FIG WORKING WEEK 2025
AND Locate25 THE NATIONAL GEOSPATIAL CONFERENCE
Collaboration, Innovation and Resilience: Championing a Digital Generation
FIG Geospatial Council of Australia
Brisbane, Australia 6–10 April

Leveraging Geospatial Technology to Monitor and Plastic Pollution Along the Coast

Presenter: Priscilla Djaba, Ghana

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Overview

1 Background

2 The Global Plastic Pollution Crisis

3 Research Region

4 Research Approach

5 Results and Discussions

6 Conclusions & Recommendations

Background

The Global Plastic Pollution Crisis

- Plastic pollution along coastal areas has become a global environmental crisis, threatening marine ecosystems, livelihoods, and public health

- By 2050, there is a chance that plastic will outweigh all the fish in the sea at current rates.

The Global Plastic Pollution Crisis

- Plastic pollution in simple terms can be described as the accumulation of synthetic materials in the environment.
- It is most noticeable in developing countries, where waste management systems are frequently inadequate or insufficient
- Sources of Plastic Pollution
  - Land Based
  - Sea Based
- Unfortunately, plastic is so durable that the EPA reports “every bit of plastic ever made still exists.”
- Fuel for the growing menace? **Single-use plastics**

Research Region

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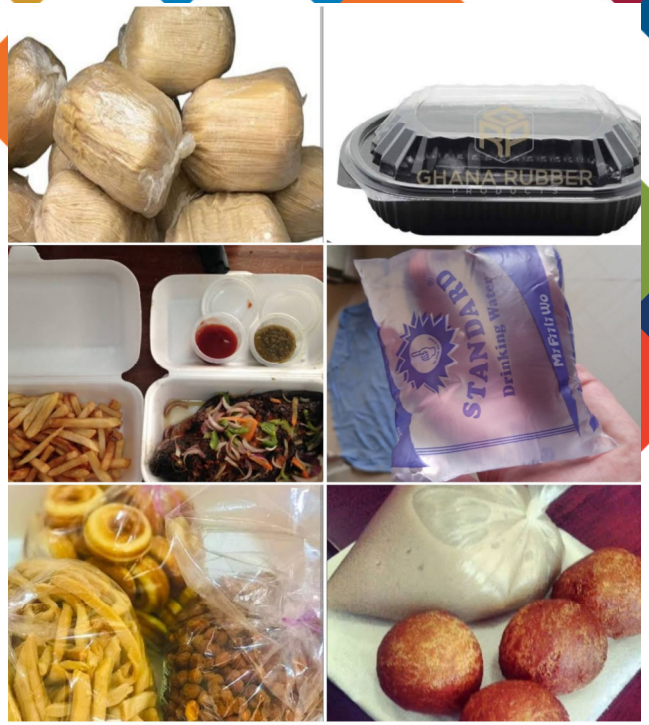
Why is the issue more troubling in Ghana?

- 2.58 million metric tonnes of plastic is imported to Ghana annually of which 73% ends up as waste
- A typical family in Ghana uses about 30 single-use plastics per day for breakfast
- In a month, this family contributes to 900 pieces of single-use plastics into the environment
- A community of 1500 households means they add about 1.3 million of single use plastics to the sea every month
- Combined with inefficient waste management techniques, the **cancer** continues



