

New York Oil Spill Incidents

Group 13:

Paul Nguyen, Devanshi Panchal , Herman Torres, Oscar Barragan, Sameer Dohadwalla

Objective

- Our research is aimed to effectively prevent future oil spills and mitigate damages caused by oil spills.
- By studying past oil spills we are able to improve understanding of their sources, causes and locality, leading to better prevention and response strategies in the future.
- The continuous monitoring of spills can contribute to ongoing research efforts aimed at enhancing oil spill preparedness and resilience.

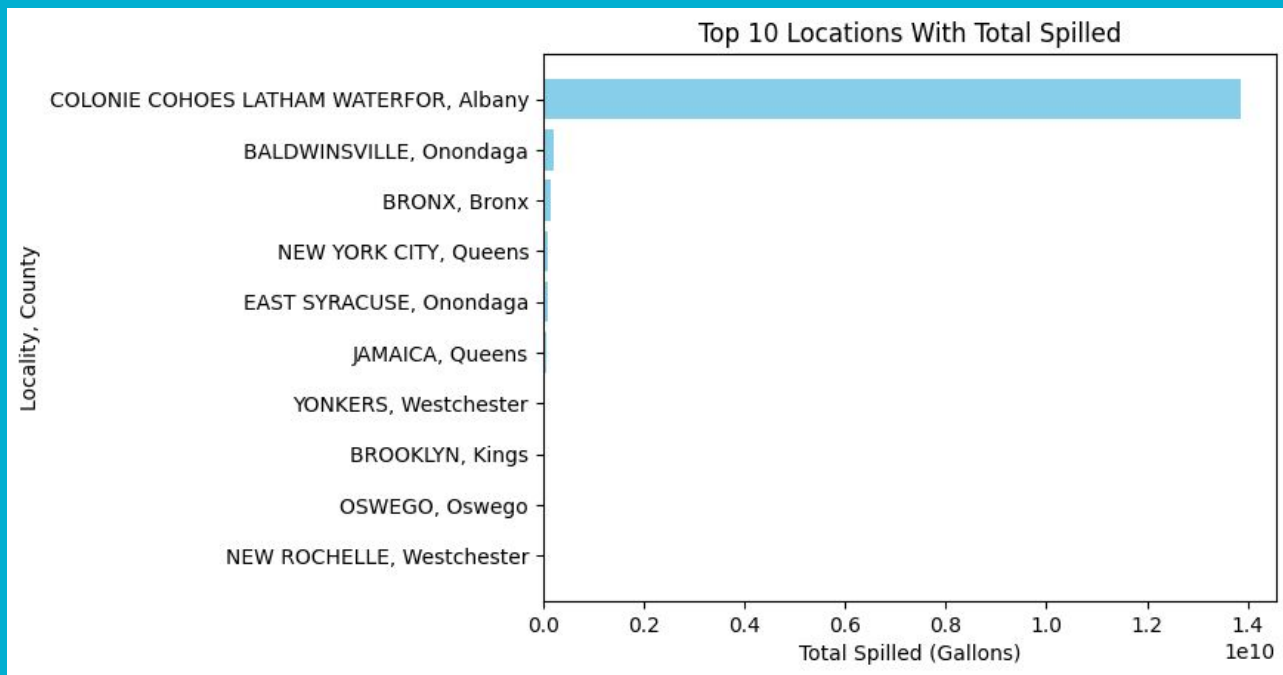
Methodology

- Our proposed solution is to measure several factors in the dataset that we deem to contribute to the severity of a city's oil spill problem.
- Main factor to look at
 - Location of oil spills
 - Timeline of oil spills
 - Causes of oils spills
 - Type of materials spilled
- It is important to understand the severity of oil spill situations so that in the real world, resources can be properly allocated to them without being wasted.

Dataset

- The dataset we worked on was provided by the state of New York on data.gov website.
- The set covers the time period of the starting year of 1990 to 2024, and contains records the spills of hazardous materials that pollute the lands/waters of the state.
- Each case can provide specific information such as dates, location, source, cause, material(s), and amount.

