

Georgetown County: The Issue of Land Litter and Pollution

Rainwater, N. R.
SUST 310 Methods/Tools in Sustainability

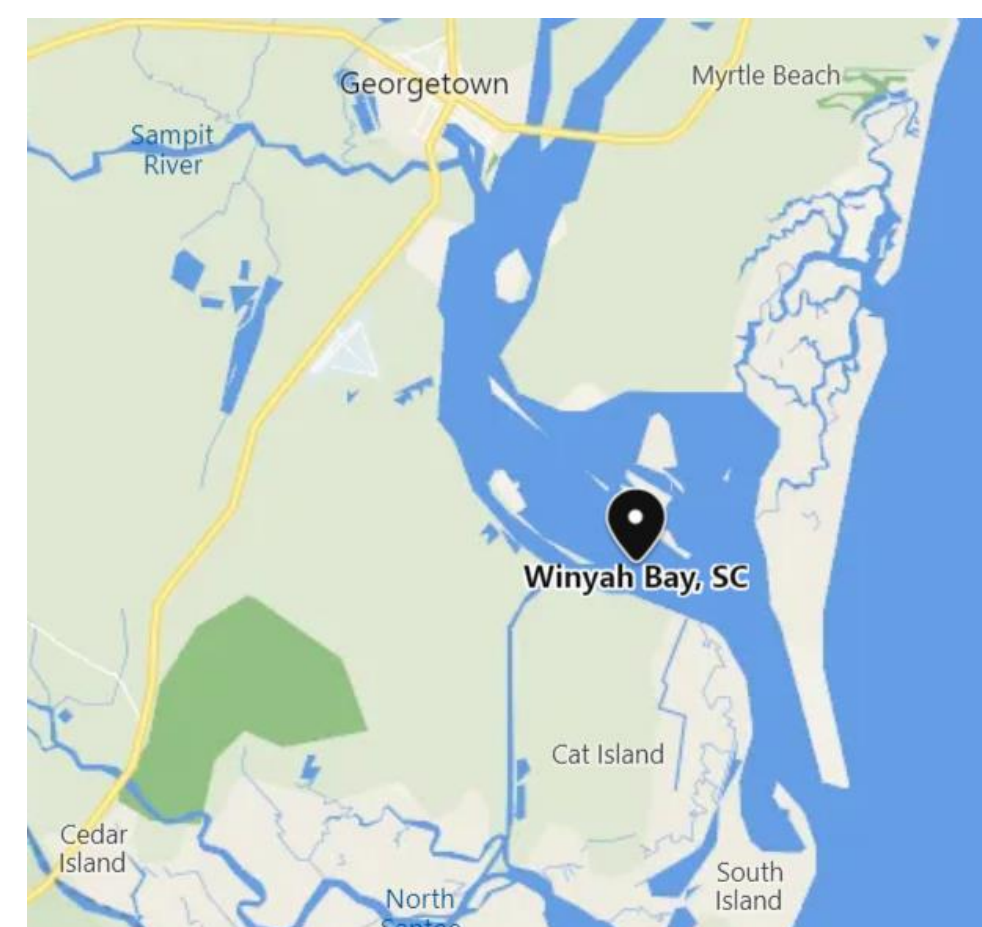
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Introduction

Georgetown County, home to one of the largest watershed basins on the east coast, Winyah Bay, has a notable, widespread litter issue. The 2022 litter index for the county was utilized to assess the issues current state and provide the county with data to inform decisions on solution strategies.



Figure 1: Map of Georgetown County from google maps



The EPA roughly estimates that 80% of marine pollution worldwide comes from land litter. Winyah Bay drains a 24.8

square mile area (“Environmental Monitoring-North Inlet-Winyah Bay”), making it a dangerous pathway for marine pollution.

United Nations SDGs

The Sustainable Development Goals were created by the United Nations in 2015 as a universal call to action to end poverty, protect the planet, and ensure that by 2030 all people enjoy peace and prosperity. There are 17 goals, this project falls under two different goals. Goal 6, “to ensure availability and sustainable management of water and sanitation for all,” specifically 6.3 which aims to improve water quality by reducing pollution, eliminating dumping, and minimizing the release of hazardous chemicals. Goal 12, “to ensure sustainable consumption and production patterns,” specifically 12.5 which is intended to reduce waste generation through prevention, reduction, recycling, and reusing.

