

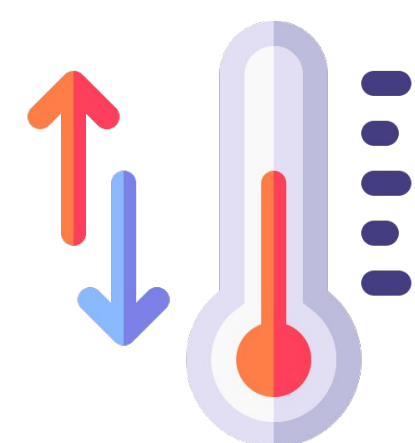
Bottlenose Dolphin Basics

The coastal waters of New York and New Jersey, situated along the eastern seaboard of the United States, are teeming with life, offering a rich and diverse marine ecosystem

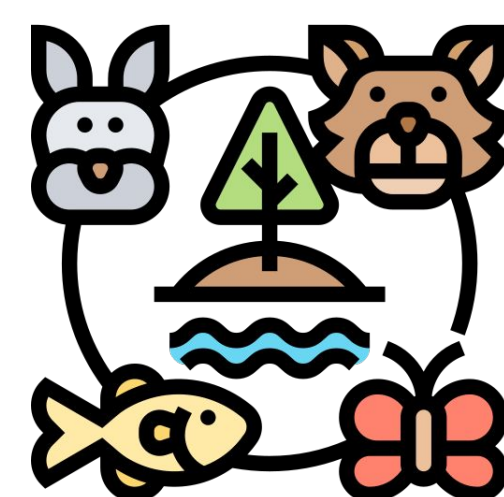


Figure 1: Bottlenose dolphins (NOAA)

Features making NY/NJ coasts ideal for bottlenose dolphins



Temperate climate



Diverse food sources

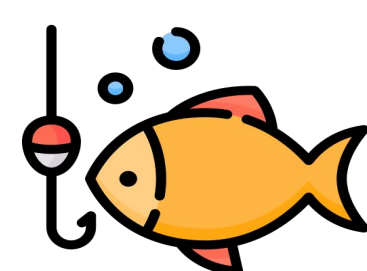
Novel factors affecting the Bottlenose dolphin

Environmental Factors:

- Water temperature, salinity, and prey availability,

Human Impact:

- Boating, fishing, recreational use of beaches



Procedure/Methods Used

Exploratory data analysis with Google Sheets

- Prepared an extensive dataset for visualization

Mapping with ArcGIS Pro Online

- Made maps that located the dolphins in the New York and New Jersey areas

Summarizing and synthesizing findings

- Used different data sets from different dates to create charts that showed the different sightings seen in these two areas through time

Seen vs. Year

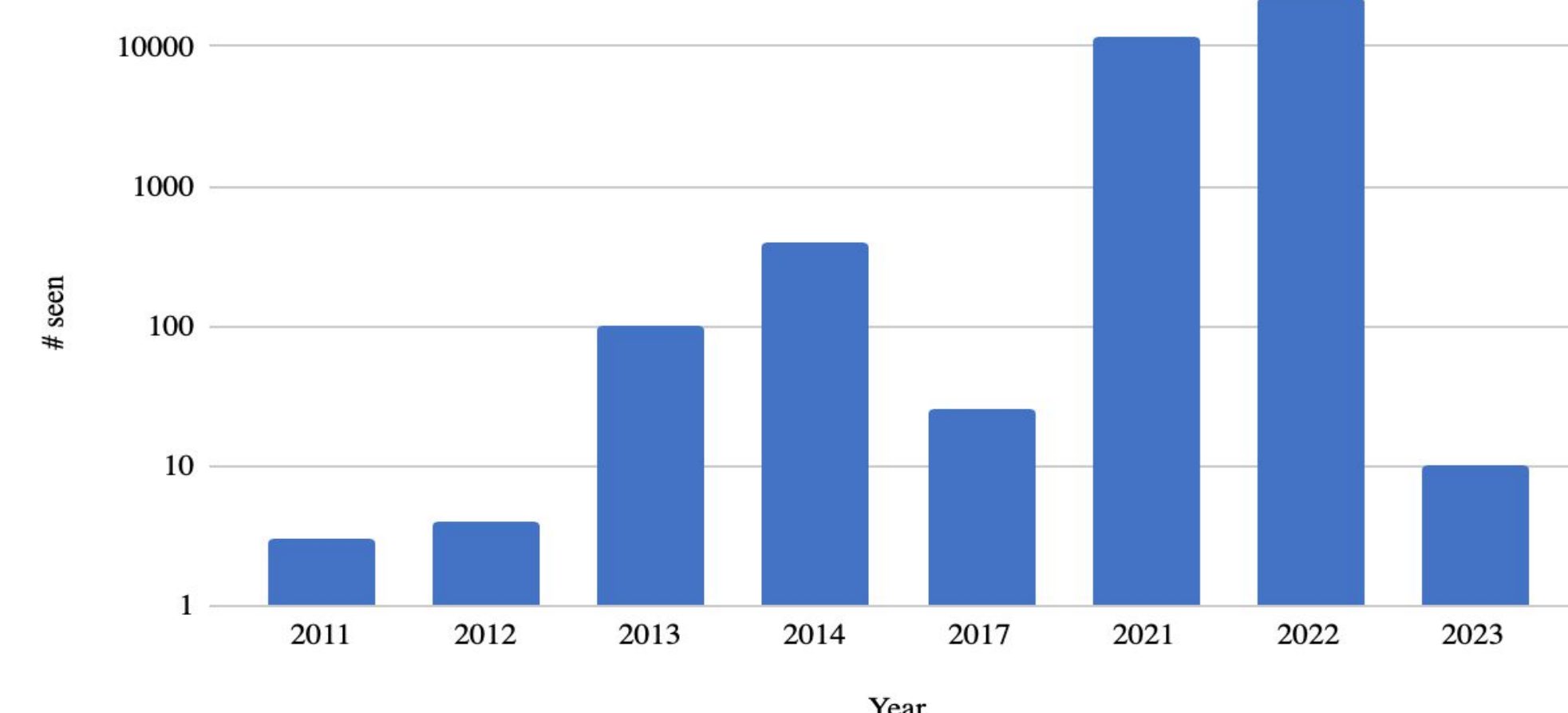


Figure 2: Bar chart showing the number of bottlenose dolphins seen/year.

