Shark Attack!

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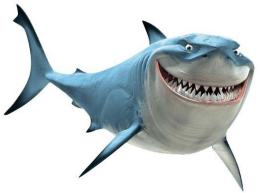
Sharks rarely attack humans, with less than 10 fatal attacks per year globally, while millions of sharks are killed by humans annually.

The Data Frame

The **International Shark Attack File** (ISAF) is the world's only scientifically documented, comprehensive database of all known shark attacks. Initiated in 1958, there are now more than 6,800 individual investigations covering the period from the early 1500s to the present.

ISAF archives all hard copy documentation on attacks, including original notes, press clippings, photographs, audio/videotapes, and medical/autopsy reports.

Critical starting points:



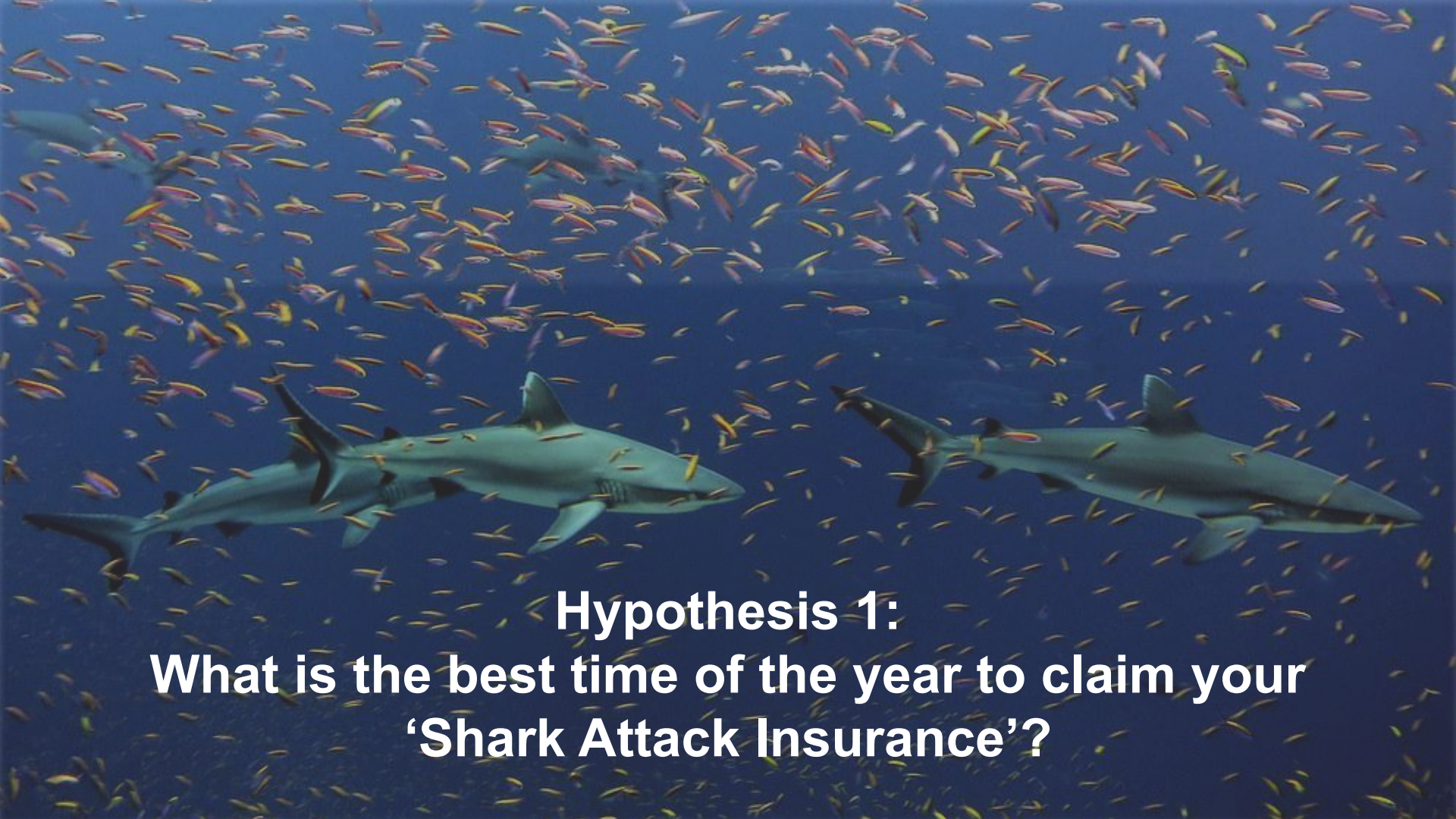
- Exploring the data frame
- Electing useful data
- Dropping useless or misleading data:
  - PDF's, external links, media, duplicates, etc...
- Creating a new, cleaner subset

