



2023 Campus Race to Zero Waste Case Study

St. Lawrence University

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Focus of Case Study:

To gain an understanding of university's dining and food waste system, along with the attitudes/comprehension surrounding food waste behaviors. This is part of a multi-university study to conduct a food waste audit, develop a toolkit for other universities to successfully conduct audits and measure the impact of educational materials on campus attitudes and understanding of food waste impacts.

Detailed description of effort:

St. Lawrence University (SLU), in a joint effort with Clarkson University, conducted a large-scale campus-wide food waste study during the 2022-23 academic year. Planning began in the Fall of 2022 with mapping out the dining and food waste systems, getting to know dining and facilities and operations staff, and releasing an initial campus wide food waste survey in December. The food waste audit, educational campaign, post survey, and focus group were conducted from February-March 2023. Funding for this project was provided by the New York State Pollution Prevention Institute. The study includes a comprehensive food waste audit of eateries and residences, a descriptive model of the campus food and waste system, an education campaign, and a series of surveys addressing attitudes and understanding of food waste and behaviors.

In the weeks leading up to the campus food waste audit, undergraduate interns and SLU faculty dispersed a campus-wide survey with the goal of gauging behaviors surrounding food waste as well as campus knowledge of climate impacts due to food waste. One result of this survey indicated that 72 percent of students, staff, and faculty agree keeping food waste out of the trash will help reduce global climate change.

To conduct the food waste audit, a team of 29 volunteers and nine interns joined forces with campus kitchen and faculty operations to collect and weigh kitchen scraps, buffet overproduction, and post-consumer food waste over the course of five days at the two main dining facilities (Dana Dining Hall, a buffet-style eatery; North Star Café, a to-go style eatery). Additionally, two 100-plate post-consumer weight measurements were later recorded at the two eateries to establish a range of individual meal food waste. The results of the survey indicated that buffet-style meals (Dana Dining Hall) resulted in the most food waste. At this location, food waste was approximately 19 percent higher than competing to-go style location (North Star Café), and nearly 10 times that of catering events and residence hall waste. Additionally, the findings illustrate that post-consumer food waste measured about four times that of either kitchen scraps or overproduction, as the total tons at the two locations were approximately 4.74 tons.

By model estimates, a typical full 7-day week on campus could generate up to 5.5 tons of total food waste. Calculated over a 38-week of active dining in an academic year, this reaches nearly 210 tons of food waste generated on campus. A combination of cutting down food waste generation and diverting more of that food waste to our campus compost site will save money and resources and reduce SLU's carbon footprint.

Planning Steps and Timeline:

- Part 1 Pre-Audit Survey: A few weeks prior to the waste suit, we dispersed a survey around campus with the goal of gauging behaviors surrounding food waste as well as campus knowledge of climate impacts due to food waste.
- Part 2 Food Waste Audit: A team of 29 volunteers and nine interns (with the help of kitchen staff and faculty operations staff) collected and weighed kitchen scraps, buffet overproduction, and post-consumer waste in two main dining facilities on campus (Dana Dining Hall, a buffet-style eatery; North Star Café, a to-go style eatery). Weekly sales reports were collected for the week of the audit. Bins and scales were distributed to 15 residential units including theme houses, townhouses, and dorms. Residents weighed their food scraps for the 5-day study period. Satellite eateries and catering events were similarly audited. Two 100-plate post-consumer weigh measurements were later recorded and the two largest eateries (Dana and North Star) to establish a range of individual meal food wasted.
- Part 3 Post-Food Waste Audit Survey: Following the food waste audit, the same survey was dispersed to compare the results against the pre-audit survey.

Resources and Stakeholders involved:

- "Funding Provided by the Environmental Protection Fund as administered by the New York State Department of Environmental Conservation. Any opinions, findings, and/or interpretations of data contained herein are the responsibility of the author(s) and do not necessarily represent the opinions, interpretations, or policy of Rochester Institute of Technology and its NYS Pollution Prevention Institute of the State."
- Clarkson University, piloted this project, and was pivotal in design and implementation of SLU's food waste audit.

