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Litter Clean-Ups in Georgetown and the SDGs

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Georgetown RISE Internship

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Litter Clean-Ups in Georgetown and the SDGs

Introduction

After being founded in 1729, Georgetown became the third oldest city in South Carolina. Over the years Georgetown has been recognized for its historical events, geography, and attracting tourists from all over the globe. Georgetown is noteworthy for its five rivers that intersect and encompass the Winyah Bay. As the third largest water-shed basin on the east coast of the United States, it is understood that Winyah Bay is responsible for plenty of natural resources used by the country bringing a tremendous development to the economy for many years. In recent years, we see the need for the even more growth with bigger threats, such as more litter, than previous centuries have had to encounter in the past. The need for sustainable measures and goals are far more desperate for the environment and for the waterways like Winyah Bay, which is displayed in a map in Figure 1.



Figure 1. The location of the Winyah Bay in Georgetown County, SC.

This internship provided me with the amazing opportunity to be able to study alongside Keep Georgetown Beautiful, a Keep America Beautiful Affiliate, and the United Nations Youth Corps. Through these experiences, I have been able to resurface the focus of the dangers of loose litter and emphasize the importance of proper waste management skills. Without these skills, waste and litter will result in pollution in water like Winyah Bay and the five rivers, being it is the closest waterway to Georgetown. Litter in the water is defined as “any persistent, manufactured or processed solid material discarded, disposed of or abandoned in the marine and coastal environment” (Beeharry et. al., 2017). This report reflects the city’s efforts in accordance with the global efforts of becoming more sustainable regarding garbage, litter, and the correct disposal of it. A previous report submitted by former interns Shayne Doone and Dean Wrobel, illustrated the breakdown of litter in categories from loose drink loose bottles/cans to clothing or fabric on roadway (Doone and Wrobel., 2021). By using this graph, communities in Georgetown can easily see what the biggest debris issues are and get a better idea on how to keep roadways and waterways cleaner.

Overview

Litter is granted one of the largest causes to pollution in Georgetown County for years, creating the debate of the proper way to help and prevent the effects. With the flock of tourists making their way to Georgetown County, it is crucial garbage is disposed of the correct way. Winyah Bay is the key root to the economic growth of Georgetown as it is relied on by restaurants, grocery stores, and big companies such as International Paper. In addition, sustainable waste management will contribute to the efforts of keeping litter out of storm drains, which in turn, helps to prevent flooding on the roadways and homes. With the development of the Adopt-a-Street program, the goal is for those who Adopt-a-Street to obtain feelings of pride for their neighborhood while picking up objects like cans, bottles, snack wrappers, containers, paper, and other loose trash. It has been estimated that if every American picked up 152 pieces of litter, our nation would be litter-free (PalmettoPride, 2021).

Not only are the litter clean-ups in place for keeping trash out of drains and waterways, but it also helps tourists and residents in the area undergo less risks of damage to their health and safety. A study proved that people who visit the beach, and the wildlife that inhabit the beach are at an elevated risk of danger due to broken glass, fish lines and hooks, and bottle caps, while divers must make themselves aware of floating debris and the contamination of the ocean water (Beeharry et al., 2017). Pollution that leads to contamination of the water is very harmful in the water not only to divers, but to the plants and formation of the ocean. It causes the seabed to wear, destroys habitats, and negatively impacts the flora (seaweed) and fauna (bacteria) of the sea (Beeharry et al., 2017). The United Nations Environment Program (UNEP) reports that 70 percent of marine litter sinks. We have seen this through the twenty-five mile long Eastern Garbage Patch, located between California and Hawaii, where trash dumped in

the ocean has been disintegrating for decades, making it to the bottom of the ocean floor (Kostigen, 2008).

Thesis

In Georgetown County, the implementation of the Adopt-a-Street by Keep Georgetown Beautiful made groups accessible to safe litter clean-ups in order to clean city streets. The clean-ups will be a tool to create better preventative strategies and measure the amount of litter that is cleaned up throughout the year. This data was compared to other parts in the county and a 2021 heat litter map that surrounds Georgetown County.

