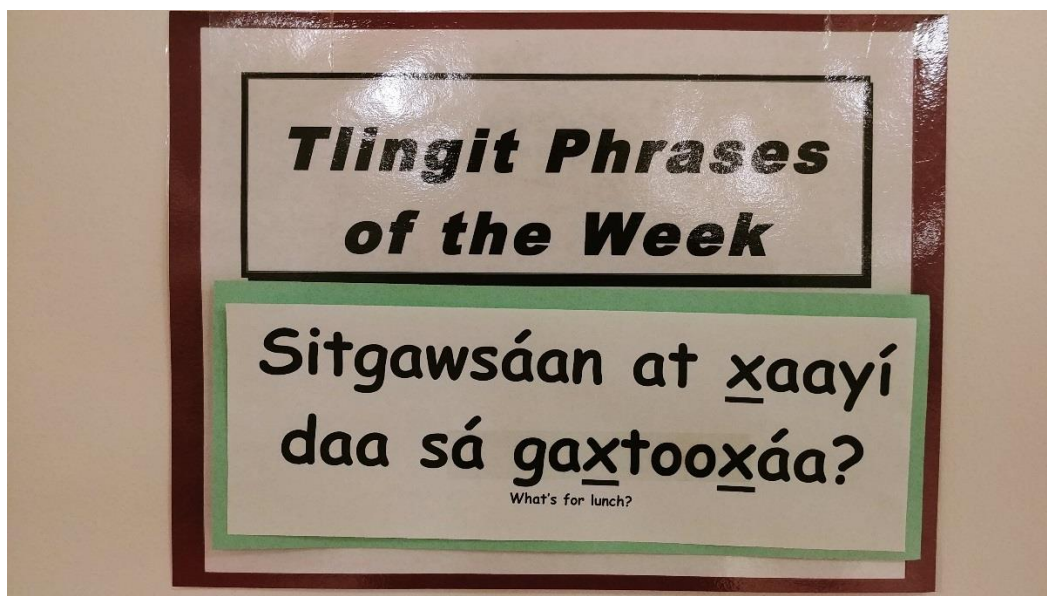




HOONAH INDIAN ASSOCIATION



Waste Stream Assessment Report 2018



Summary

In the winter of 2018, Hoonah Indian Association undertook a compostable waste stream assessment. This study sought to quantify the amount in weight of how much compostable waste is produced by Hoonah City School and a local restaurant with the goal of determining the appropriate size for a composting unit. Our assessment found that between the school and a local business enough compostable waste is being produced to support a composting program and keep it supplied and running year round.

A composter in Hoonah could increase capacity to grow food locally, creating a more resilient community. The enriched soil produced from the composter would be available for the community and used for the community gardens, personal gardens and yards, and eventually for use in the community green house.

A composting program could potentially reduce the amount of waste going in to the dump by an estimated 12,000 pounds or more a year. There is potential for more business to contribute to a compost program and further reduce the waste going into the dump and prolonging the life span.

Introduction

The effect of compostable wastes on our landfills across the United States is noticeable and significant. The average American throws away 1.3 pounds of food scraps each day accounting for nearly 13% of the nation's municipal solid waste (EPA). These statistics vary widely region and community. However, since our community of Hoonah does not have a composting program we sought to estimate how much compostable waste was being generated by our school and local restaurant to understand their burden on municipal waste and identify opportunities to transform the waste to compost.

It was necessary to create a realistic scope of work to complete our assessment. Our initial goal was to sample homes in Hoonah, but there would have been need for wide scale training and purchase of equipment to effectively carry out that work. We decided to gather data from the local school and a local restaurant because we felt these hubs would allow us to efficiently collect the data we needed. Collaboration with the school could us help achieve outreach goals and benefit the school by collecting data on what their students are consuming or choosing to throw away. Icy Strait lodge was also chosen because it's the only restaurant open year round and with the closing of Mary's Inn, they have the more customers and with that comes more compostable waste.

Methods

We adopted our survey methods from the EPA guideline document "Guide to Conduction Student Food Waste Audits". We coordinated with Hoonah City School's Principal and cafeteria manager to convey our needs and ensure that appropriated data was being collected to fulfil the needs of the school.

We coordinated with teachers and members of the Hoonah Stewardship Council to complete the work. During each survey we recorded the number of students eating, the number of students contributing to the waste type, the type of waste, and the number of pounds in each waste category. We ensured students were separating their waste items correctly by providing buckets for them to place each waste type in. We grouped grains, fruits and vegetables, and none-compostable items such as greasy food, meat, and cheese. We did not record the weight of amount of napkins or milk containers.



Figure 1 : Hoonah City Schools Principal, Hoonah Stewardship Council Members, and member of Hoonah Indian Association Environmental Program collect compost waste at the school



Figure 2 : Buckets were weighed at the end of each lunch period.

To record amount of compostable waste our local restaurant Icy Strait Lodge we provided a bucket. They sorted their waste and then reported to us the amount of waste in gallons per day.

All data were aggregated and summarized in Microsoft Excel. We calculated summary statistics for each needed category.

Results

We sampled 9 lunch periods and 2 breakfast periods. Over those periods, 371 meals were served (Table 1), and we recorded 32.8 pounds of compostable waste. The average amount of compostable waste per day was 4.4 pounds (Table 2).

Table 1 : Total number of students contributing to our school composting school. We completed survey at 9 lunch periods and 2 breakfast periods.

