

Plastic in the Marine Environment: Using Citizen Science as a Mitigation Tool

Kelly Thorvalson

March 19, 2019

Carolina Recycling Association Conference



Photo: Coastal wiki





Photo: Manan Vastasyana



Image: Kiawah Nature Center



Image: Surfrider Charleston



Image: Charleston Waterkeeper



Image: Charleston Waterkeeper

in Mio. t

350

300

250

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1950

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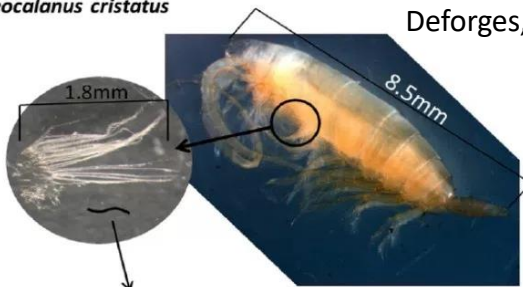
2000

2010

2020

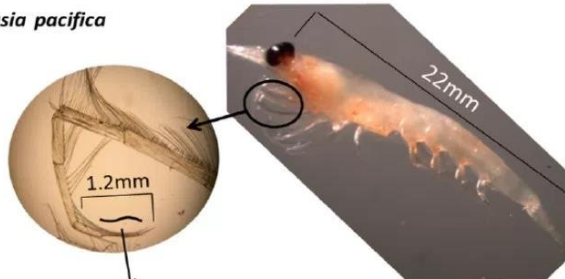
A *Neocalanus cristatus*

Deforges, et al



ingested microplastic size: 0.5mm

B *Euphausia pacifica*



ingested microplastic size: 0.8mm



Dr. Marcus Eriksen



Chris Jordan



Loggerhead Marinelife Center

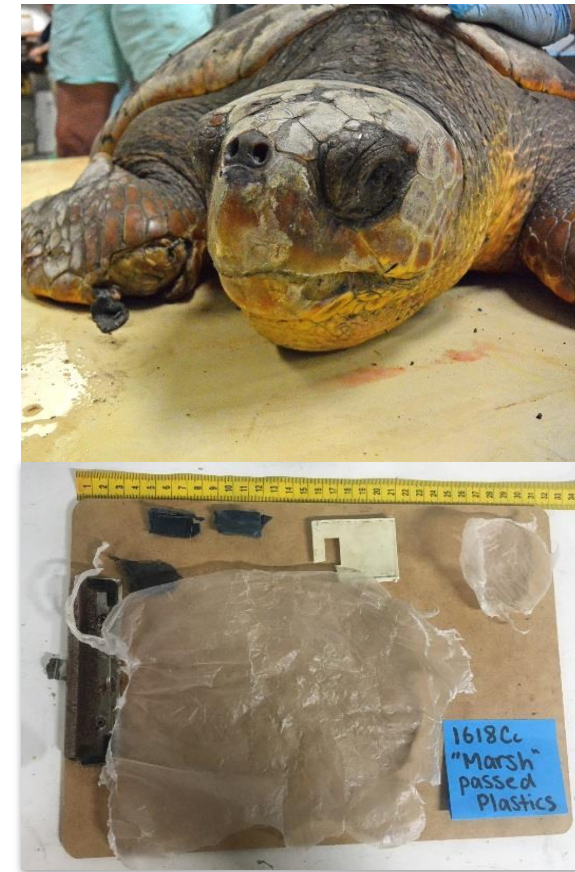






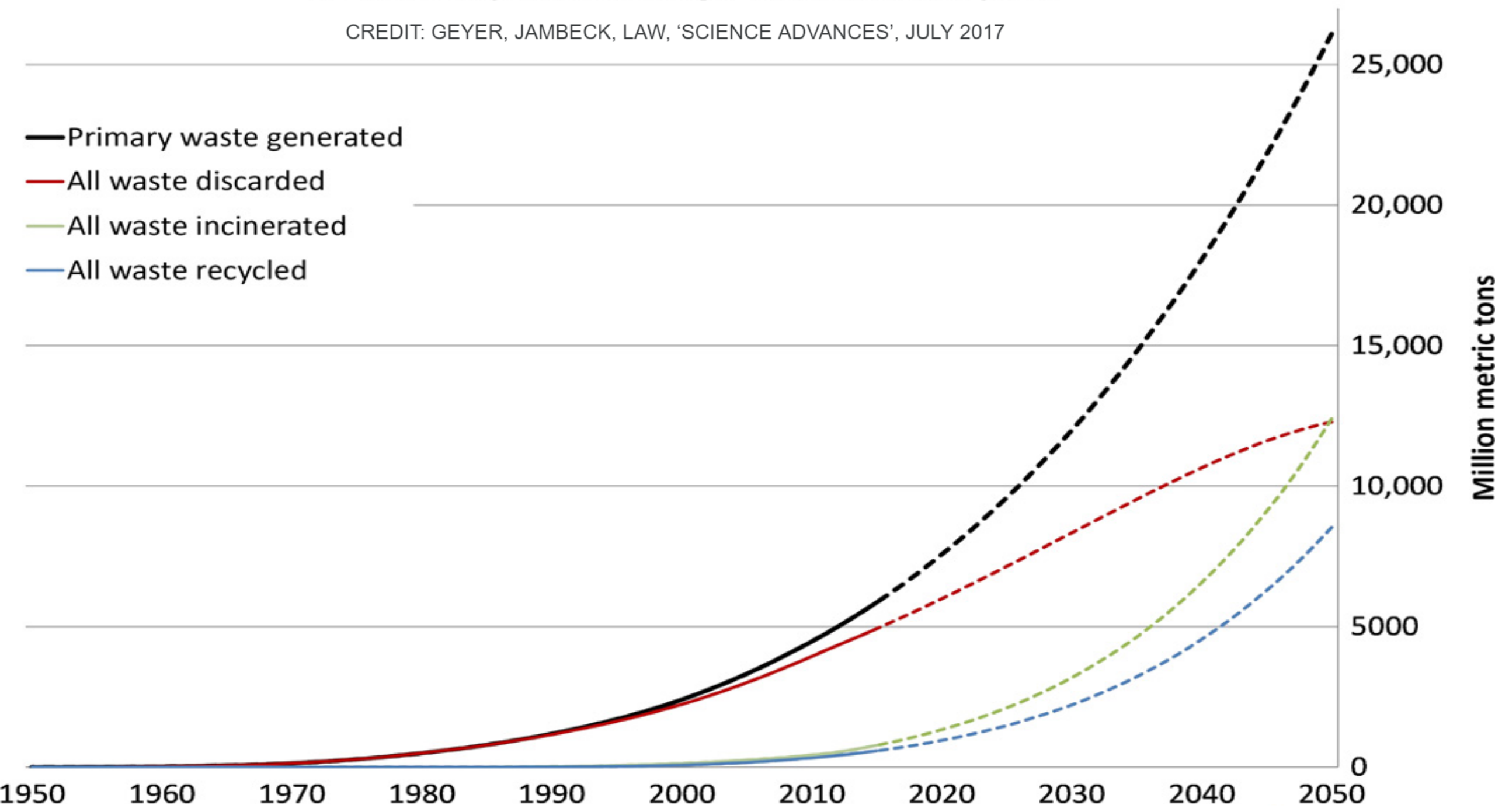
Plastic Ingestion in SC Live Strandings

- 25 patients in 18 years with GI plastics
 - > 23 were in the last 5 years



Cumulative plastic waste generation and disposal

CREDIT: GEYER, JAMBECK, LAW, 'SCIENCE ADVANCES', JULY 2017



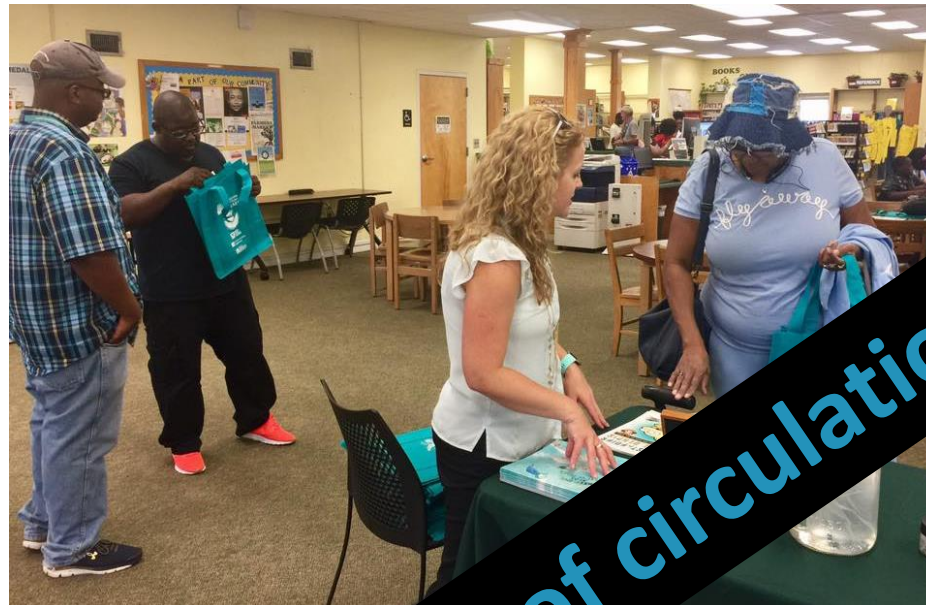
Where is it coming from?

- 80% from terrestrial sources