Describe the Results of this Campaign Component:

- General results: Brought campus-wide attention to food waste and helped with the development of a tool-kit for other universities for conducting food waste audits. Helped develop relationships between students, faculty, dining staff, and facilities and operations staff leading to campus wide collaborative efforts toward improving food waste management.
- Student Interns presented this project at the NYSAR3 2023 organics summit and at the St. Lawrence University festival of science, scholarship, and creativity
- Specific measurable impact:
 - Pre-audit survey: 72% of students/faculty/staff agree that keeping food waste out of the trash will help reduce global climate change
 - At Dana Dining Hall the buffet-style eatery, post-consumer food waste was approximately 19% higher than the competing to-go location (North Star Café) and nearly 10 times that of catering events and residence hall waste.
 - Post-consumer food waste accounted for 66% of total food waste generated during the 5-day audit.
 - Post-consumer food waste measured about 4 times that of either kitchen scraps or overproduction.

- The total tonnage of food waste at both Dana Dining Hall and North Star Café was approximately 4.74 tons over 5 days.
- The average food waste at Dana Dining Hall's buffet style eatery was 0.29lbs/plate.
- The average food waste at North Star Café's to-go style eatery was 0.15lbs/plate.
- The average food waste at the three different residential housing units (Theme Houses, Geek House, Town House) ranged from approximately 0.04-0.09lbs/person/day.
- We discovered that about 15% of our food waste is going to local compost and are investigating ways to shift that number higher
- Analysis of food waste quality is leading to discussions of how to reduce the presence of non-compostable materials (ex. condiment packets and condiment tubs)

What would you do differently in the future?

- Coordinate with larger campus for organizing volunteers early
- Provide tabletop information in dining halls encouraging and preparing students for food waste separation at bins during the audit
- Promote press about the event

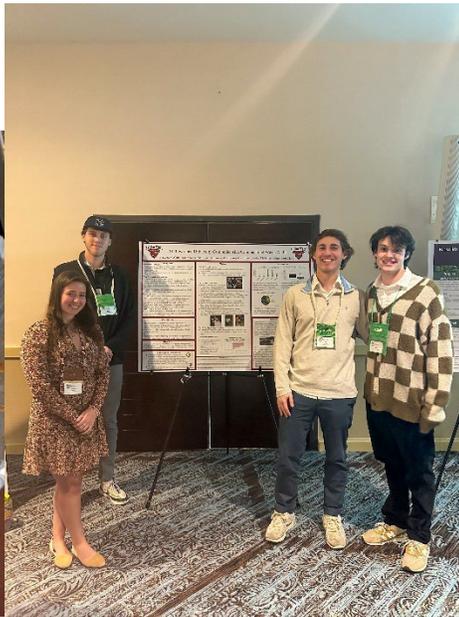
What advice would you give to another college that wanted to do a similar effort?

Speak with faculty who have conducted the audits and learn about the tool-kit that's in development. Work closely with your dining staff and facilities and operations.

Photos and Graphics:







DID YOU KNOW?

MOST of the food waste produced in the US ends up in a landfill




For more information, click the link in the bio!



DID YOU KNOW?

On US college campuses each year:



17 million pounds of food is wasted



For more information, click the link in the bio!



- Students, staff, and faculty were surveyed to quantify their understanding of food waste impacts. This is depicted below in Figure 1.

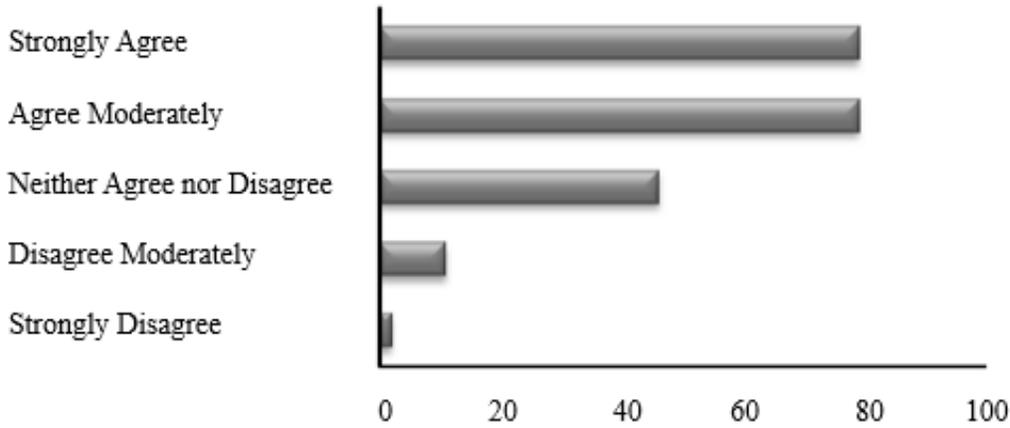


Figure 1: Survey Results: 72% Agree Keeping Food Waste out of Trash will Help Reduce Global Climate Change.