My Internship

During my time working with Keep Georgetown Beautiful, my primary focus was on litter clean-up, how to become more sustainable with waste, and how to prevent litter in the future. The Adopt-A-Street program was designed to help Georgetown County (specifically in the City of Georgetown, in being more sustainable managing waste. Numerous clean-ups over a two-year period are accomplished by residents in the city, including individual efforts, families, civic groups, or neighborhood organizations. The task is to choose any street within the city limits that they would be interested in “adopting” and schedule three cleanups per year for two years. Keep Georgetown Beautiful assists in the cleanup by providing the necessary equipment such as first aid kits, trash bags, and tools for picking up loose litter. It is the responsibility of the group to decide on a date and time of the clean-up. Before the process started, each group member was obligated to sign a waiver proving that they understood the rules and that if anything were to happen, the city was not at fault.

Literature and Case Studies

To produce the best strategy for Georgetown County to become more sustainable at managing waste matter, we first must compare the strategies and implementations of other counties. A national study in (2020) produced by Keep South Carolina Beautiful compared the statistics from the Keep America Beautiful study in 2009. The results were astonishing! In only 11 years, litter on roadways reduced by 54% (PalmettoPride, 2021). Nevertheless, the amount of litter along waterways and roadways through early fall came to 207 million pieces. That is estimated to be more than 2,000 articles littered per mile of highway. (PalmettoPride, 2021). Some people argue the COVID-19 pandemic was to blame for the increase numbers in litter because over 14 months there was a 9,000% increase in mask litter. People began to use more gloves and wipe surfaces more often each day. Research indicates the use for these items will remain high throughout 2022 (Beusekom, 2021).

In Australia, state and local governments impose strict policies and campaigns to target abatement. They designed outreach programs such as Bin your Butts Cigarette Campaign (2017) and compared those programs to linear models for educational purposes. In addition, with state-enacted policies such as making it entirely illegal to litter and dump in Australia, waste has been significantly reduced along the coastline. In Germany, India, and several countries in Africa, plastic bags have been completely banned (Willis et al., 2017). This would help South Carolina and Georgetown County because the residents and citizens would be constantly reminded of these campaigns and the importance of them would be stressed more than ever before, eliminating the choice to litter. The banning of plastic bags would encourage people to bring their own containers with handles, which would alleviate plastic bags from ending up deteriorating waterways.

In Vermont, they have observed a statewide day and called it 'Green Up Day' in order to preserve the beauty of their state while keeping trash off the land and out of waterways. It is held annually on the first Saturday of May each year. So far, they have picked up 418 tons of trash and 16,250 discarded tires with the help of over 22,000 volunteers. On their webpage, you can purchase t-shirts and water bottles. In addition, they display the winner of the 2022 Art Contest based on grades K-12. This is a phenomenal way to get people involved in helping the community and their home state. Being that it was implemented by the state, families may feel safer, and more people would contribute to the clean-ups. Schools in Vermont are encouraged to teach their students the importance of not littering, creating a fun, hands on activity to illustrate the event such as the poster making contest. Children are the future of society, so it is vital they learn strategies to help environmental issues when they are young. Awareness amongst children ages 6-11 about environmental issues alone is ineffective unless it can be translated into action (Hartley et al., 2014). If this were to go in affect for South Carolina, every county would benefit, especially Georgetown County due to the location of the Winyah Bay. The beaches would be cleaner reeling in more tourists, leading to endless economic success for the county.

Empirical Data

By participating in the clean-ups, litter was placed in the right area making its way to a landfill therefore demonstrating proper waste management skills. When the weather is pleasant and people can travel by foot, litter has been proven to be more prevalent. The environmental setting adds to this, as well demonstrating how the lack of garbage bins is linked to the existence of debris (Lockwood et al., 2021). The Adopt-a-Street measures which streets have the most litter, and if there is a need for more trash receptacles. We made tables and tracked the bags collected in order monitor how much litter was picked up. One study found that without

enough trash containers, people will litter more as they see that the area is already littered. When the land was free of litter, 14% of the individuals littered, however, 32% of individuals littered in an already littered environment (Schultz et al., 2011). That is almost double the amount of litter compared the ground being kept clean and should be an incentive for Georgetown to act where needed.