What locations have the worst oil spill problem?



Initial way to do this is to measure total gallons spilled

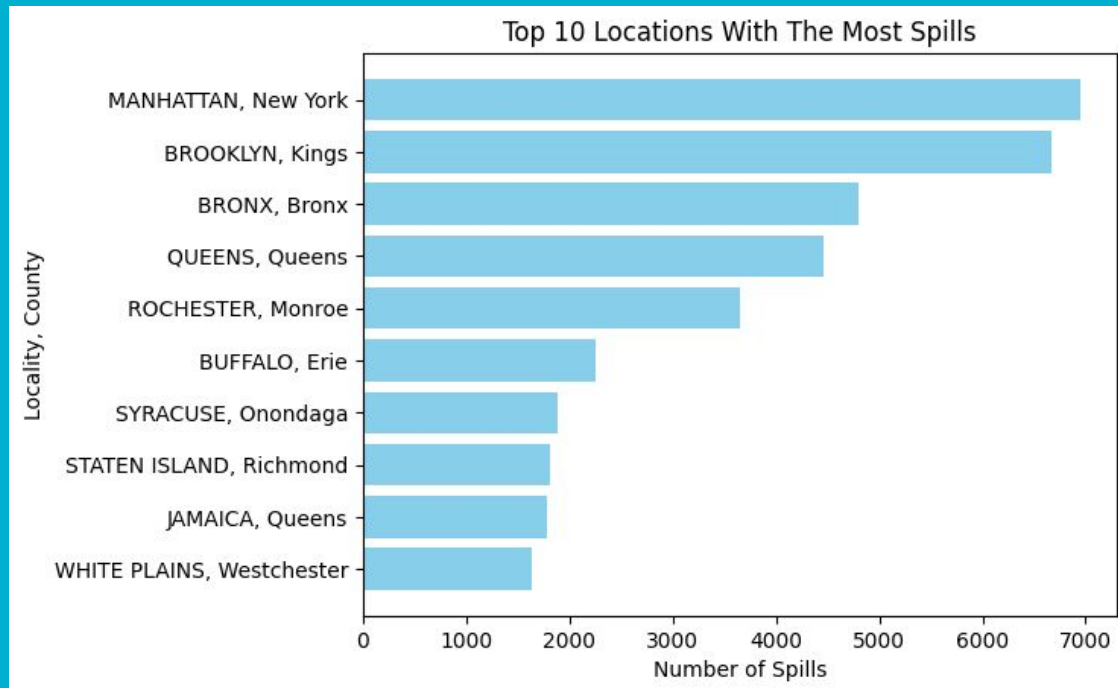
So is Albany really the location of most concern?

Let's take a look at the top individual spill incidents

Locality	County	Quantity	Units
COLONIE COHOES LATHAM WATERFOR	Albany	1.4e+10	Gallons
BALDWINSVILLE	Onondaga	2.0e+08	Gallons
BRONX	Bronx	1.5e+08	Gallons
NEW YORK CITY	Queens	1.0e+08	Gallons
EAST SYRACUSE	Onondaga	1.0e+08	Gallons