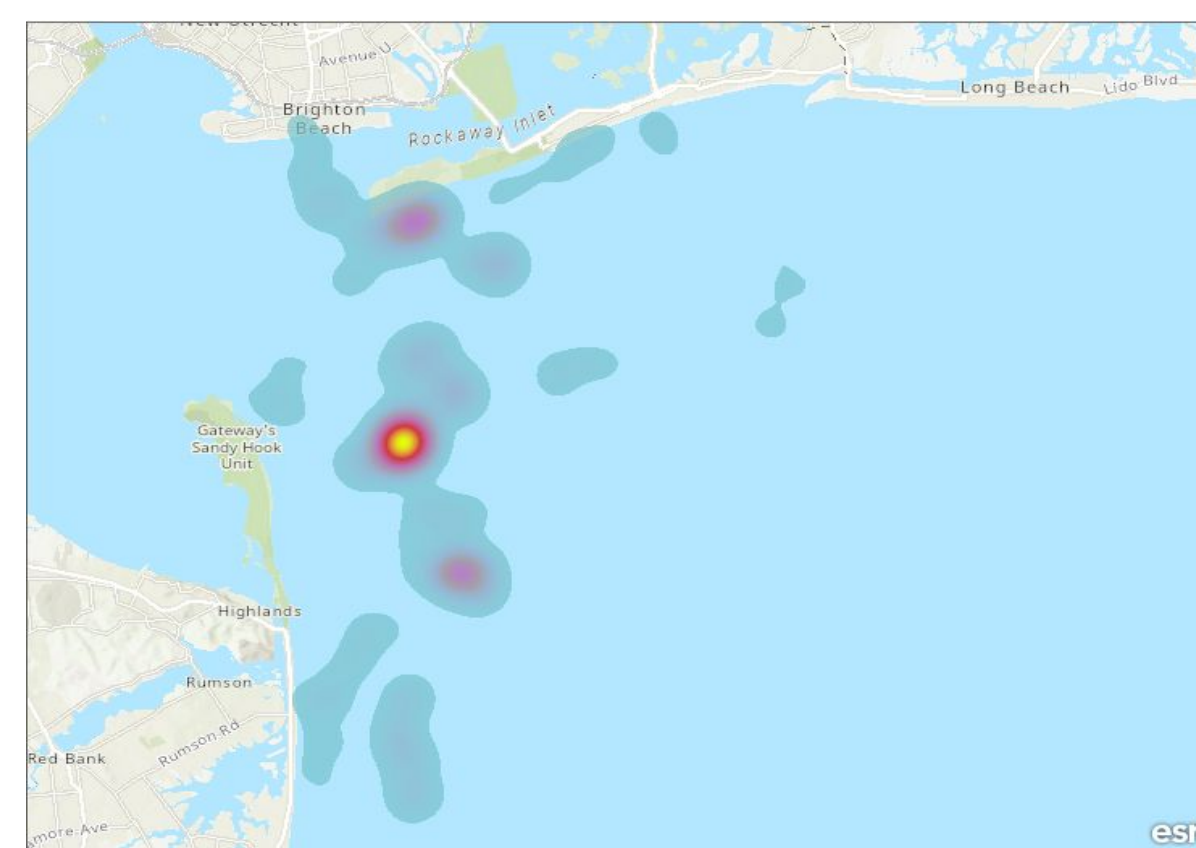


Figure 3: A heatmap showing the stability of clusters in bottlenose dolphin sighting between 2011-2023.

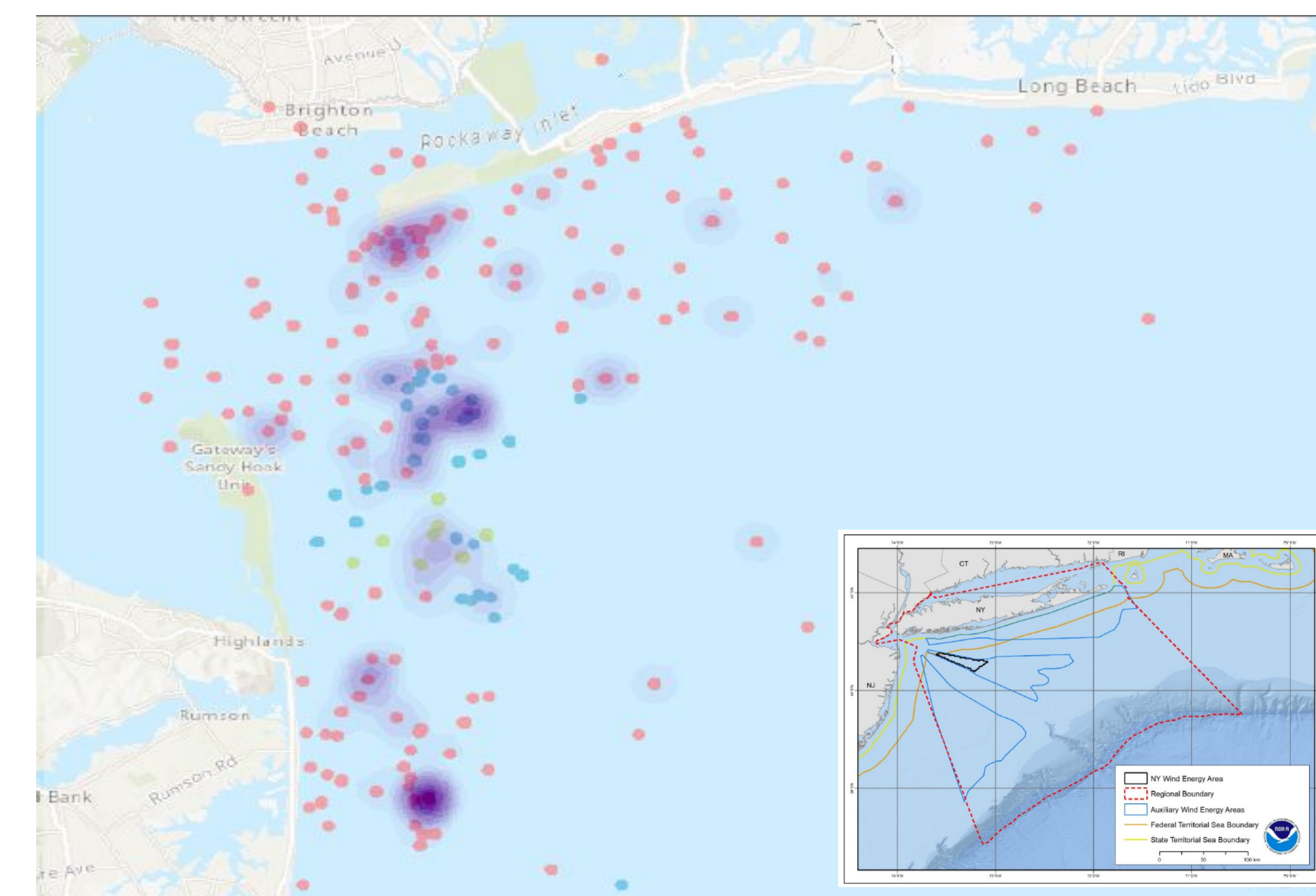


Figure 4: Graph of statistically significant clusters of bottlenose dolphin sightings, color coded by confidence level. Dark shaded spots represent recurring yearly clusters of 3+ sightings within an area. Generated using ArcGIS Pro Online.

Inset map: reference to anthropogenic activity - shipping lanes / current wind farm development territories.

Conclusions

It is vital to regard the impact that the environment can have on dolphins due to many factors and such factors should be considered with a general cause-and-effect perspective. More research is needed to understand the occurrence of bottlenose dolphins in the NY/NJ coasts.

Future Research

- What are the best areas to find bottlenose dolphins in each year?
- What factors beside location may affect dolphin presence?
- Continued surveys to document sightings year-round as extended seasonality has increased in recent years.