- Daily post-consumer food waste was measured per person at residences, catering, buffet and to-go dining locations. It is measured in per pounds, per person, per day. This is illustrated below in Figure 2.

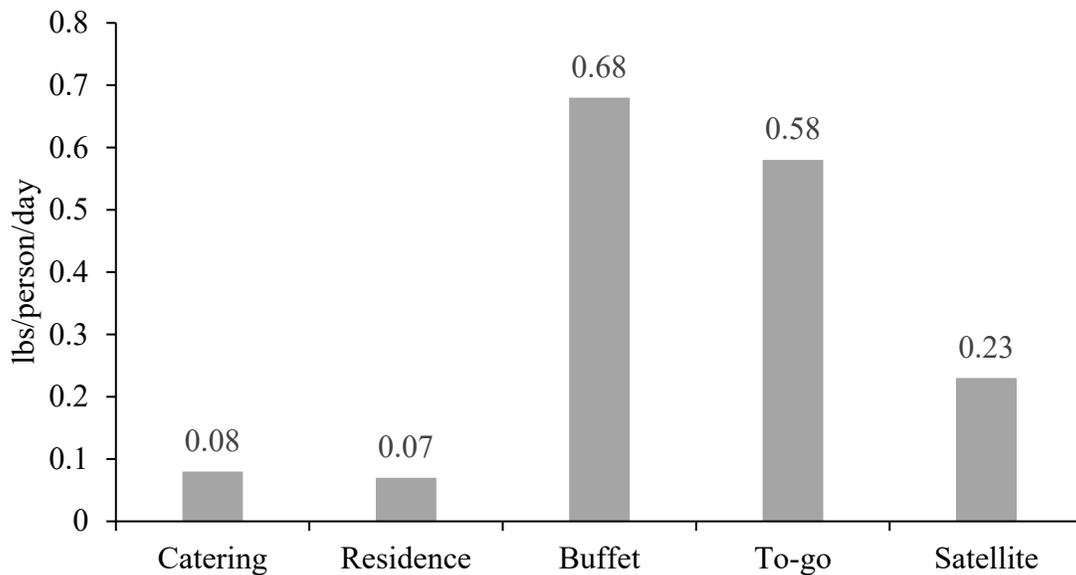


Figure 2: Individual Daily Food Waste by Site

The results in Figure 2 indicate that on average, buffet meals (Dana Dining Hall) resulted in the most food waste. At this location, post-consumer food waste was approximately 19 percent higher than the competing to-go location (The Pub) and nearly 10 times that of catering events and residence hall waste.

- It is important to note that the majority of food is initially prepared at Dana. This would account for some of the overproduction and kitchen scrap waste. Figure 3 below displays the tons generated during the 5 day audit week.