Litter Index

Methods

- Conducted from February to March 2022
- 146 roadside points
 - Limited to county and local municipality-maintained roads
 - No state highways or privately owned roads
- 200 meters of road were examined per point

Keep America Beautiful Scoring Guidelines

- One: little to no litter
- Two: slightly littered but manageable
- Three: site where an organized cleanup was needed
- Four: extremely littered, bulk waste dumpsite

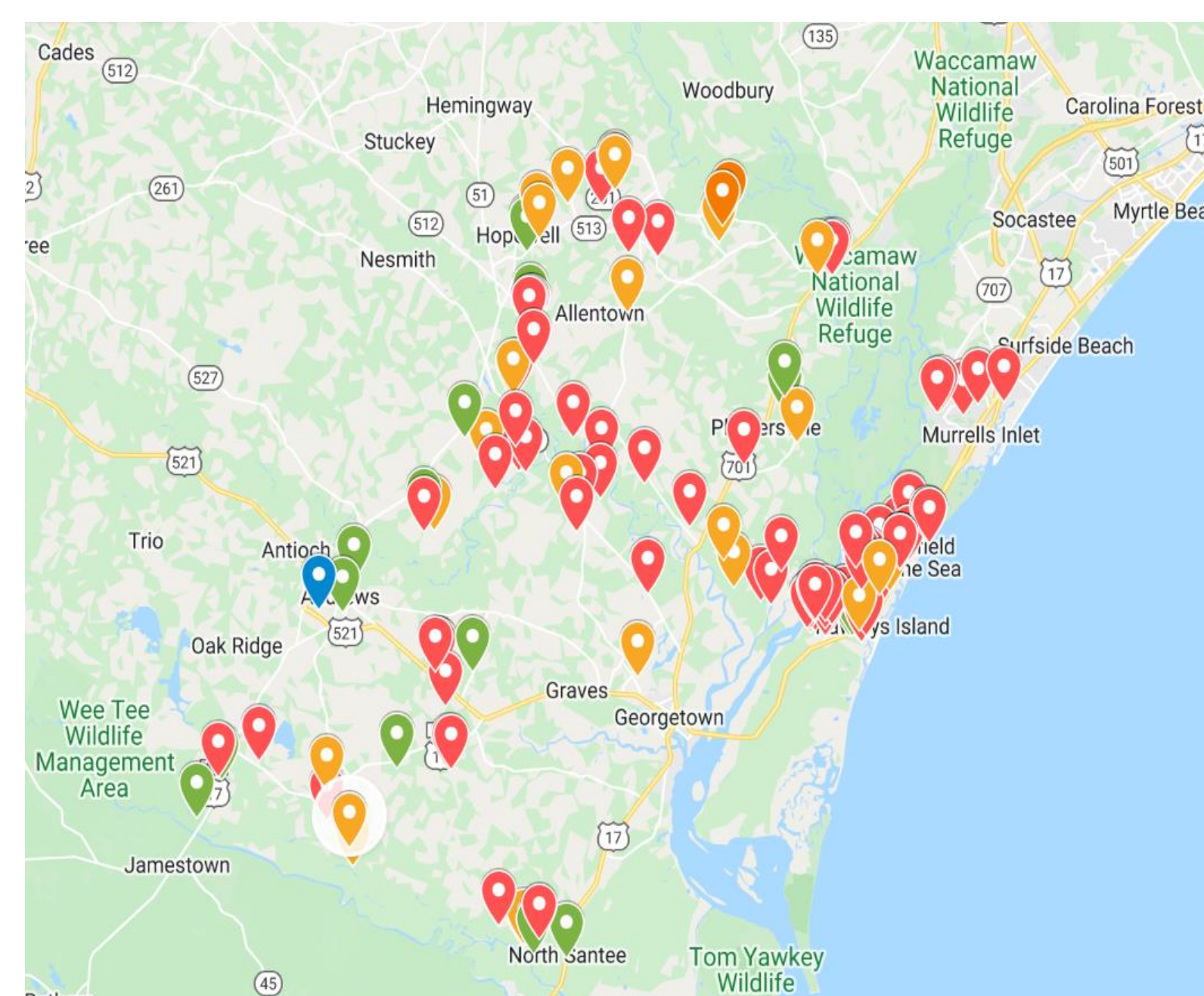


Figure 4. All 146 individual points throughout the index. Red: one, orange: two, green: three, blue: four.

Keep America Beautiful reports a national litter index score of 1.67, meaning that Georgetown County is slightly less littered than the national average. It's important to note that averages are only reported based on roadside surveys, not state highways, which is where most of Georgetown County's litter is resided, or on other major roads that were not surveyed.