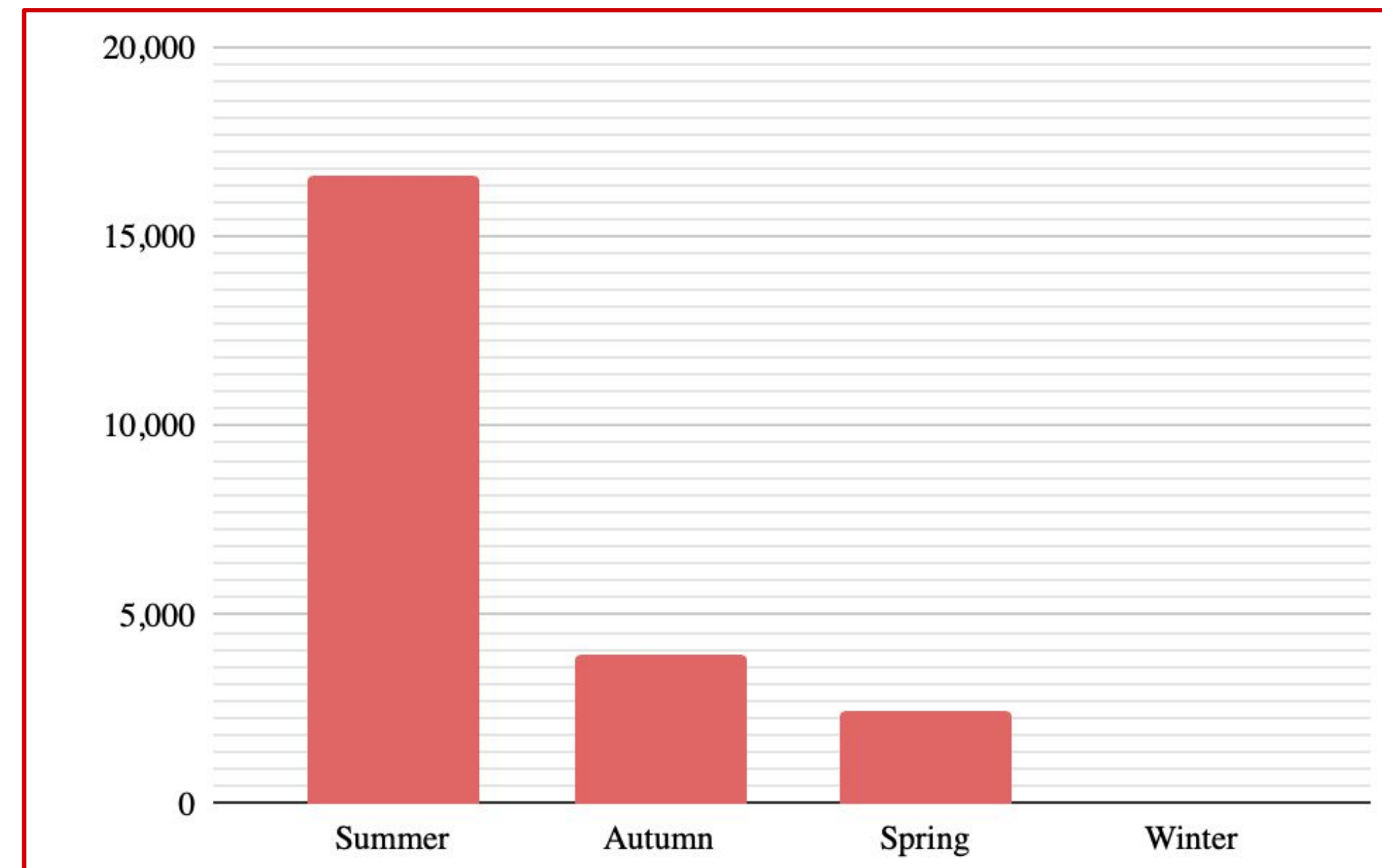
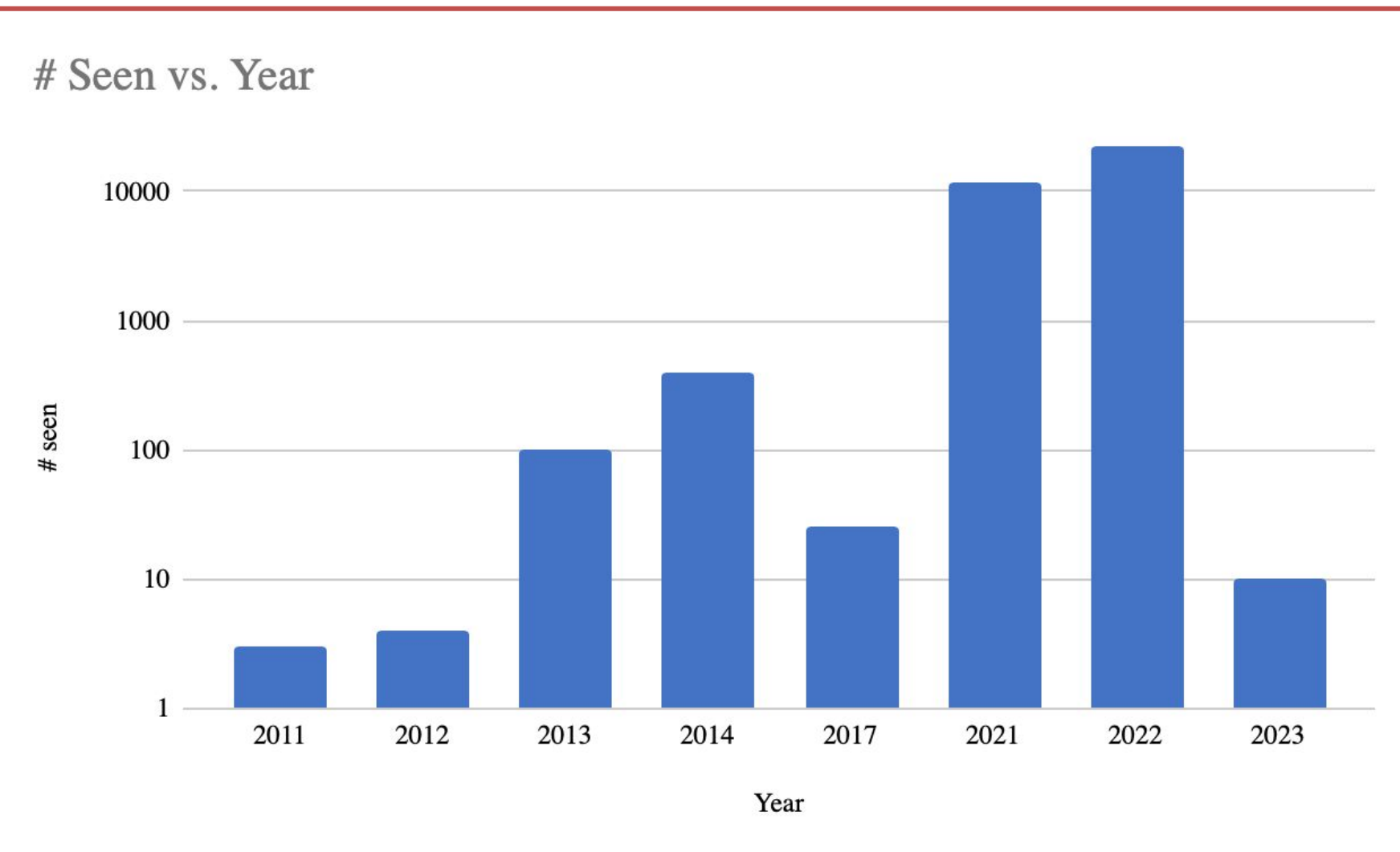
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Bottlenose Dolphin Basics

The coastal waters of New York and New Jersey, situated along the eastern seaboard of the United States, are teeming with life, offering a rich and diverse marine ecosystem. The New York and New Jersey region has a unique combination of temperate climate, abundant food sources, and diverse habitats provides an ideal environment for various dolphin species to thrive.