Meal Type	Total Number of Students	Average Students at meal
Breakfast	104	52
Lunch	267	30

Table 2 : Summary of compostable and non-compostable waste during all lunch and Breakfast periods. Note that students did not discard non-compostable waste during either of the breakfasts we surveyed at.

Meal	Waste Type	Total (lbs)	Average Per Day (lbs)
Lunch	Non-Compostable Waste	19	2.1
Lunch	Compostable Waste	19.3	0.9
Breakfast	Compostable Waste	13.5	3.4
Total Compostable Waste	-----	32.8	4.4

Based on the average compostable waste generated each day we projected the amount of compostable waste over a standard week, month, and school year. We project that 20, 85.8, and 772.5 pounds of compostable waste of waste would be generate for each of those time periods respectively (Table 3).



Figure 3 : Students divided their waste into separate buckets to give us the highest resolution data possible.

Table 3 : Average estimated Hoonah School compostable waste weight over time

	5 Lunch Days (lbs)	20 Lunch Days (lbs)	180 Lunch Days (lbs)
Lunch	4.6	18.3	165.0
Breakfast	16.9	67.5	607.5
Total	21.5	85.8	772.5

From our survey work at Icy Strait Lodge and the school, we project those two sources produce 7.5 gallons of compostable waste each day (Table 4). Extrapolating those data out we project 37.5 gallons of compostable waste, and 1,350 gallons of compostable waste per school year (Table 5)

Table 4 : Approximate amount of gallons from Icy Strait Lodge and the school

Locations	Amount (gallons)
Hoonah School	2.5
Icy Strait Lodge	5
Total	7.5

Table 5 : Projected gallons per day of compostable waste from the school and

Week (5 days)	Month (4 weeks)	Year (9 months)
37.5	150	1350

The school had interest in knowing how much of each food group was being consumed or discarded. Although we cannot know exactly what each student chose to eat, if we assume that students took one of each option we are able to understand a bit about their preferences. Grains (e.g. bread products) had the lowest student contribution at 8% while chili had the largest contribution of 41% (Table 6).

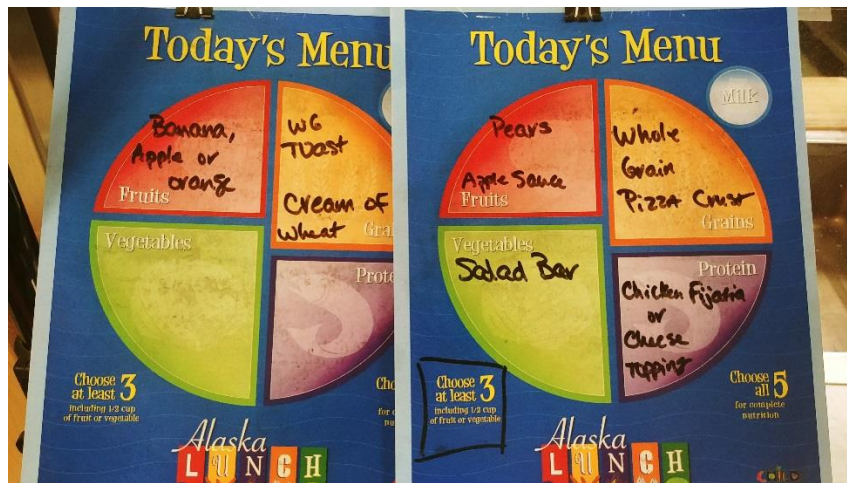


Figure 4 : Students were given a unique menu each day, so each day the data collectors ensured that data were collected that were specific to that meal.

Table 6 : Percentage of students contributing to each waste type during lunch. Total students throwing out is the number of students contributing to the compost. Total students consuming is the total students present for that waste type.

Waste Type	Total Students Throwing Out	Total Students Consuming	% of Students Contributing
BBQ Chicken	17	93	18%
Chili	36	88	41%
Fruit	34	267	13%
Grain	7	88	8%
Pizza	12	86	14%
Vegetable	54	267	20%

Row Labels	Sum of Number of contributors	Sum of Student Count	% of Students Contributing
BBQ Chicken	17	93	18%
Chillie	36	88	41%
Fruit	34	267	13%
Grain	7	88	8%
Pizza	12	86	14%
Vegetable	54	267	20%

Discussion

The Icy Strait Lodge (ISL) produced the most compostable waste for in our results. This is due to their menu items and fresh salad bar. Having their restaurant as a source of compost would provide a stable source of compostable goods. The school's output is significant, but only available during the school year. It is good to have the continuity of the restaurant to keep a composting program going for an entire year.

We felt the amount of compostable material from the school was lower than expected. This is likely attributed to how they let students choose their meal. The Hoonah City School lunch program allows the kids to choose from a variety of available foods for their lunch meal; the kids choose a main course and a vegetable and a starch and they have the access to a fully stocked salad bar. This lunch system allowed the kids to choose what they eat while still eating a healthy lunch and this produced very little waste some days.

The results of this study will help us determine what the constant load on a composter would be. Our results indicate we could continuously feed and support a medium size composter and produce good nutrient rich soil for the community. The enriched soil produced from the composter would be available for the community and used for the community

gardens, personal gardens and yards, and eventually for use in the community green house. A composting program could potentially reduce the amount of waste going in to the dump by an estimated 750 pounds or more a year from the two surveyed sources.

There are several logical extensions to this work that future surveys could tackle. There are other compostable waste-producing businesses in Hoonah include two grocery stores and tourist district. These sources have a significant amount of waste. Future surveys may consider extending to homes. For that program to be successful HIA Environmental would need to work with homeowners to collect quality data.

Acknowledgements

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