Image source: https://www.floridamuseum.ufl.edu/shark-attacks/about/isaf/

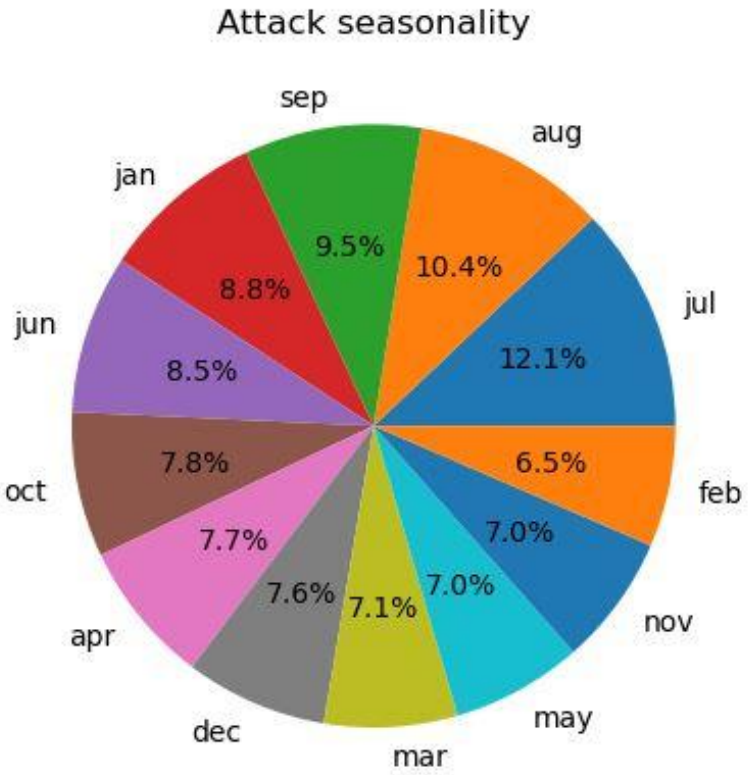
After the initial cleaning process, we gained insights into the data, allowing each of us to formulate at least one hypothesis for further individual exploration.

- Started by removing irrelevant columns such as 'Case Number', 'PDF', 'HRef', and unnamed columns (that were mostly empty).
- Standardized column names for better readability and consistency.
- Fixed known typos
- Made sure that important variables like gender ('sex') were categorized correctly

Image source: https://blog.otto-office.com/karriere/soft-skills/hands-on-mentalitaet/

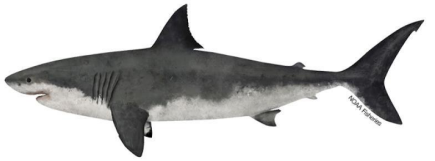


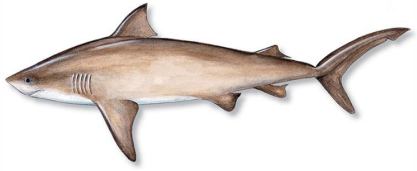
Hypothesis 1:
What is the best time of the year to claim your ‘Shark Attack Insurance’?