- The biodiversity of dolphins is not only essential for the advancement of marine biology but also for formulating effective conservation strategies to protect the ecosystem.



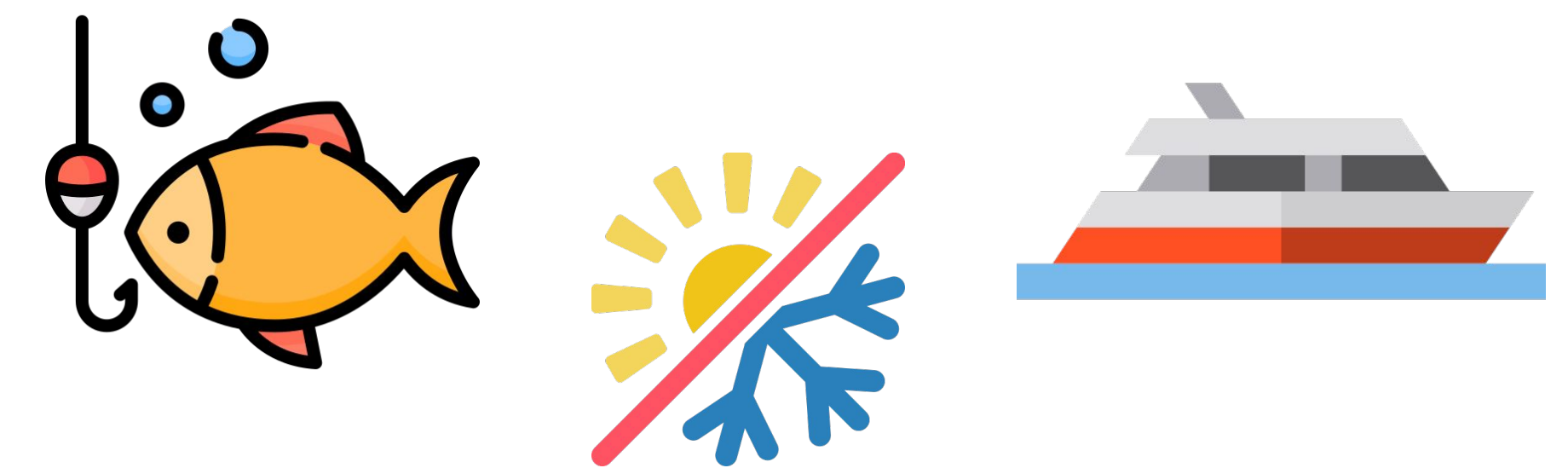
Expected Results

Influence of Environmental Factors:

- Water temperature, salinity, and prey availability, could influence the occurrence of bottlenose dolphins in New York and New Jersey.

Human Impact:

- Activities like boating and fishing could also deter dolphins from staying at their oceans and migrating to a new one.



Procedure/Methods Used

Exploratory data analysis with Google Sheets

- Prepared an extensive dataset for visualization

Mapping with ArcGIS Pro Online

- Made maps that located the dolphins in the New York and New Jersey area

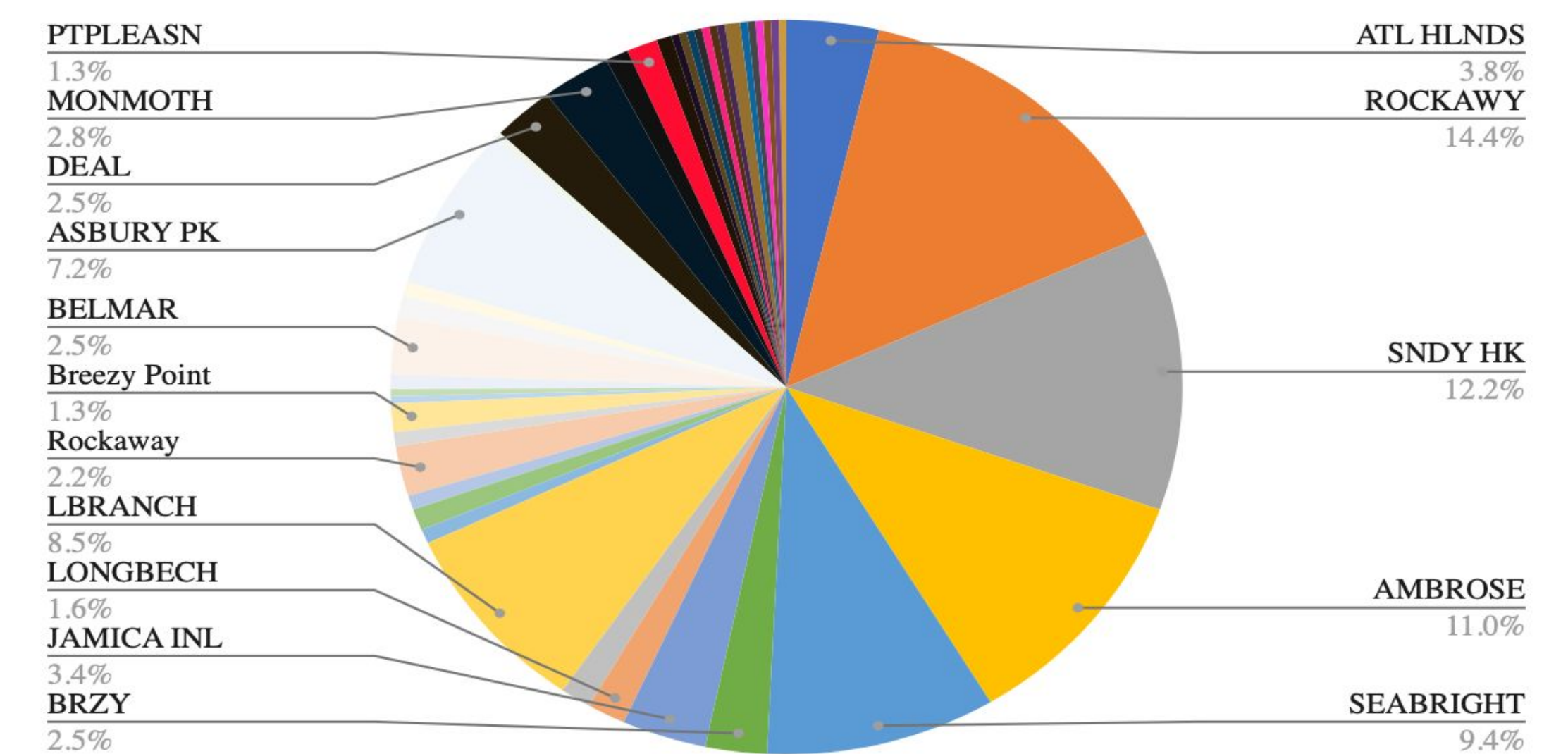
Summarizing and synthesizing findings

- Used different data sets from different dates to create charts that showed the different sightings seen in these two areas through time

Conclusions

Every dolphin is different, as their dorsal fins act as a fingerprint. There are several species of dolphins, but this study will focus primarily on the common bottlenose dolphins (*tursiops truncatus*). It is vital to regard the impact that the environment can have on dolphins due to many factors and such factors should be considered with a general cause-and-effect perspective. Hence, one can infer that there will be minimal differences between the dolphins in accordance to the areas in which they are found, but the differences will be evident enough to make a conclusion on what factors may cause the dolphins to comprise such characteristics.