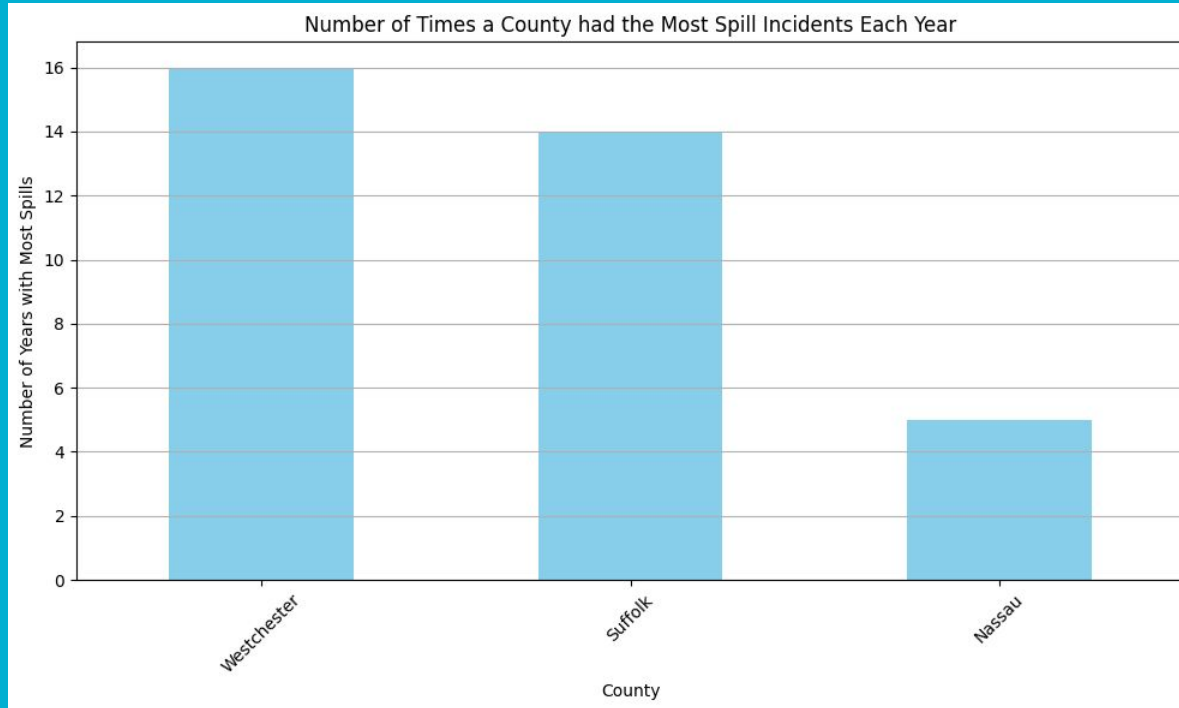
A single incident made Albany the worst location of spills.

Instead take a look at frequency of spills

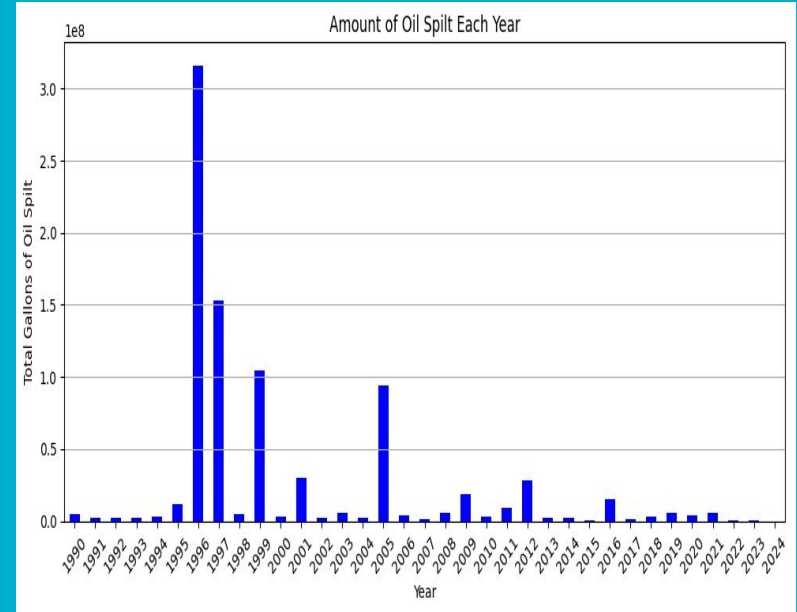
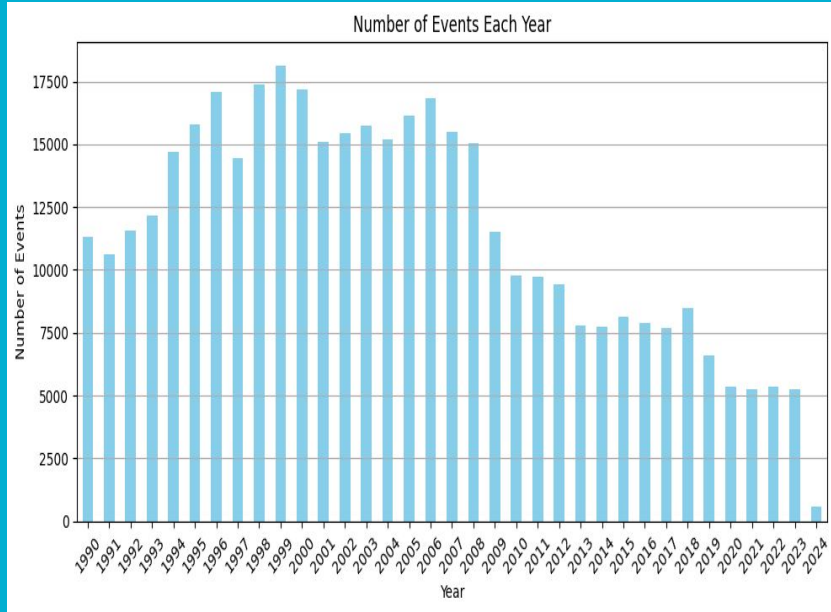