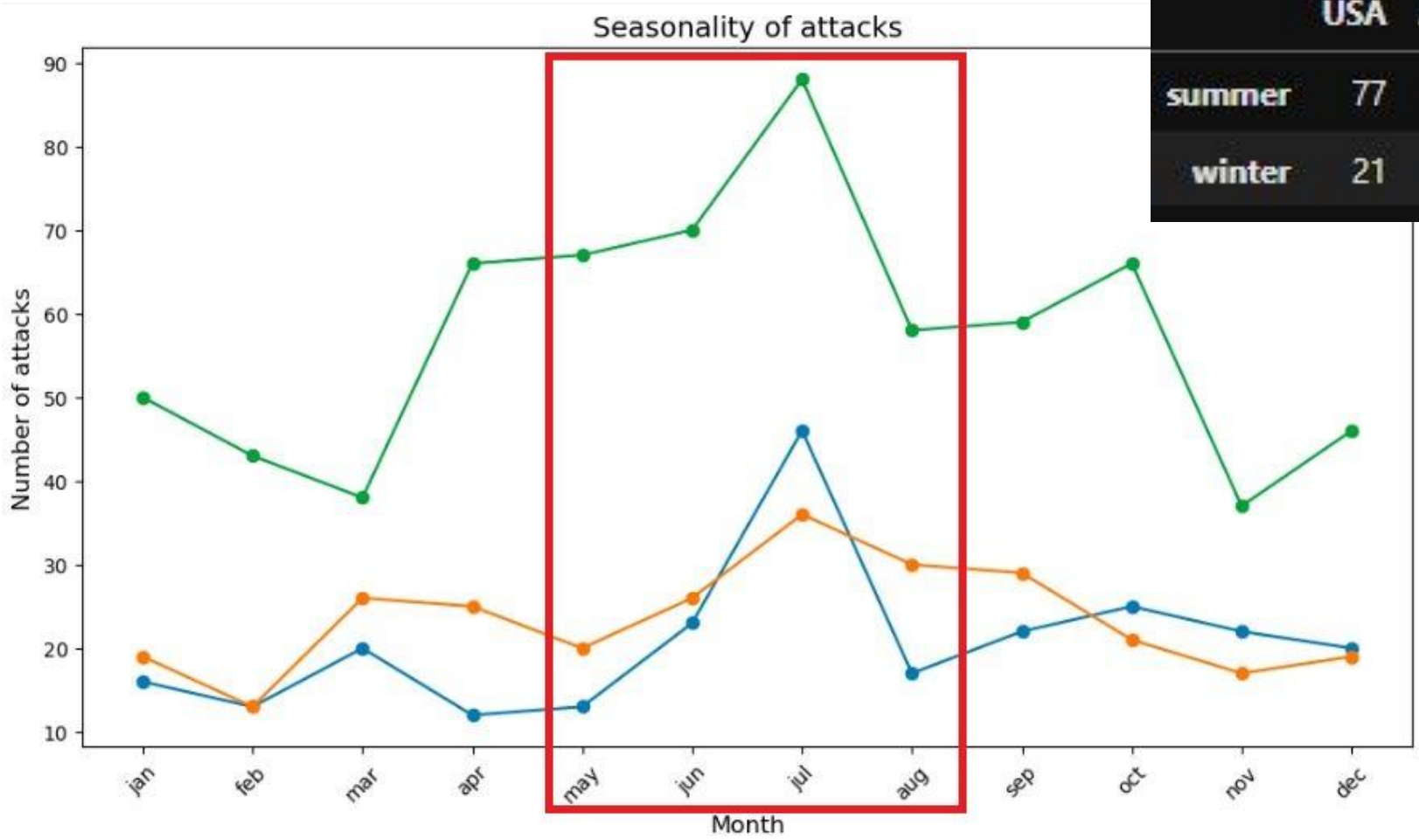


Top offenders

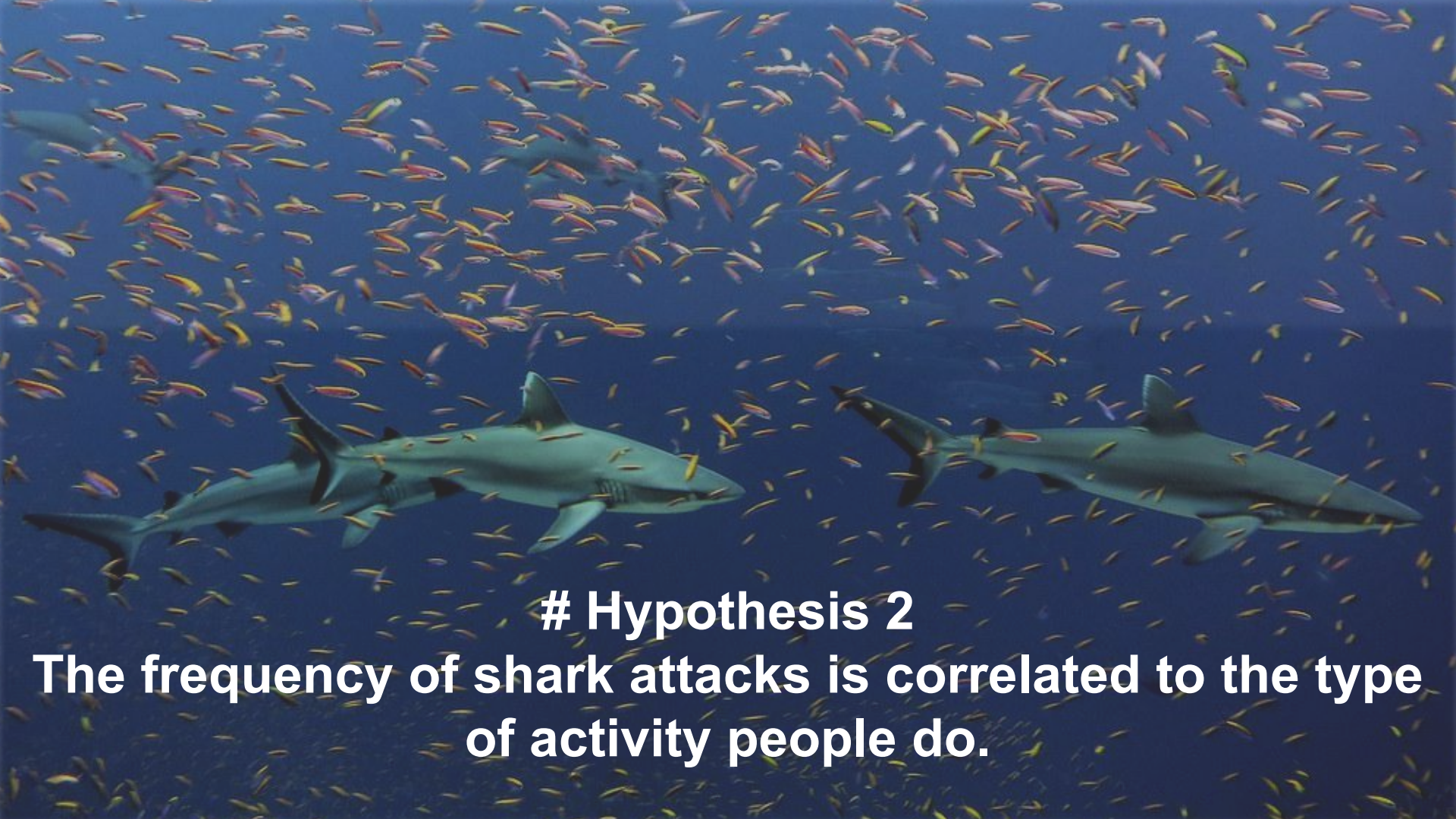
	breed	reports
1	white shark	699
2	tiger shark	292
3	bull shark	257
4	sand tiger	144
5	blacktip shark	88
6	copper shark	85
7	nurse shark	72