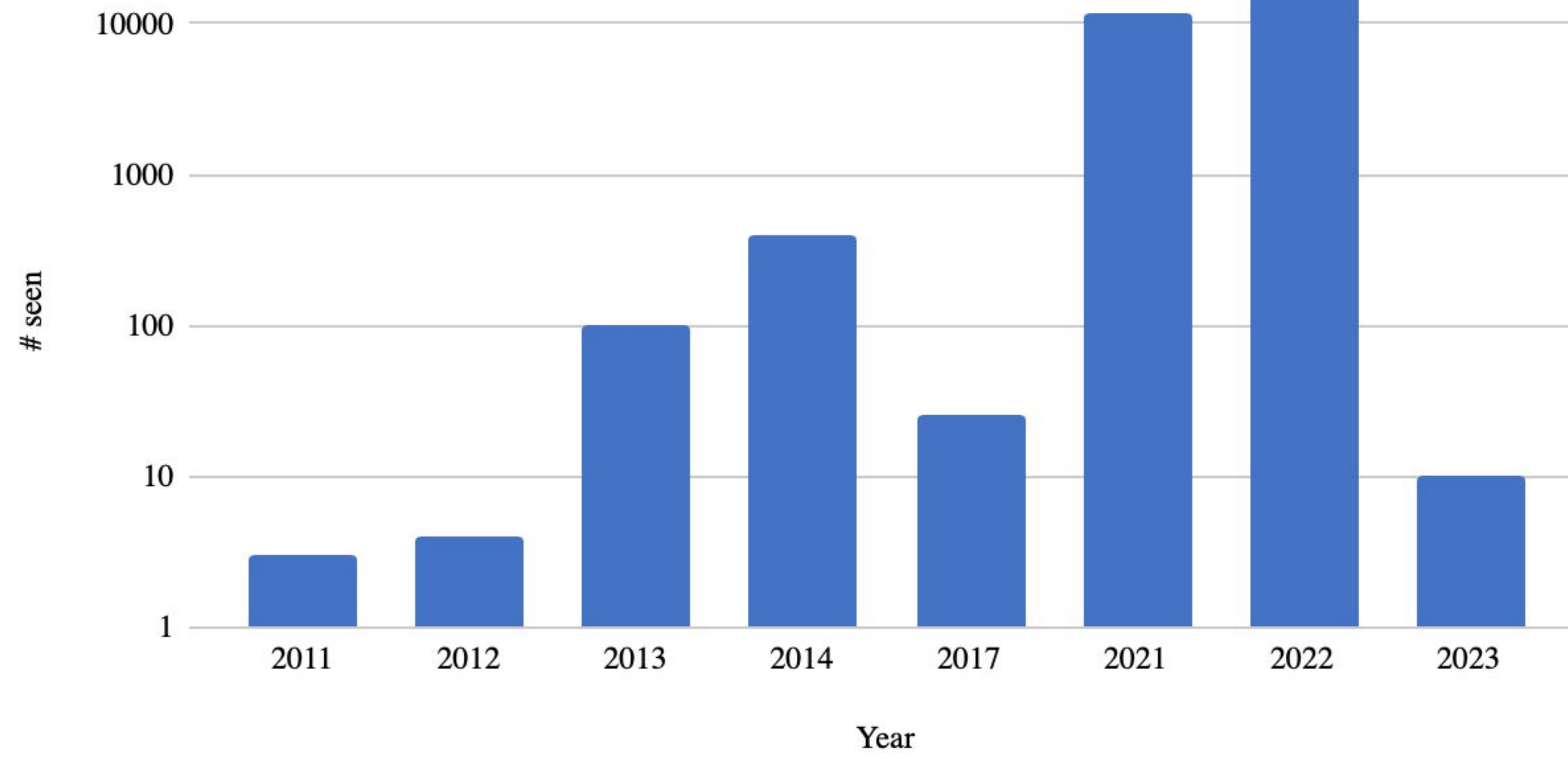
Count of Bottlenose Dolphins by Area



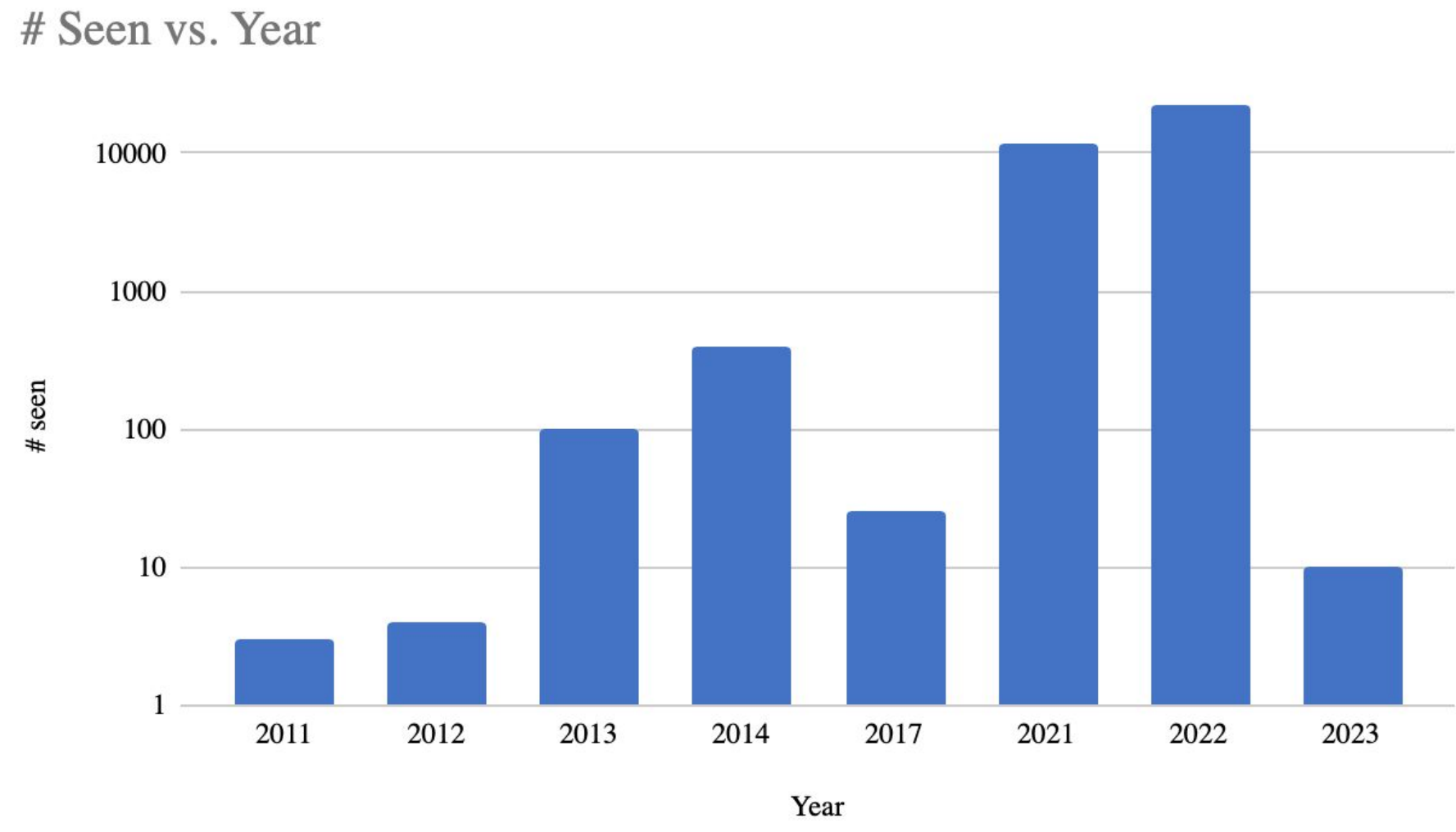