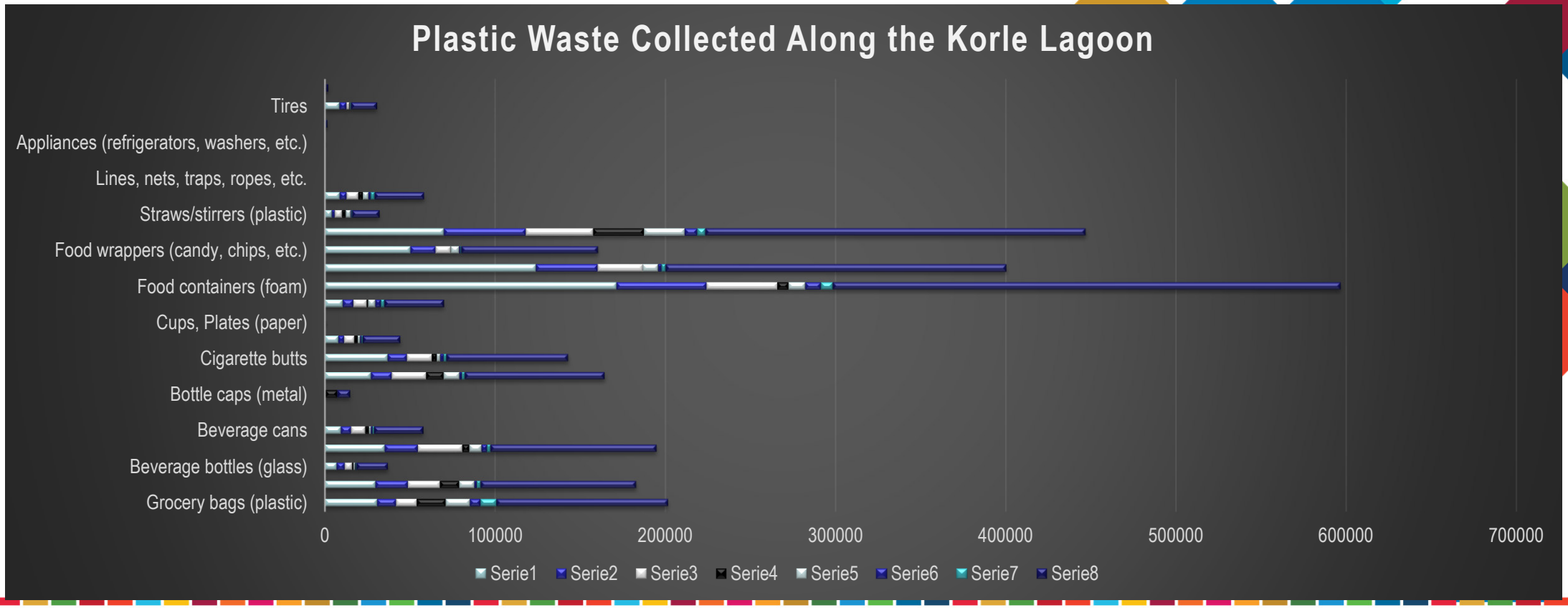
Research Approaches

- Hotspot Analysis
- Proximity Analysis
- Development of Web-Maps

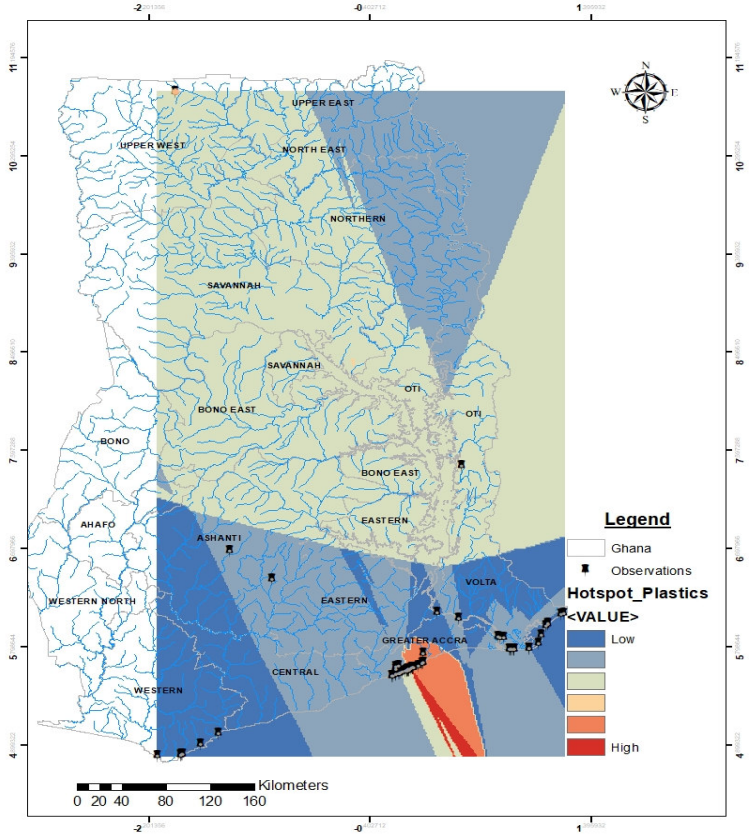
Software: ArcGIS, Google Earth Engine

Data Sources: Field surveys, Sentinel-2, Landsat, OpenStreetMap

Results- Field Survey, 2023



Results and Discussions



National Centers for Environmental Information
NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