To start off, a chart was made to outline which streets were taken, how many people helped clean the street, and how many miles of the street was being cleaned-up. Figure 2 compares the number of miles that are cleaned in the county. Only three streets were adopted and only 1.7 miles of city streets were cleaned by volunteers.

| Name of Street | Participants | Mileage of Road |
|----------------|--------------|-----------------|
| Church St. | 1 | 1 mi. |
| N. Congdon St. | 3 | 0.5 mi. |
| Lucas St. | 1 | 0.2 mi. |

Figure 2: A table from a previous Adopt-a-Street program shows the street name, number of participants, and mileage of road adopted.

The records and table in Figure 3 show that people have adopted more streets now than they have in previous times. As of now, a total of seven miles of roadway will be cleaned over the span of two years. Since the clean-ups are every two months, an estimated four bags of trash are collected on every street, ridding the city of a total of 80 pounds every two months. This was also compared to a heat litter map to prove if more people contribute to these clean-ups, then the score for the city will be lower than its current score. Keeping a low score will help development in the city along with creating more sustainable patterns.

| Name of Street | Participants | Mileage of Road |
|-----------------|--------------|-----------------|
| Merriman Rd. | 2 | 1.5 mi. |
| Duke St. | 2 | 1.3 mi. |
| Church St. | 2 | 1 mi. |
| East Bay St. | 4 | 1 mi. |
| River Rd | 6 | 0.2 mi. |
| Black River Rd. | 7 | 2 mi. |

Figure 3: A new table was created to represent the city streets, participants, and mileage of road which can be used to compare data from past years.

As the program continued, the results were compared to the litter index created by Shayne Doone and Dean Wrobel. This litter index was from March 2021. Throughout Georgetown County, roadside survey points were acquired by using Geographical Information System (GIS) and Global Positioning System (GPS) information (Doone and Wrobel., 2021). Adopt-a-Street program was formed and designed to be only in the city limits, so the focus was to watch the City of Georgetown and those streets. In Figure 4, the bright orange/yellow spots are the most littered. Keep America Beautiful proposed a scoring guide from 1-4. If the area was scored with a one, that meant litter was not heavy in that geographical location. A four meant the area was exceptionally littered with not only trash but also furniture and heavy equipment.