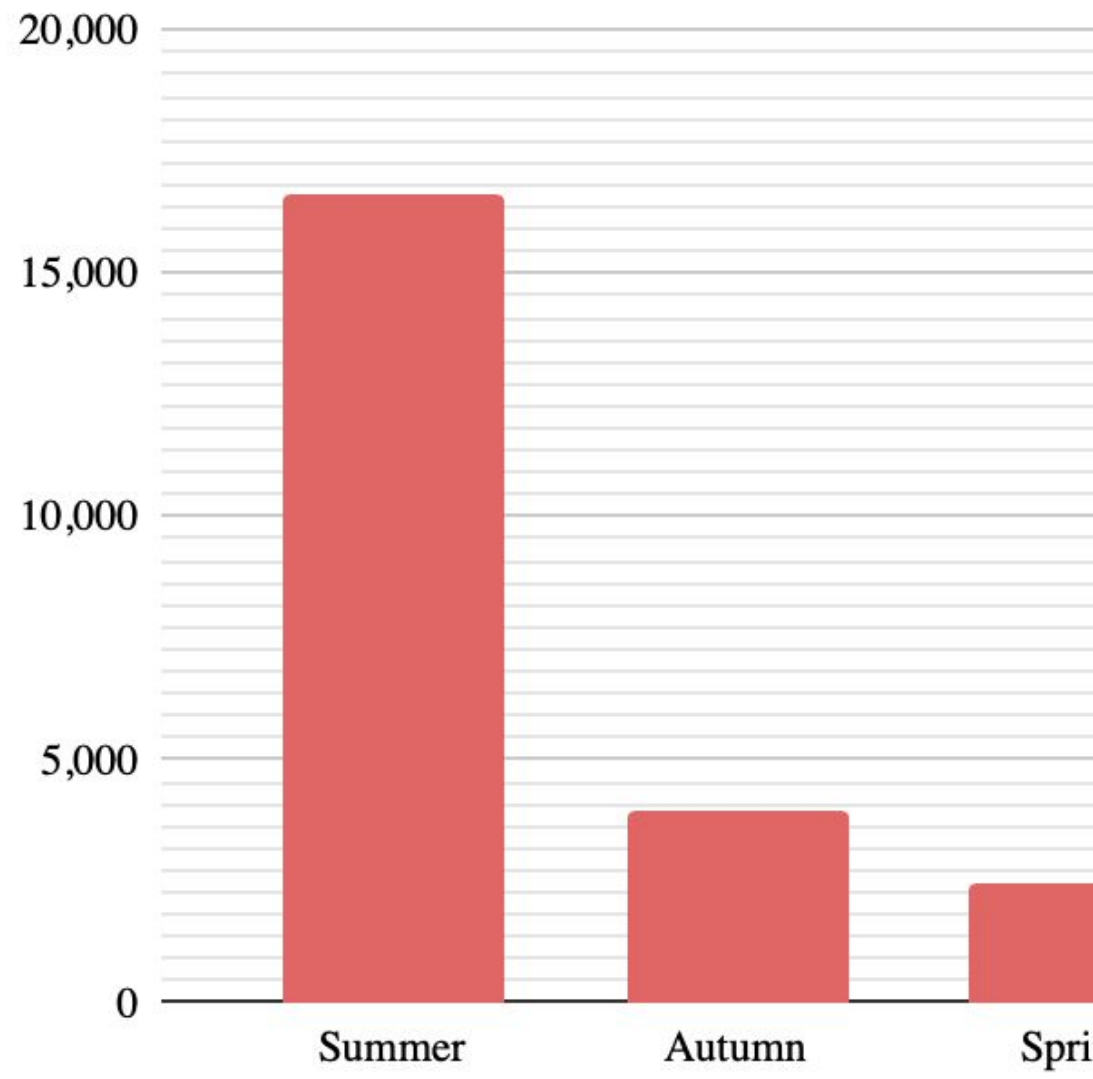
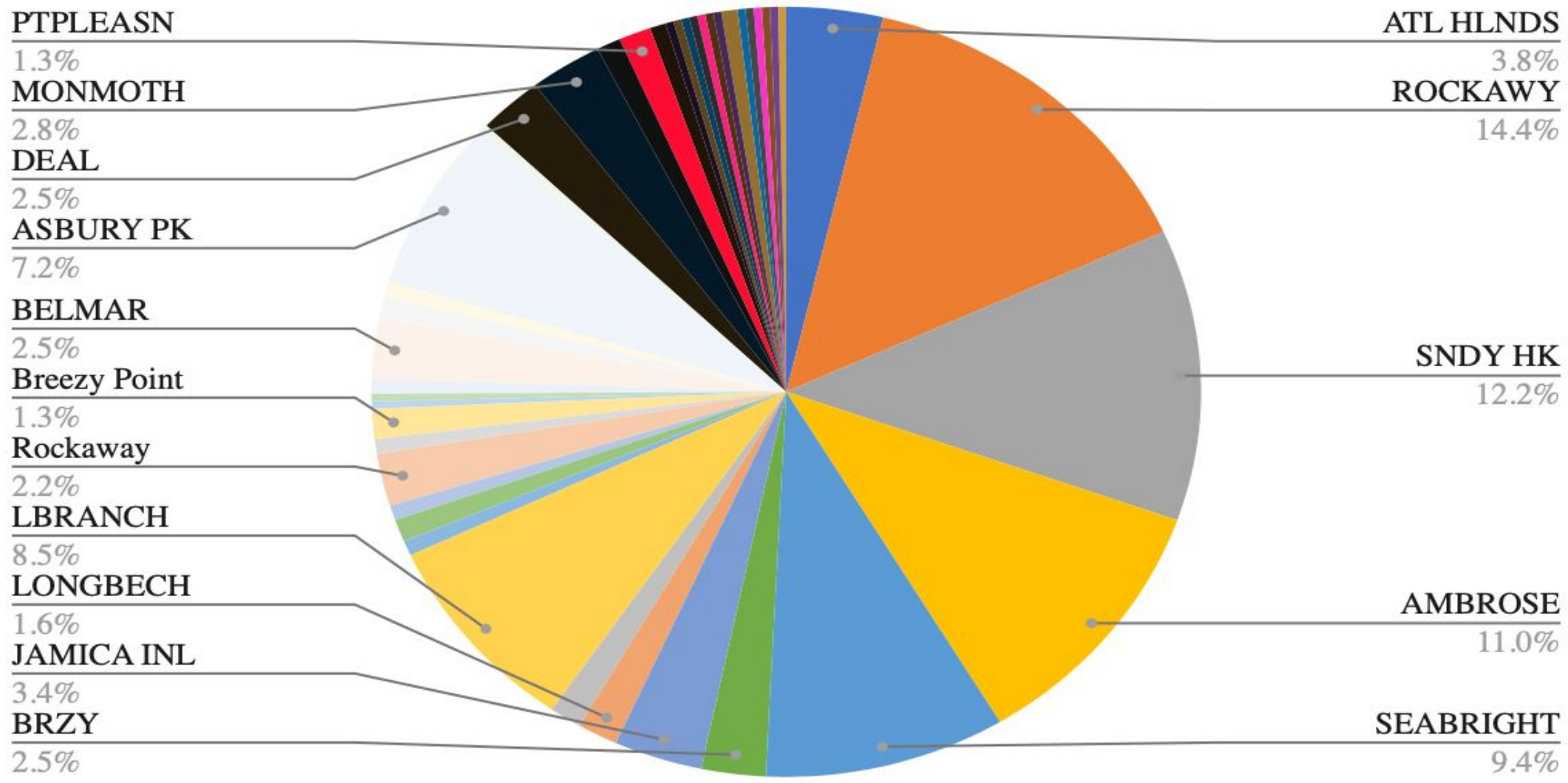
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Seen vs. Year