Note: Excluded spills that spilled nearly zero oil

Now, let's look at the worst offending counties per year

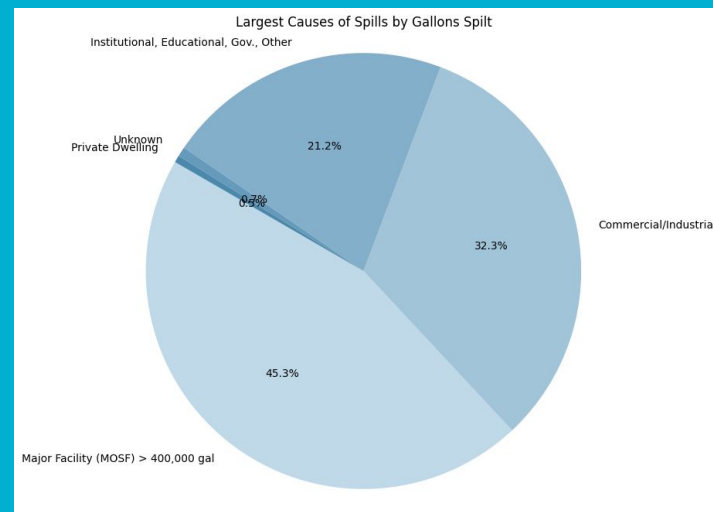
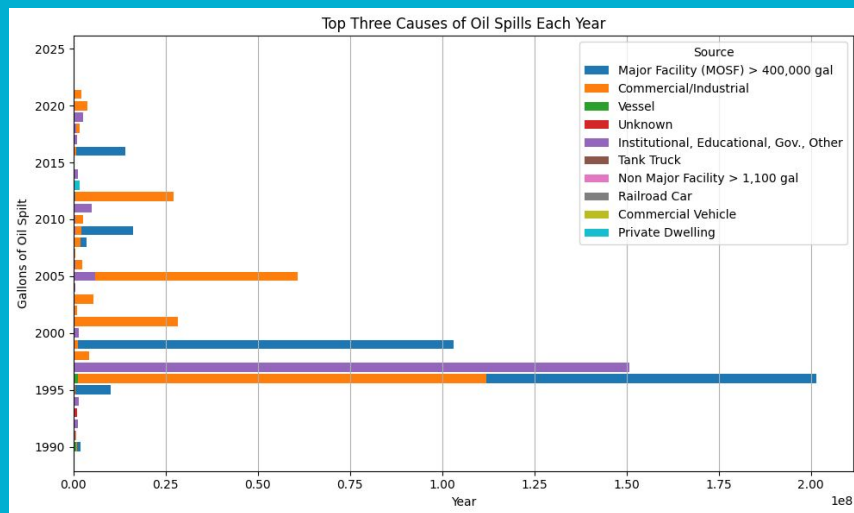


Has the oil spill problem improved in recent years?