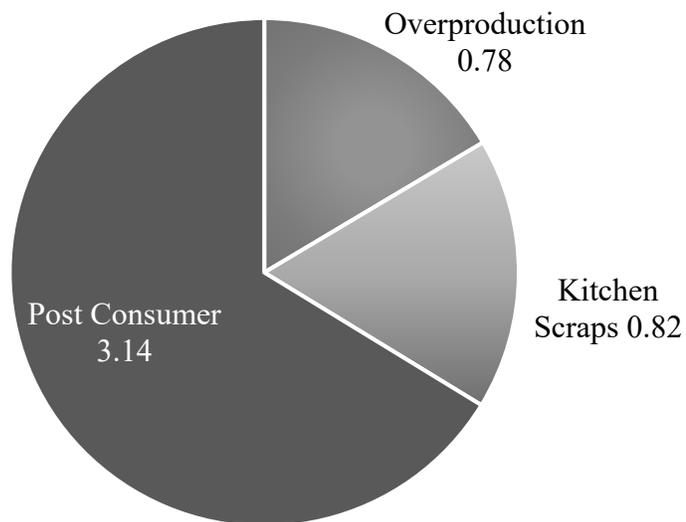


Figure 3: Tons of Food Waste Generated During Audit Week

Post-consumer food waste accounted for 66 percent of the total food waste neared during the 5-day audit, Monday-Friday. It is important to note that the post-consumer totals were estimated using total daily meals sold data. Post-consumer food waste measured about 4 times that of either kitchen scraps or overproduction. The total tons at the two locations were approximately 4.74 tons.

- As most food waste came from the post-consumer end, understanding which style eatery generated the most was crucial. After measuring post-consumer waste across campus eateries, the buffet-style dining accounted for the most pounds per plate in food waste. This is evident below in Figure 3.

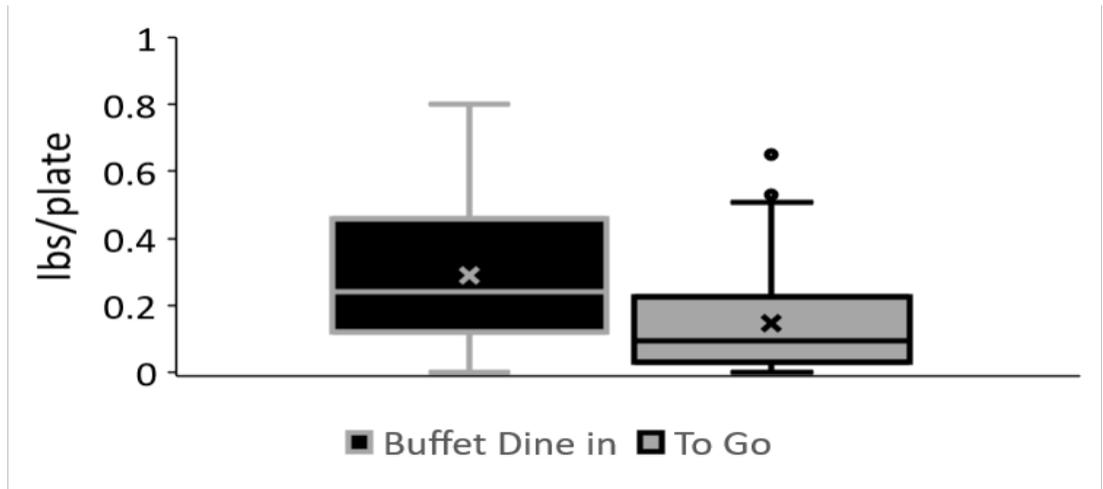


Figure 4: Food Waste Per Plate by Dining Style

The box-and-whisker plot indicates the distribution of food waste per pound per plate between the two main dining styles in this study. Figure 4 shows the distribution of meal weights across 100 plates at each location. The average is .29 pounds/plate and .15 pounds/plate respectively. Buffet-style dining generated almost double the food waste per student on average.

- Over the course of the five-day audit, 13 different resident buildings recorded their food waste. This is depicted below in Figure 5.