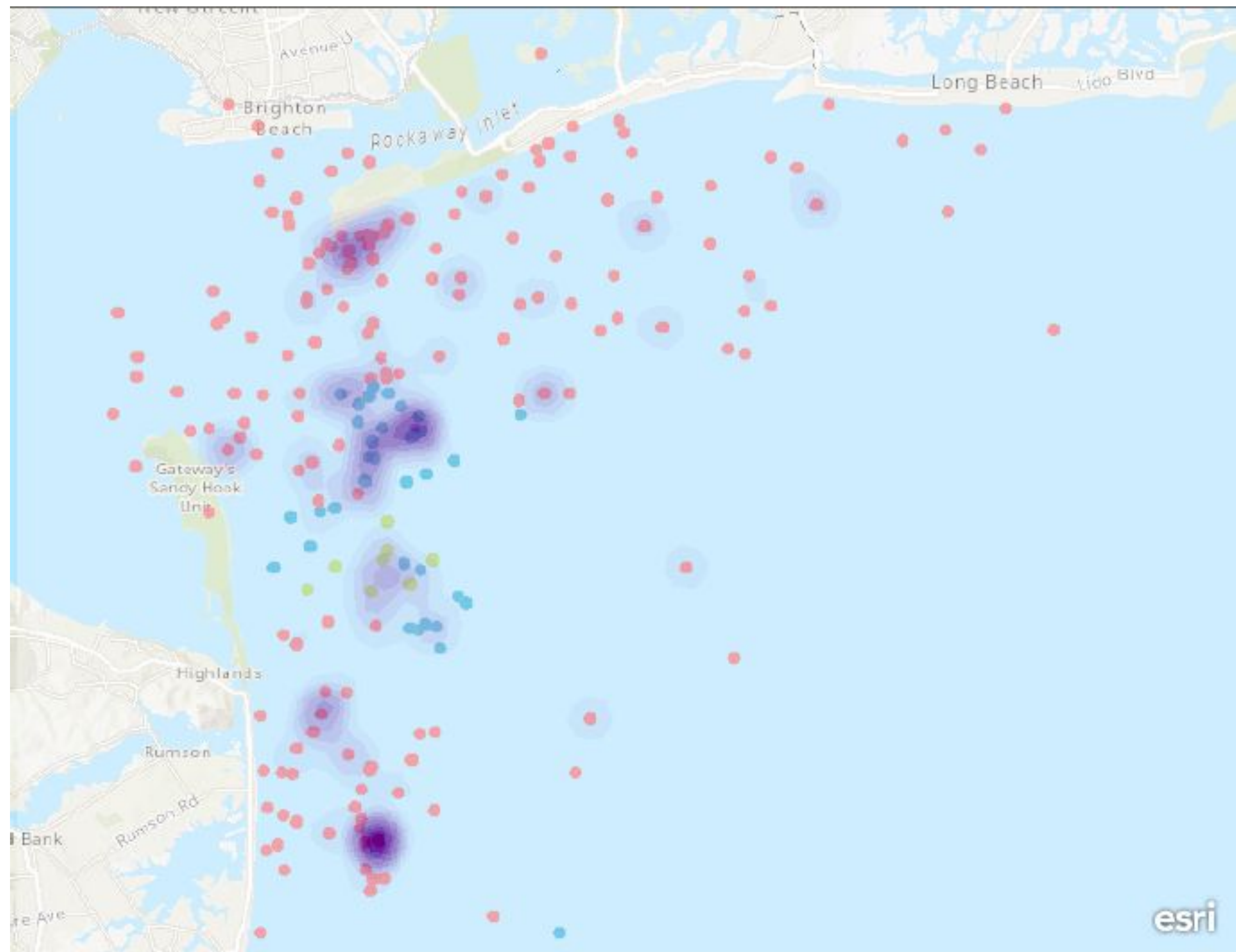
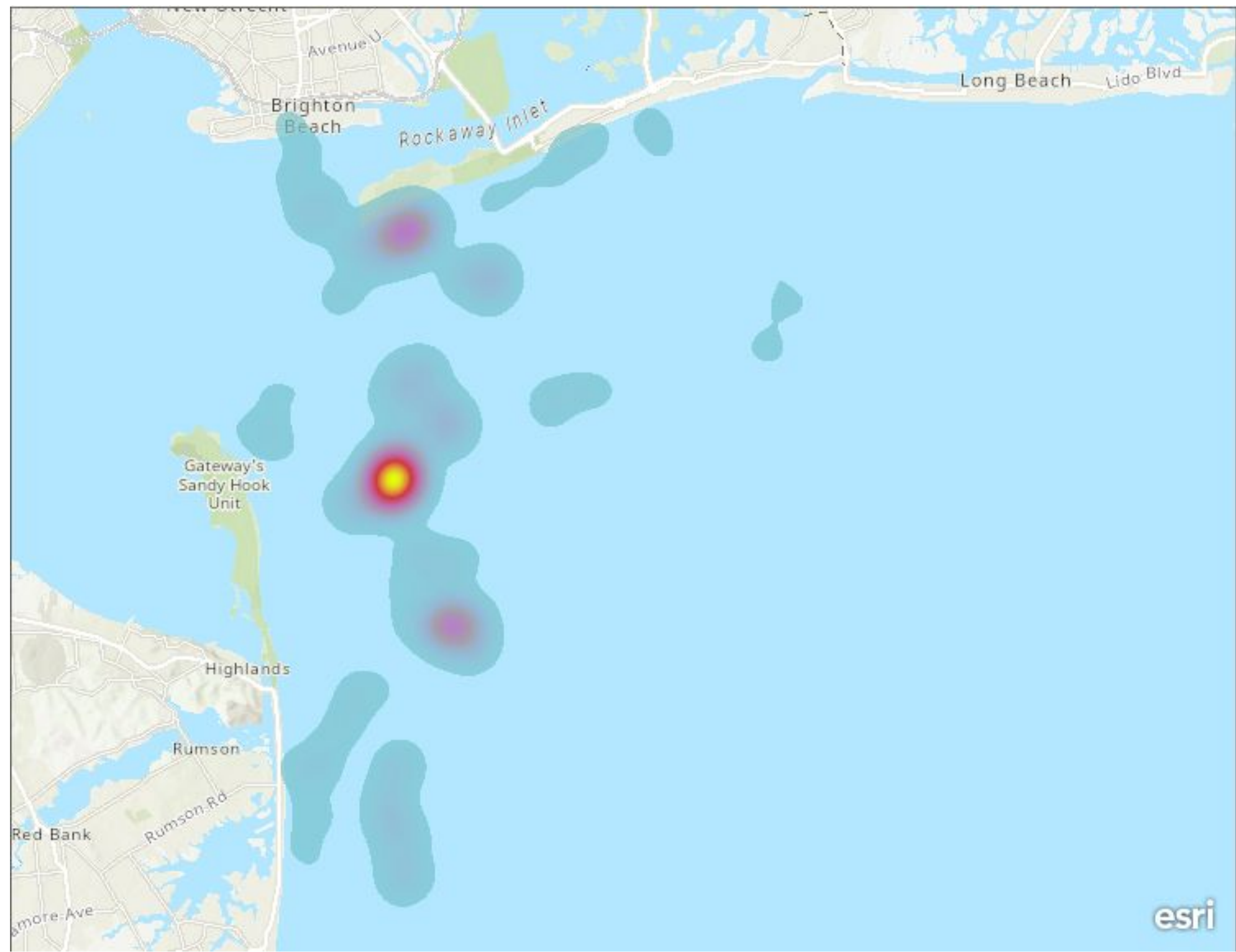