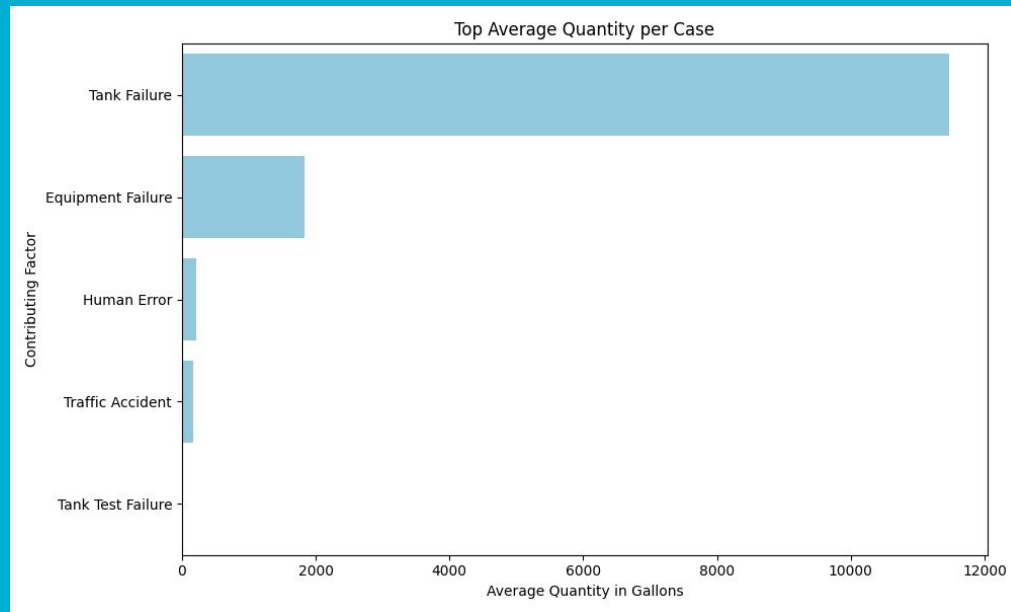
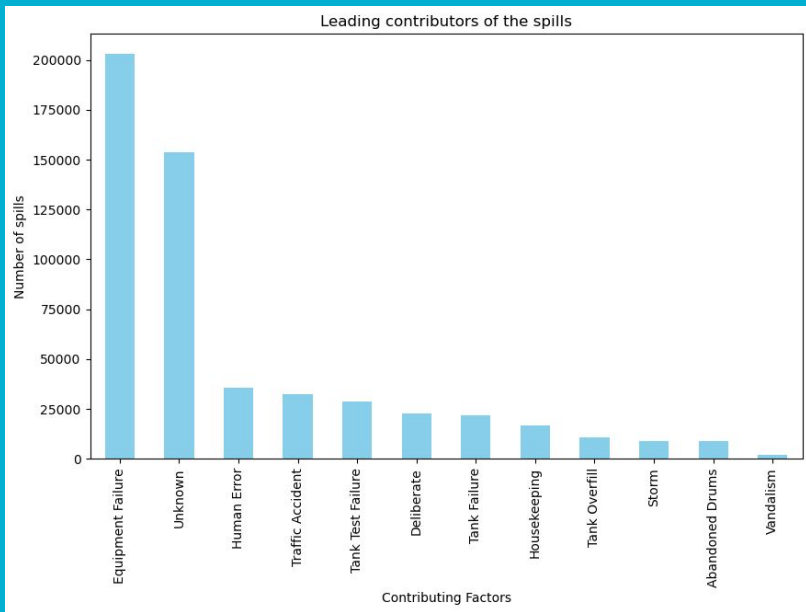
The frequency of such events and the amount spilt has been improving over the years.