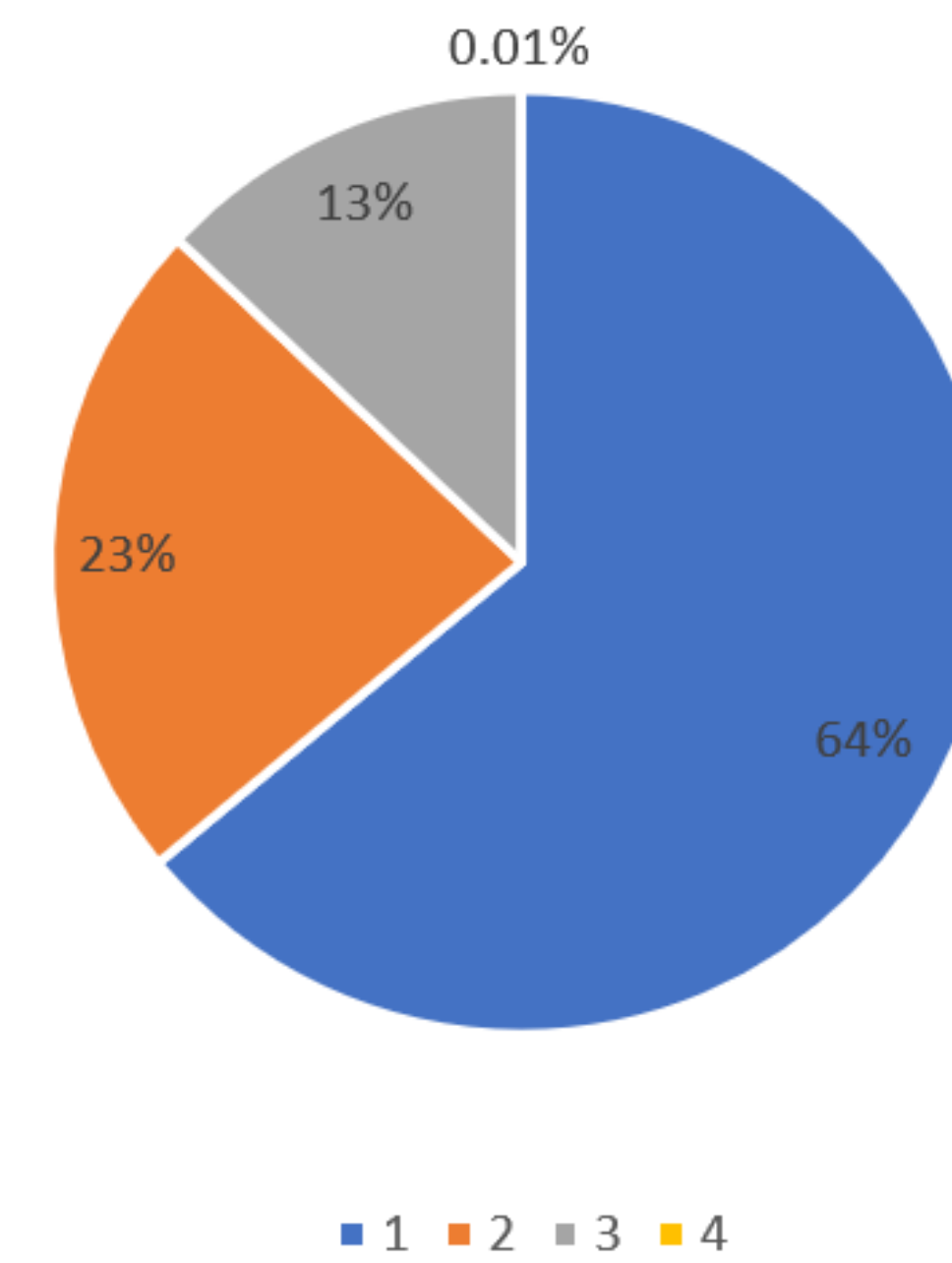


Figure 3. Percentage breakdown of litter index scores across roadside points surveyed.

One: 93 points (64%)
Two: 33 points (23%)
Three: 19 points (13%)
Four: 1 point (0.006%)
Overall average: 1.51

Majority of litter types:

- Alcohol related
 - Beer bottles and cans
 - Cardboard boxes
 - Liquor bottles
- Take-out food containers
- Plastic shopping bags
- Aluminum cans
- Plastic bottles
- Old tires
- Old electronics

