, we tracked sales from in-residence eateries, Bistro and Centro. We compared sales data over a three-month period from September to November for 2021 and 2022. We found that in both years, sales decreased from September to October but increased from October to November. This decrease in October sales may be due to reading week and Thanksgiving holiday. Due to COVID-19, there were more students in residence in 2022, so we calculated sales per capita and found that sales were nearly 30% higher in 2022 than 2021.

To achieve our third objective, we tracked eight refill stations biweekly from October to November. Refill stations were selected in three residence buildings and the Commons eatery. Usage at all refill stations increased from October to November, which might suggest a shift in students' perceptions of water bottle refilling. To conclude our project, we created a report of our methodologies and suggested steps for future students to continue this work and support water bottle refilling and reuse at McMaster.

Collaborators

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See a full list of references [here](#).