What are the leading sources of oil spills each year?



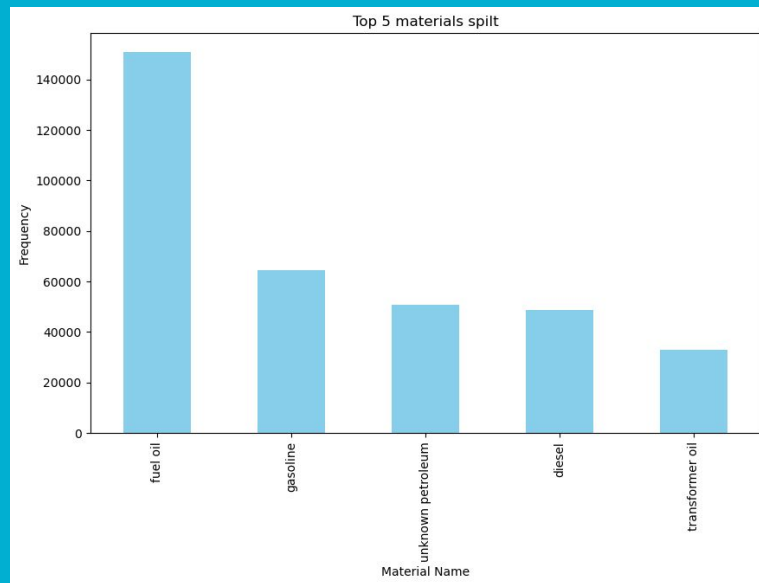
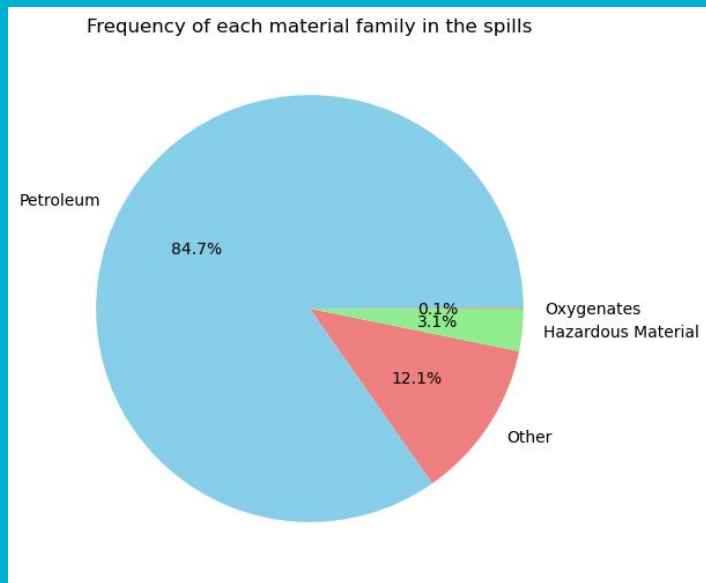
The top sources of oil spills by a significant amount have to do with corporations. To decrease the amount of oil spills, we would have to create more regulations.

Leading contributors of oil spills



The severity of spills from Tank Failure can be more impactful due to the average quantity per case, despite having fewer occurrences.

Materials that were spilt the most



Petroleum is the most common material in the oil spills.

Insights and possible courses of action

Increase regulation and impose heavier fines on commercial establishments

Enforce preventive maintenance of equipment.

Have regular storage tank inspections



Conclusion

Our analysis and visualizations into the oil spill data from New York state not only highlights the specific challenges faced within its area, but also serves as a critical example of broader issues that could be even more severe in other states. We hope our efforts and work provide emphasis on the need for enhanced regulations and management of oil spills nationwide.