Count of Bottlenose Dolphins by Area



Introduction

This research paper aims to provide a comprehensive examination of the biodiversity of dolphins in New York and New Jersey, shedding light on the various species that call these waters home, their distribution patterns, habitat preferences, and the key ecological factors that influence their presence. By synthesizing existing scientific literature, field observations, and data collected from various sources, we seek to present a holistic overview of the dolphin populations inhabiting these coastal regions. Throughout this study, we will delve into the taxonomic classification of dolphin species found in New York and New Jersey, including common dolphins (*Delphinus delphis*), bottlenose dolphins (*Tursiops truncatus*), Atlantic spotted dolphins (*Stenella frontalis*), and possibly other occasional visitors or rare sightings. We will explore their physical characteristics, behavioral patterns, feeding habits, and social structures, highlighting the nuances that set each species apart. Furthermore, this research will examine the factors that impact the distribution and abundance of dolphins in these regions. Coastal development, human activities, climate change, and oceanographic variables play crucial roles in influencing the availability of prey, water quality, and overall ecosystem health—factors that significantly influence the distribution and well-being of dolphin populations. By understanding the dynamics of dolphin biodiversity in New York and New Jersey, we can draw implications for their conservation and management. This research will emphasize the importance of sustainable practices to protect marine habitats and mitigate human-induced threats, ultimately contributing to the preservation of the marine biodiversity in this ecologically significant region. In conclusion, this research paper seeks to shed light on the diverse and captivating world of dolphins in the coastal waters of New York and New Jersey. As we explore their unique characteristics, behaviors, and ecological significance, we hope to foster greater awareness of the importance of safeguarding these magnificent marine mammals and their habitats for future generations. Through collaborative efforts in research, conservation, and public engagement, we can work towards a more sustainable coexistence with these awe-inspiring creatures and ensure the continued prosperity of our marine ecosystems.



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Rockaway Initiative for Sustainability and Equity

Abstract

- The New York and New Jersey region has a unique combination of temperate climate, abundant food sources, and diverse habitats provides an ideal environment for various dolphin species to thrive.
- The biodiversity of dolphins for formulating effective conservation strategies



Expected Results

Influence of Environmental Factors:

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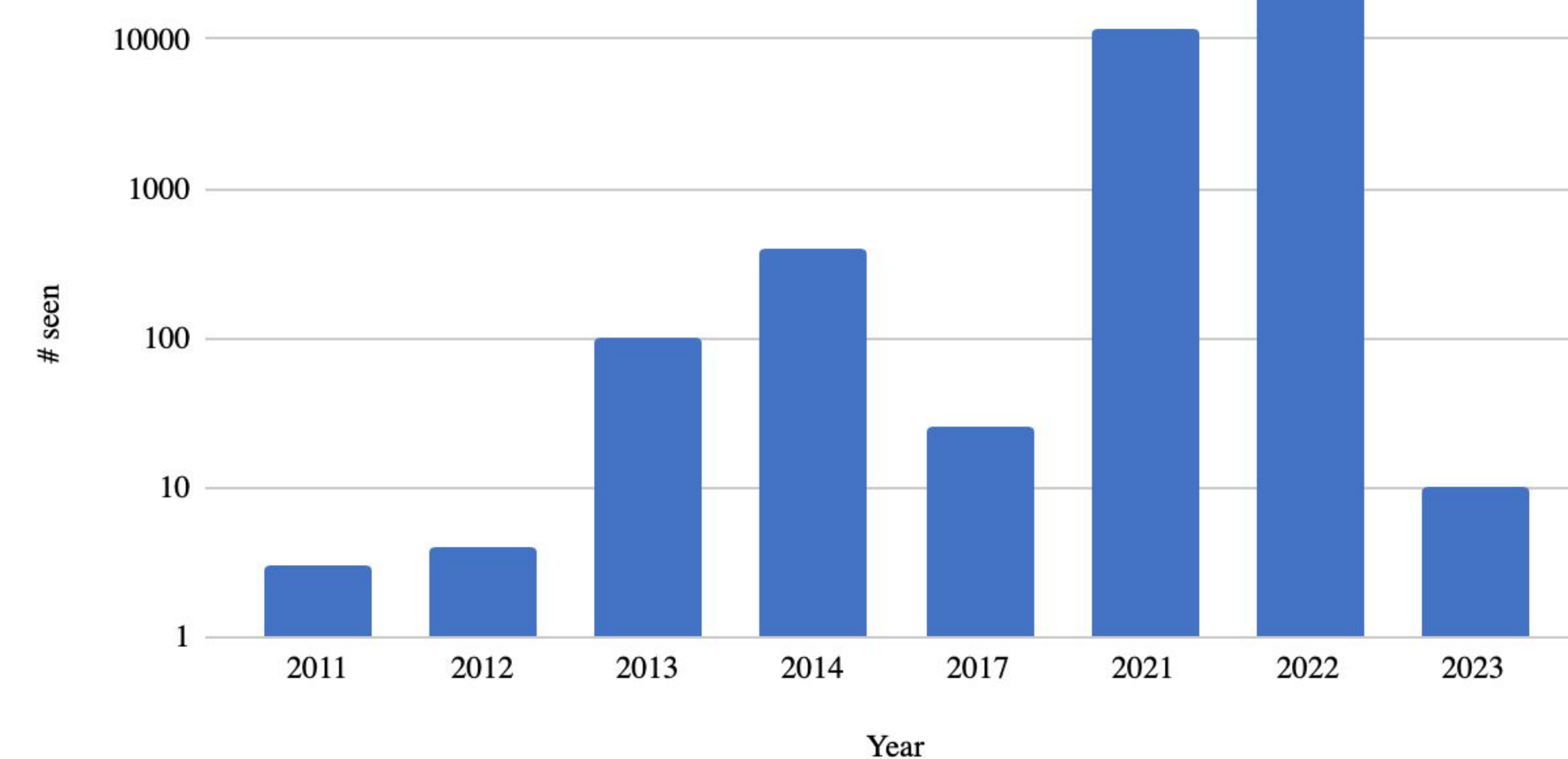
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Seen vs. Year



References

- [\(PDF\) NEW YORK, NEW JERSEY BOTTLENOSE DOLPHIN \(Tursiops truncatus\) SIGHTING DATA, 2011-2023](#)
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