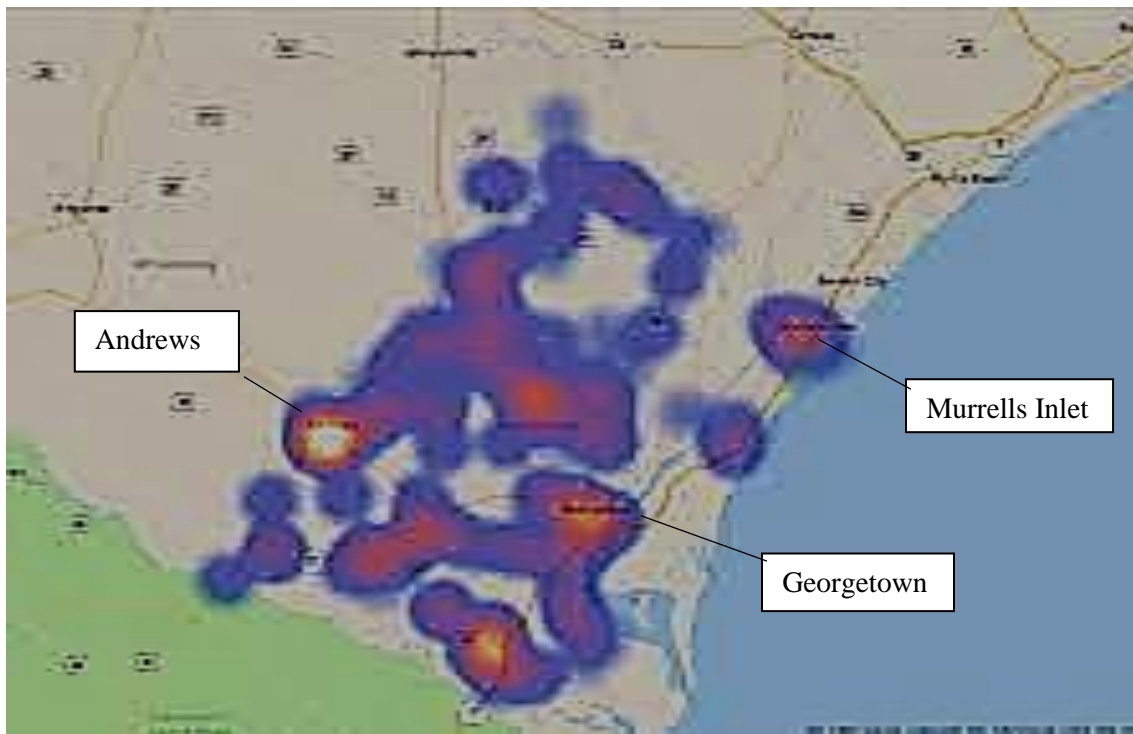


Figure 4: Litter Heat Map illustrating “hot spots” in Georgetown (Doone and Wrobel., 2021).

Figure 4 depicted that the city was heavily littered in 2021 with its score as a three making it amongst the 28% that was also scored as a three. The Adopt-a-Street Program plans to help this score for the city and pick up at least 600 pounds of litter over a two-year period. In 2024, other participants will be given a chance to lower the number on the litter index picking up trash on the same streets. In addition, they will let up to ten people a group to ensure the mileage of the street is an easy accommodation. Neon clothing and grabbers will be provided, making this project a cost-free, beneficial activity. The garbage bags will be provided by the city. After the bags are weighed, they will be safely taken to a landfill. As we move to similar counties around Georgetown, we can see similar trends. Even though these results are not based off findings from the litter index, we can still see litter as a big issue. Figure 5 illustrates the amount

of cigarette butts found on the most popular beaches around Georgetown County such as Myrtle Beach State Park, and Garden City Beach, including Wacca Wache River Landing.

| Summer 2018 Results | | |
|---------------------|----------------------|-----------------------|
| Study Site | Pre-Independence Day | Post-Independence Day |
| Myrtle Beach | 6/20/18 | 7/9/18 |
| State Park | 224 butts | 507 butts |
| Garden City | 6/19/18 | 7/10/18 |
| Beach | 453 butts | 694 butts |
| Wacca Wache | 6/25/18 | 7/9/18 |
| River Landing | 593 butts | 308 butts |

| Fall 2018 Results | | | |
|-------------------------|-----------------|-------------------|-----------------|
| Myrtle Beach State Park | | Garden City Beach | |
| Date | Cigarette Butts | Date | Cigarette Butts |
| 10/14/18 | 188 | 10/12/18 | 69 |
| 11/11/18 | 118 | 10/28/18 | 338 |
| 12/1/18 | 3,899 | 11/4/18 | 190 |

Figure 5: An experiment in similar counties measuring the amount of cigarette butts found in the sand or in the river or ocean

Even though they are small, they contribute to the most common form of litter around the globe. In 2015, volunteers picked up 13,806,887 litter items in over 100 countries, and 2,127,565 of these items were cigarette butts (Araújo et al., 2019). The fall measured the count three times and found that Myrtle Beach had the most cigarette butts in December. In the Summer, the experiment was reflected from the biggest summer holiday- Independence Day and found that after the holiday there was almost double the amount of cigarette butts. This is primarily because thousands of tourists travel to South Carolina, especially Myrtle Beach, during this time of year. Even though the City of Georgetown County does not contain beaches, cigarette butts are responsible for being the most popular piece of litter. The Adopt-a-Street

program urges participants to safely retrieve this litter with the tools provided. The objective in obtaining cigarette butts is to make sure they terminate in a landfill and not a waterway or ocean.