Charleston County Public Libraries



20,000 bags out of circulation!!

PLEASE SAVE
MY HOME



USE CORRECT
RECYCLE
PLEASE



South Carolina Aquarium Citizen Science

By MDI Biological Laboratory

Open iTunes to buy and download apps.



View in iTunes

Description

The SC Aquarium app brings South Carolina Aquarium in South Carolina Aquarium's volunteer programs state are reporting, and even see what conditions might be

[South Carolina Aquarium Citizen Science Support](#)

What's New in Version 1.04

- Updated data entry color scheme for easier visibility
- Tweaked color scheme
- Better ergonomics in map options panel

Search projects

Joined

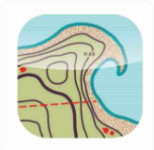
All



Litter-free Digital Journal

2110

+ Observe



SeaRise

210

+ Observe



Charleston County Stormwater Management

24

+ Observe



Lionfish Watch

13


+ Observe


●●○○ AT&T

12:33 PM

68%

Back





Litter-free Digital Journal

📍 795 📷 963

+ Add data

About

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Data

Photos


The South Carolina Aquarium encourages citizens to track and remove plastics and other debris from both land and water throughout our beautiful state. Collectively, these efforts improve human health, promote habitat conservation and save wildlife.


How to participate

Litter. It's a pervasive problem with the potential to negatively affect all living things. From South Carolina's mountain streams to its island beaches, plastics and other improperly discarded materials not only destroy the beauty of our landscape but also can be harmful to us. Rainwater pooled in plastic litter provides a breeding ground for disease-spreading mosquitoes. Plastics and cigarette butts may leach dangerous toxins into our water supply. Aggregations of litter can clog storm drains, harm wildlife, and harbor disease-causing microbes.

So what can we do?

The South Carolina Aquarium is leading the way to empower citizens like you to engage with us in meaningful conservation actions. As partners,

 Projects

 Map

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Litter-free Dig...


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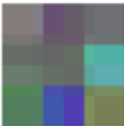
KDCB




Lynnesager




Jackie




Henryjenniferl




Alyssa



Monifa

 Projects

 Map

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Count	Debris Type	Comment
2	Debris	Christi we need to organize a litter sweep here at the 10 Mile Community Center.