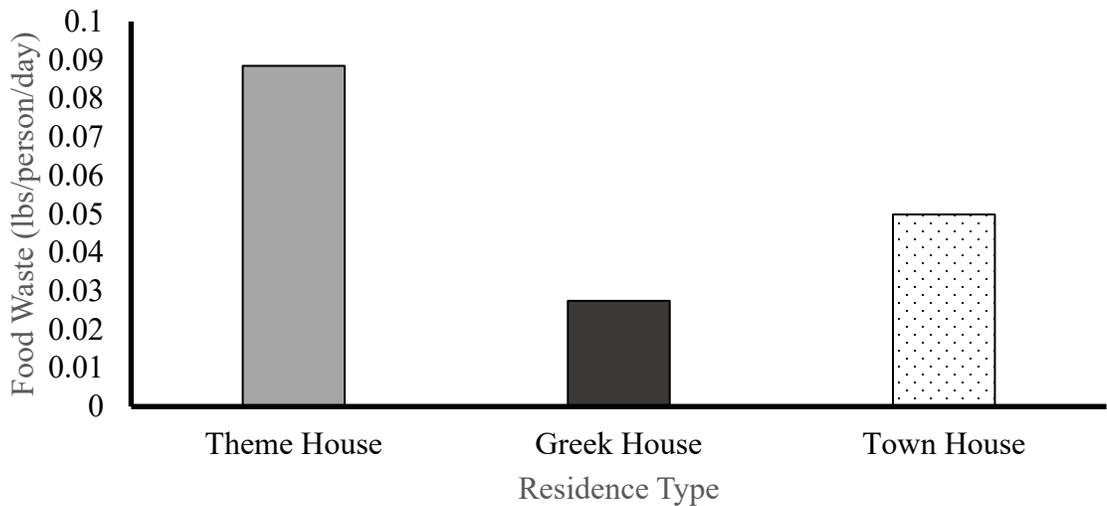


Figure 5: Average Food Waste per Student per Day in Residential Housing

The average food waste ranged from approximately 0.03-0.09 lbs./person/day across the three different residential housing options.

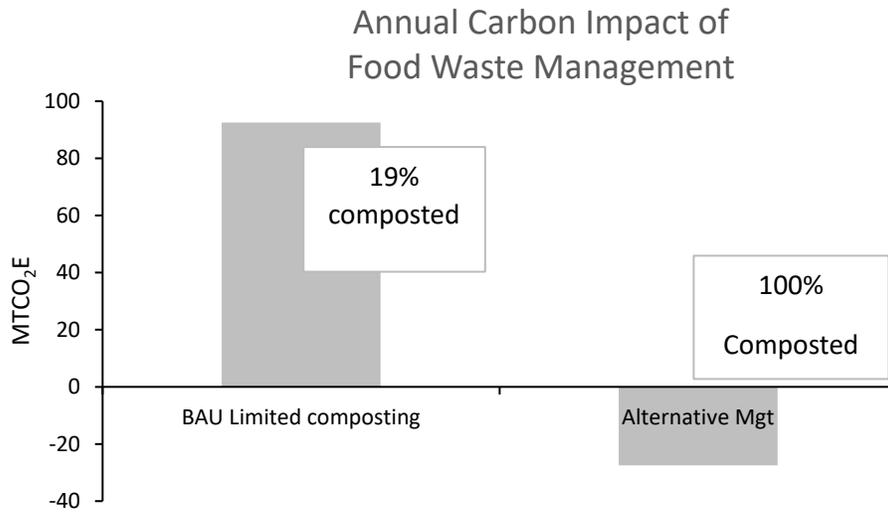
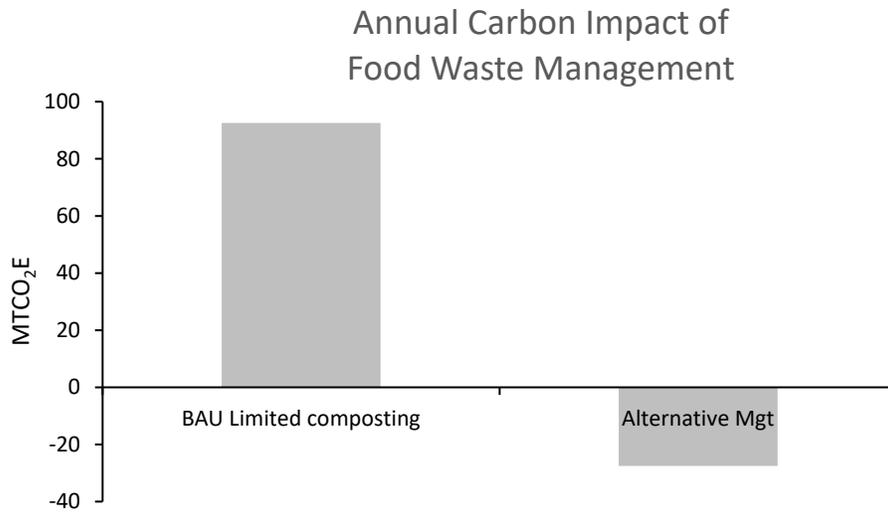


Figure 6: Potential carbon emissions change with increased local composting of food waste.