Relation to SDGs and Targets

The United Nations 12th Sustainable Development Goal focuses on sustainable consumption and production. The purpose of sustainable consumption and production involves doing more and better with less. In other words, this goal is focused on increasing resource efficiency by separating economic growth from the degradation of the economy. The litter clean-ups in Georgetown correspond directly with this goal and includes target subsets 12.2, 12.7, and 12.8 (United Nations, 2022).

Target 12.2 highlights the importance of using natural resources efficiently while achieving sustainable management by the year 2030. From the litter clean-ups, this relates in the way that we are able to see which streets are littered the most and need more attention. If we properly sustain our streets and impose proper waste management this will help roadways stay clean, the five rivers that flow throughout Georgetown, and the oceans, specifically the Atlantic, become cleaner.

Target 12.7 promotes public procurement practices that are sustainable, in accordance with national policies and priorities. The more educated people are on this topic, the more motivation they will have to join in the clean-ups, especially children and their parents. Through the Adopt-a-Street litter clean-up, any resident in the County was able to participate in this two-year agreement, they just had to sign the waiver and other documentation that they are liable for themselves.

Target 12.8 ensures that by 2030, people everywhere have the relevant information and awareness for sustainable development and lifestyles in harmony with nature. To meet this goal, there were signs posted at the end of each street showing that a participant adopted and cleaned. This spreads awareness and can educate people on the program. For the participants, it motivates them create a time in their schedule to help the environment and clean loose litter from land, so it is not later found in water. The goal by the end of the two-year program is for the participants to positively improve their view on nature and continue the cleanups even if they are not signing a document that states they carried out clean-ups on that street.

Conclusion and Recommendations

Georgetown County plans to continue developing events and programs to get people involved with helping the environmental issue of littering. With these programs alone, around 10,000 pounds of trash has been properly disposed of to landfills instead of in waterways. Although this is great progress, it is not nearly enough in comparison to eliminating litter all together. Georgetown County will continue to compare the clean-ups to the Heat Litter Map (2021) and future Heat Maps. Relating the clean-up outcomes to the SDG targets will lead projects in the right direction to benefit the environment and become more sustainable.

One way to spread awareness and improve clean-ups in Georgetown is to use marketing through social media. It is essential for Keep Georgetown Beautiful and all the Georgetown County accounts to remind their residents of when these clean-ups are, some information about the program, what the task and objectives are, the importance of completing the activity, what the outcomes have been in the past, and an incentive or something you will receive after completing this effort-such as pride for your area. While the city has not attempted this yet, I suggest posting videos on Facebook or Instagram of interviews of participants in the

past who got involved in the community to help poor waste management. Since social media has become the primary way for organizations and friends to share information, actively posting about the problems of litter and outcomes of picking up litter will be a way to quickly give everyone a chance to get involved.

Another recommendation to spread awareness for children and adults is to implement and improve the quality of education. In relation with the poster contest in Vermont, teaching children at an early age about litter will change their attitudes as children; therefore, making future generations focus on having a clean, sustainable environment. I suggest Georgetown incorporates a field day for students to learn about the history of the city and the bordering waterways with different hands-on stations for the students to learn about the current dangers of littering and why it is important to prevent littering. The stations could include picking up litter on the school playground or crafting posters to hang in the halls year-round as a reminder. In addition, I suggest the city posts more signs on the roadways and streets to remind and educate adult drivers of the dangers of littering. The signs could be “do not” signs, or negative incentive signs like the maximum amount of money fined due to littering. In South Carolina, base fines are \$25-\$100 and 8 hours of community service for litter of less than fifteen pounds. The maximum fine for littering is \$1,000, sent to jail for a year, or both (PalmettoPride, 2021). Highlighting these penalties would make people more aware of their actions and take away the choice to litter as a student and an adult.

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