5 comments

 Projects

 Map

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67%

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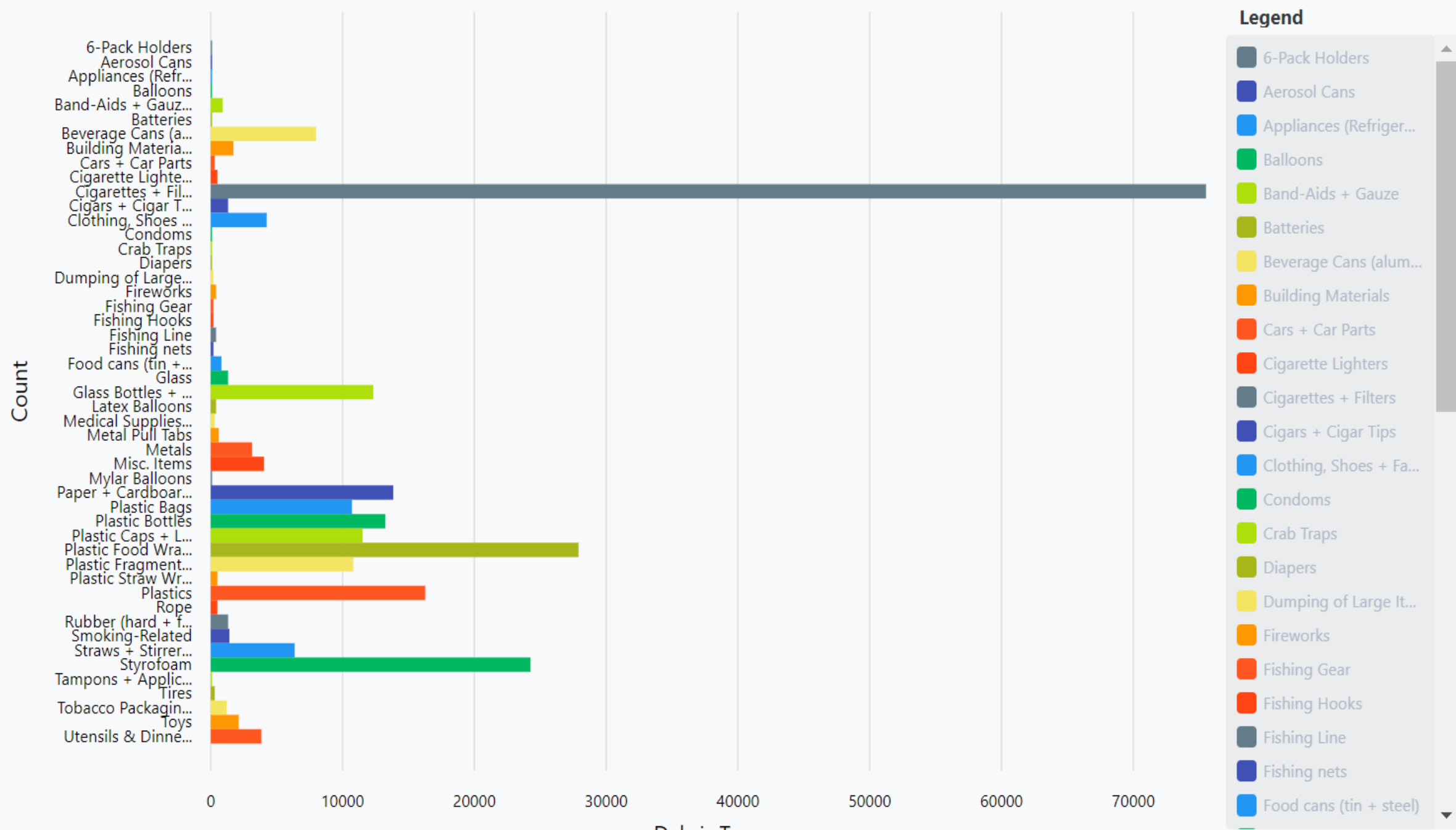