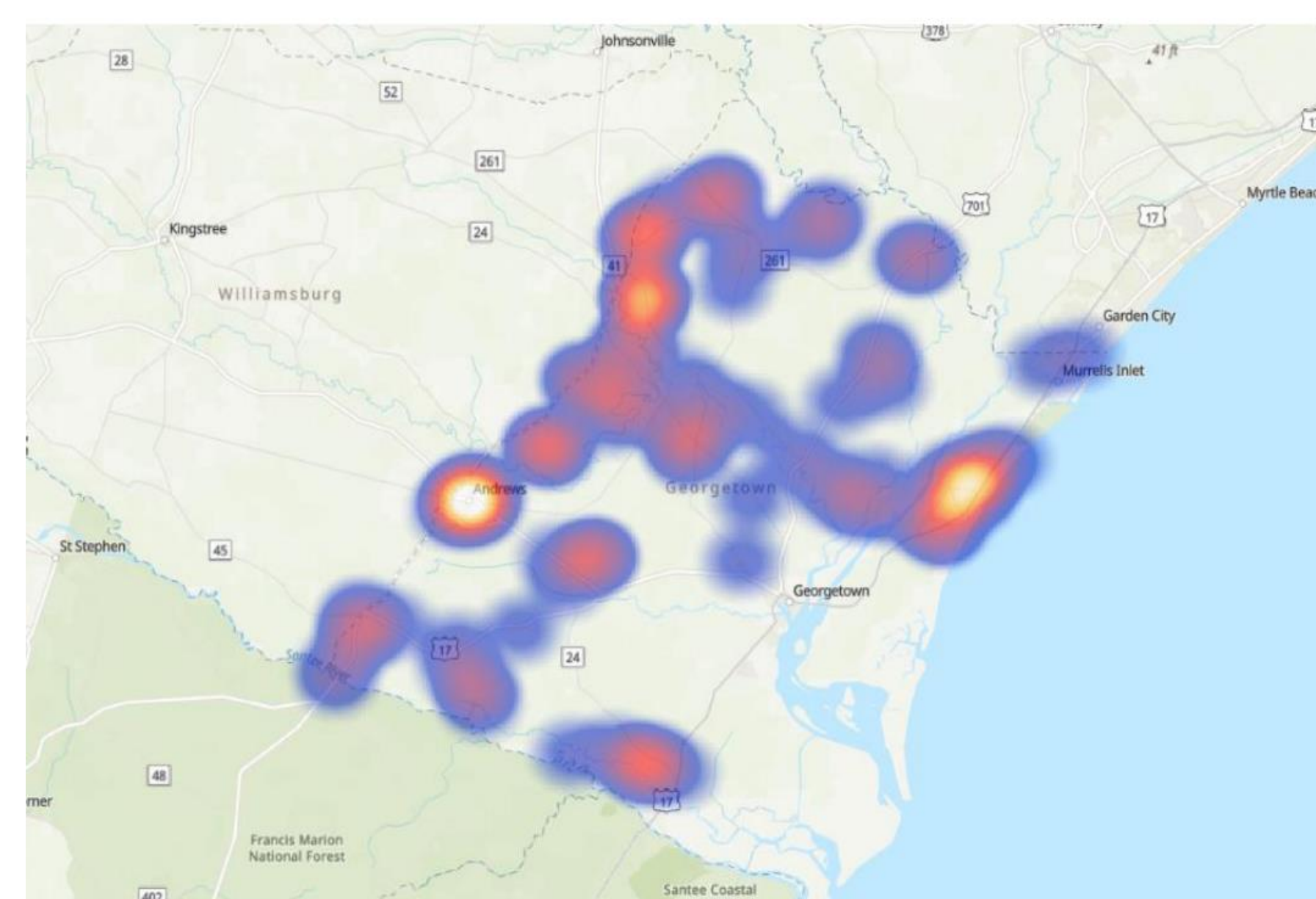


Figure 5. Heat map distribution of litter throughout all of Georgetown County. Hot spots include the city of Andrews and Pawley's Island, along with areas near rural highways

Case Studies/Lit Review

A study conducted by Keep America Beautiful found that males under the age of 19 are the most likely group to litter (Schultz). Males are also more likely to litter than females (Shukor et. al., 2012). Education level, type of residence, or vehicle model were not found to be significant indicators for tendencies to litter. It was also found that majority of 81% recorded littering instances were done with intent. Littering is a positive feedback loop. If someone else already littered in the area, then it wouldn't matter if someone else did too (Rangoni and Jager, 2017). It was also found that ages 18-36 are more willing to admit to littering than ages above 36 (Campbell et. al., 2014). Street signs are another way to encourage people not to litter. People are likely to dispose of trash properly when signs are present to remind them not to litter (Shukor et. al., 2012).

Recommendations

First recommendation: The litter index continues to be completed annually. This helps to monitor the litter density and distribution throughout the county and provides updated program efficiency as well as monitoring trends in amounts of litter.

Second recommendation: Allowing more people to work on the project. This would allow for more data to be collected in a shorter amount of time. Training classes could be held for those wanting to participate so that they can follow the Keep America Beautiful survey protocols and learn to do the project properly.

Third recommendation: To collect data points along major highways and roads in Georgetown County. Allowing this change would bring forth the real issue of the litter problem in the county. Almost every major road or highway in the county is covered in bags of trash and bulk waste. Each road would most likely be scored as a 3 or 4.

Fourth recommendation: Reaching into the classroom and teaching younger children about the negative side effects of littering. Educating young people about current problems and encouraging them to be apart of the change in the world motivated them to influence others (Institute of Physics).

References

Available on request.



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