8	blue pointer	66
9	wobbegong	64
10	blue shark	52







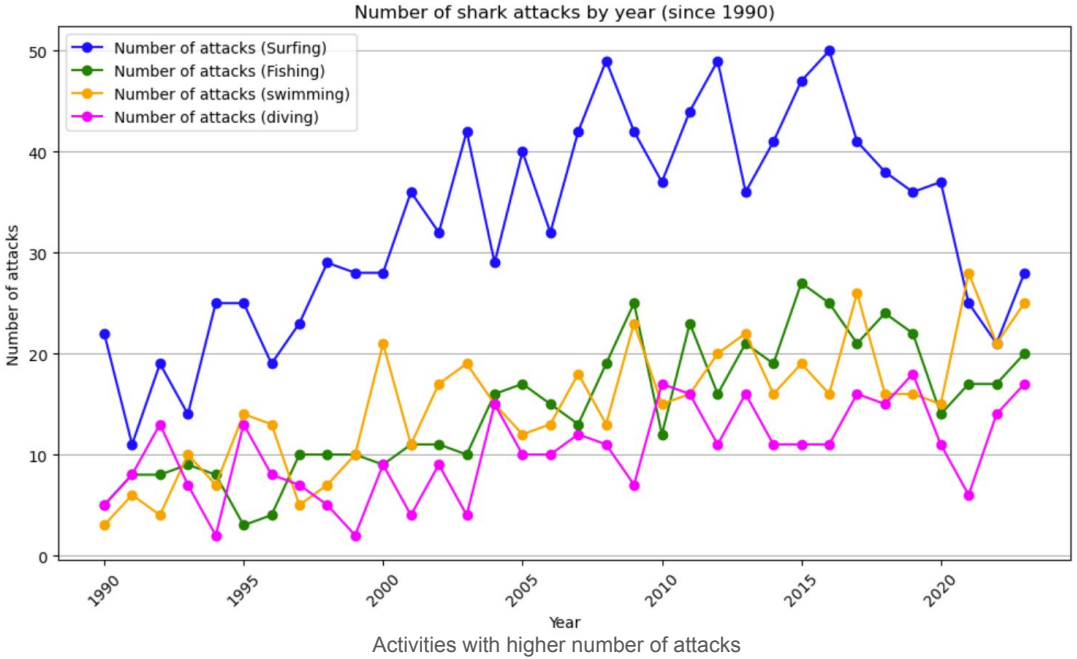
	USA	AUS
summer	77	49
winter	21	44



Hypothesis 2

The frequency of shark attacks is correlated to the type of activity people do.