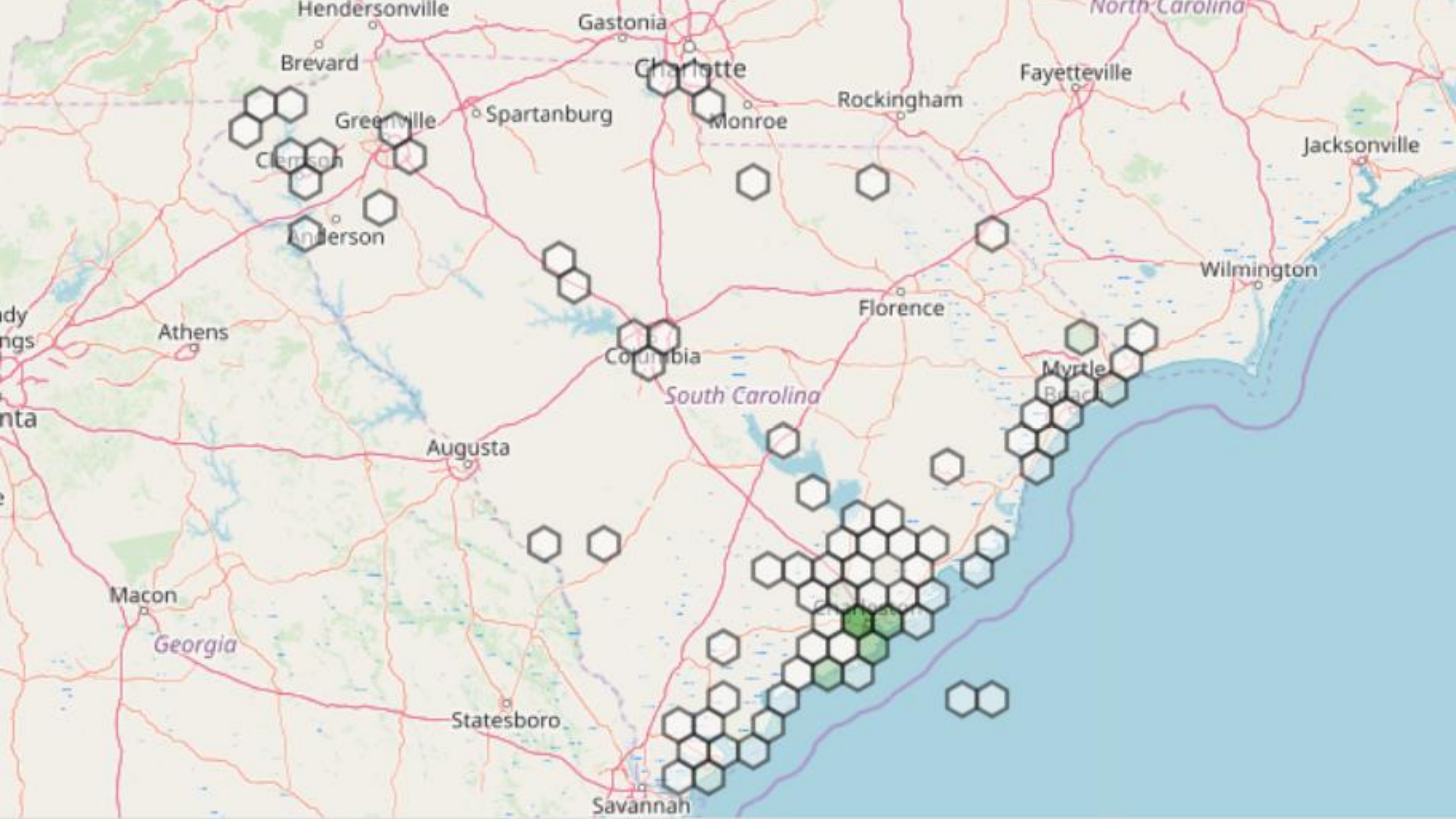




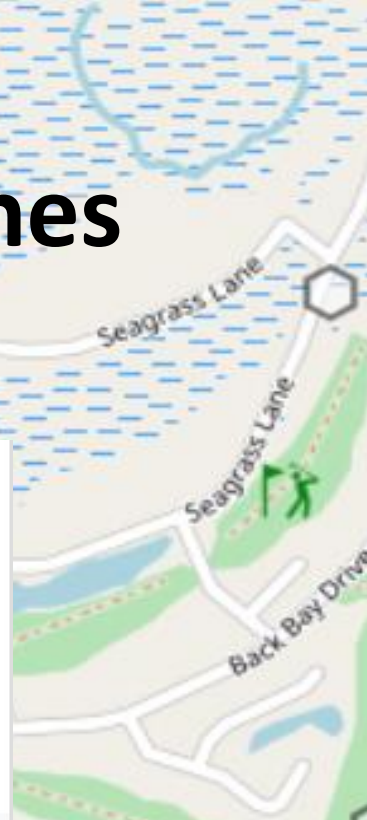
 Projects

 Map

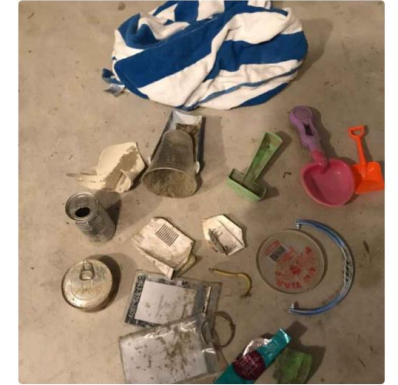




Wild Dunes

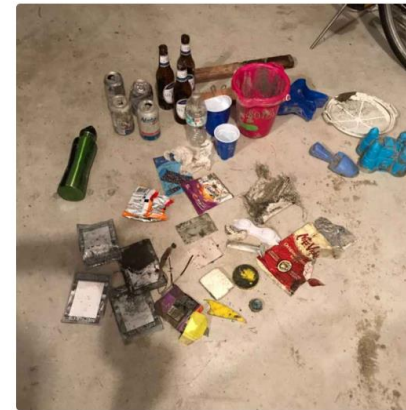


I walked from the Owners Beach house in Wil Dunes, IOP, SC to upper part of island passed where the cables go to DeWeese Island.
20 items were not recyclable.
26 items were recyclable, at least partially



There were 19 items in all Saturday as we did our turtle walk in Wild Dunes on the Isle of Palms from the Owners Beach House north past where