Marine Microplastic Concentrations

Legend | Data Information | Display Filters

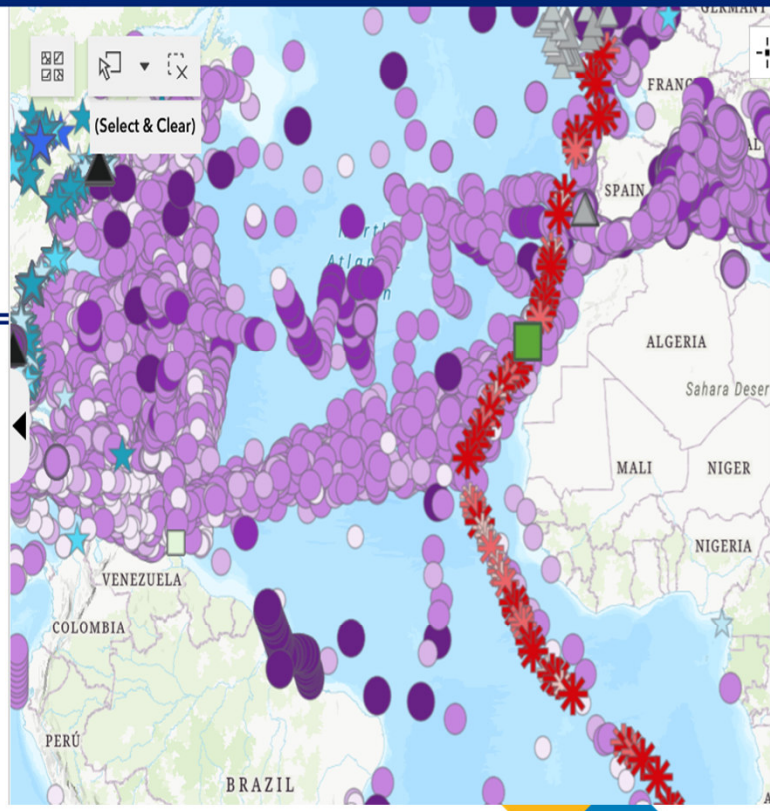
Map Viewer | Data Table

Click to view the metadata for the Microplastics data

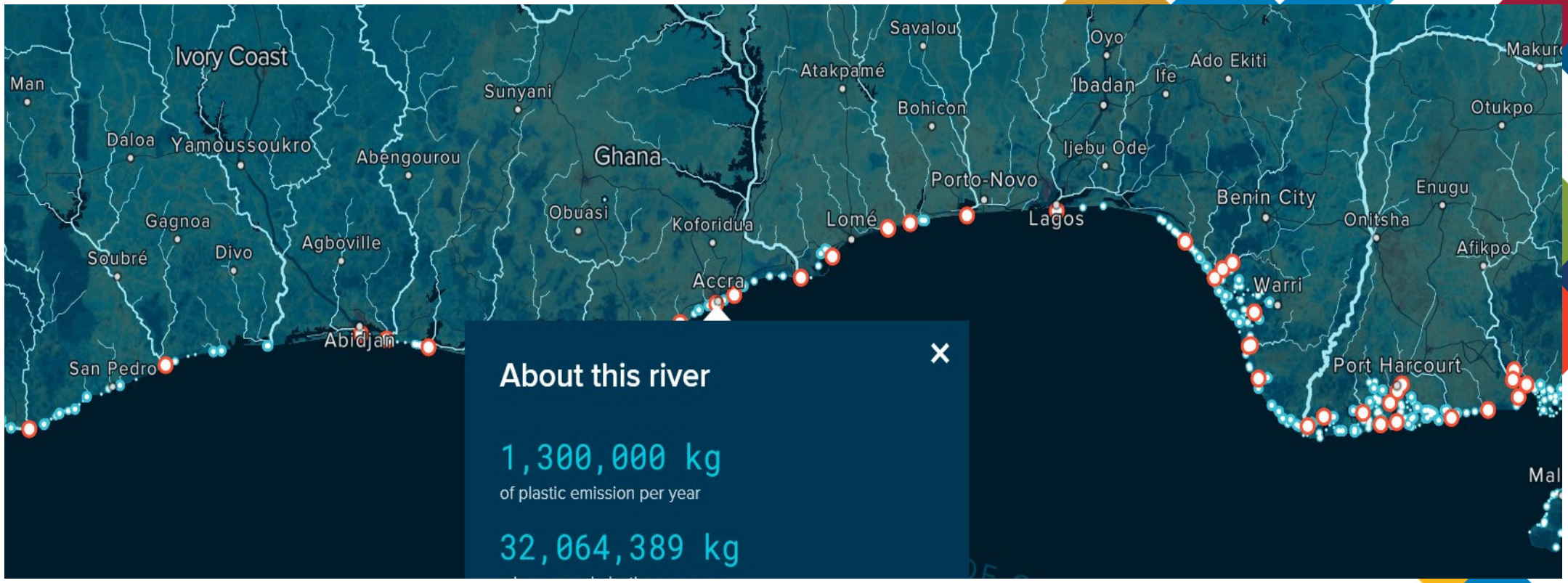
Data Usage Disclaimer

Marine Microplastic Concentrations

- Beach, Very High, >40000 pieces/m3
- Beach, High, 30000-40000 pieces/m3
- Beach, Medium, 500-30000 pieces/m3
- Beach, Low, 100-500 pieces/m3
- Beach, Very Low, 0-100 pieces/m3
- Nurdle Patrol, Very High, >200 pieces/10 mins
- Nurdle Patrol, High, 40-200 pieces/10 mins



Results and Discussions



GIS is giving us the data, However what next?

The call to action is now!!!!

- Ban single- use plastics
- Producer Pay Policy
- Make the Campaign Louder
- Recycling Concept
- Research Driven Policies

The most relevant SDGs related to the presentation and theme of this session

1st relevant SDG

2nd relevant SDG

3rd relevant SDG

SUSTAINABLE DEVELOPMENT GOALS

International Federation of Surveyors supports the Sustainable Development Goals