they cross over to DeWeese Island. Almost every week we find the plastic holders with rental information.

This from the WD POA beach house south to 49. I average 4 buckets each trip. Most of the debris is around the resort's grand pavilion.



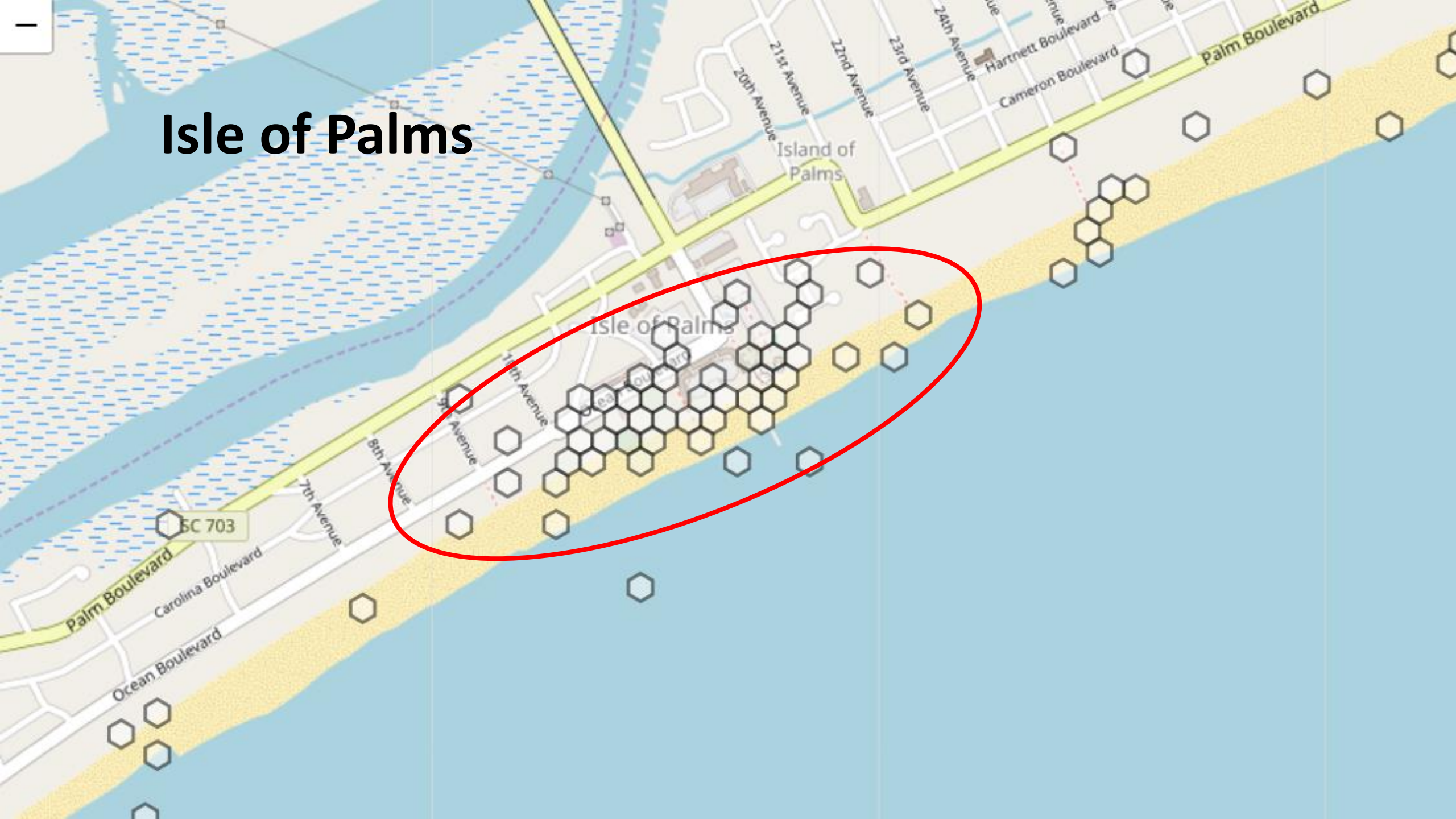
From OceanPoint in Wild Dunes, IOP, SC to Owners Beach House.
19 items were not recyclable including 5 snack bags
14 items were recyclable
I'll clean up the beach toys and take by Goodwill so other children can use them.
4 items were plastic pouches with rental info

A map of Kiawah Island, South Carolina, showing the coastline and surrounding waters. The island is labeled 'Kiawah Island' in the center. Numerous sampling locations are marked with hexagonal icons along the shoreline and in the water. The icons are color-coded: white, light blue, light green, and light orange. A dashed purple line runs along the coast, and a dotted purple line runs parallel to it further out. The word 'Kiawah' is written in large black letters in the upper left corner.

Kiawah

- Presented as part of Kiawah Conservancy lecture series
- PICK (Plastics Initiative Committee of Kiawah) formed
- More people getting data
- Town of Kiawah taking deeper dive into plastic on the island

Isle of Palms



Isle of Palms



IOP CLEANUP CREW RECORDED PICKING UP

**23 THOUSAND
PIECES OF
TRASH**

IN ELEVEN TOTAL HOURS.

- 9,407 GENERAL PLASTICS
- 8,142 CIGARETTES
- 2,445 MISC
- 833 STRAWS
- 809 STYROFOAM
- 410 MEDICAL & HYGIENE
- 388 CANS & METALS
- 282 SMOKING RELATED
- 141 FISHING RELATED
- 117 GLASS
- 78 BALLOONS
- 48 LARGE WOOD



Mount Pleasant approves largest plastic bag and foam container ban in state

BY DAVID SLADE DSLADE@POSTANDCOURIER.COM

APR 10, 2018 

Charleston bans plastic bags, straws and foam — but hesitantly

BY ABIGAIL DARLINGTON ADARLINGTON@POSTANDCOURIER.COM

NOV 27, 2018 

Town of James Island is on its way to banning single-use plastic bags

BY CAITLIN BYRD CBYRD@POSTANDCOURIER.COM

DEC 21, 2018 



- Good Catch Partners have committed to serve local, sustainable seafood sourced from southeast regional fisheries
- Platinum Partners have signed on to our Plastic Reduction Pledge



Litter-free Digital Journal:

- Shows important trends
- Create behavioral change
- Informs businesses and policy
- Saves wildlife
- Litter sweeps without data collection are short term/ineffective!

Thank you!

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