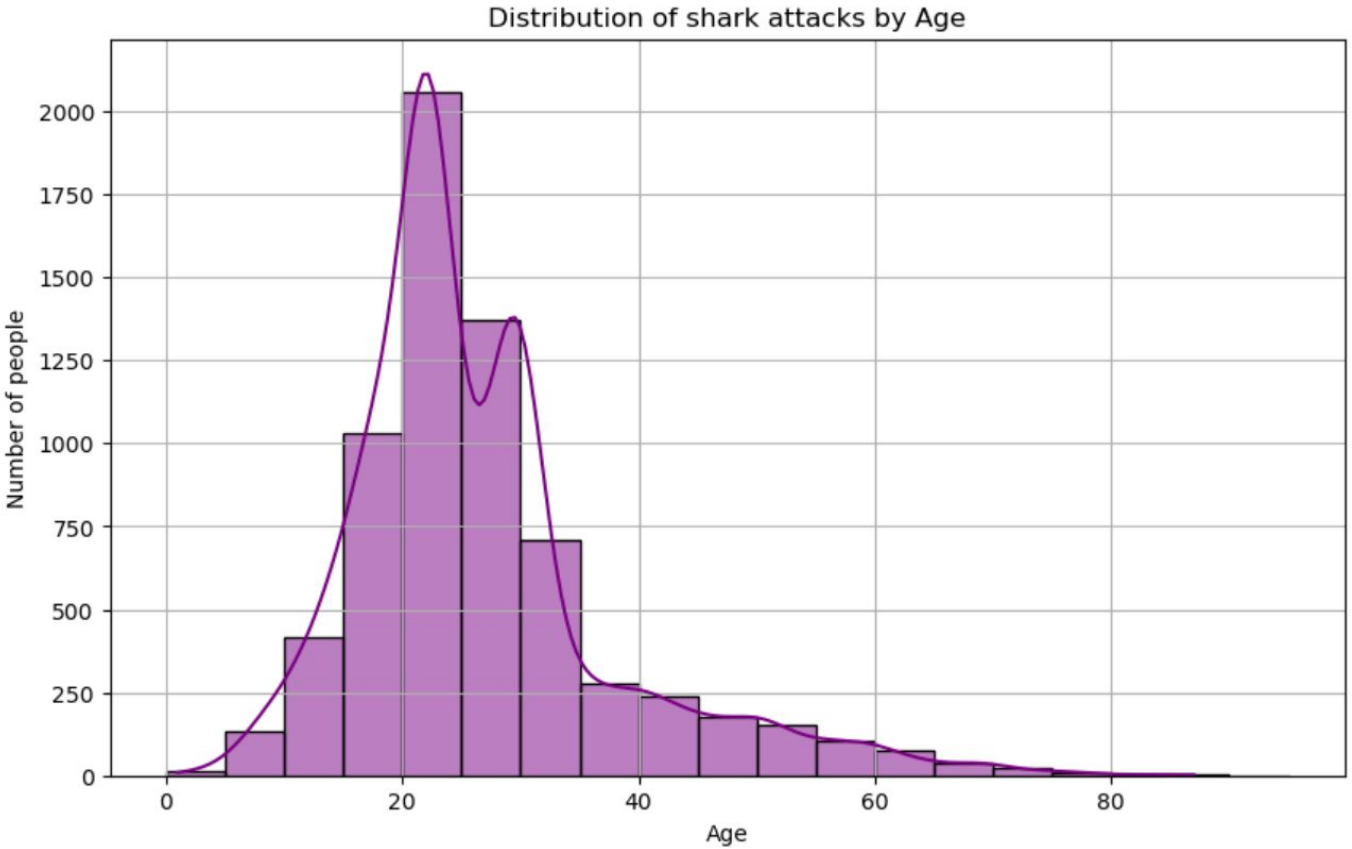
We need to focus on Diving taking into account both the number of attacks and mortality



Activities with higher number of attacks

Activity	% of mortal attacks
Surfing	5.6
Fishing	7.7
Swimming	18
Diving	18.4

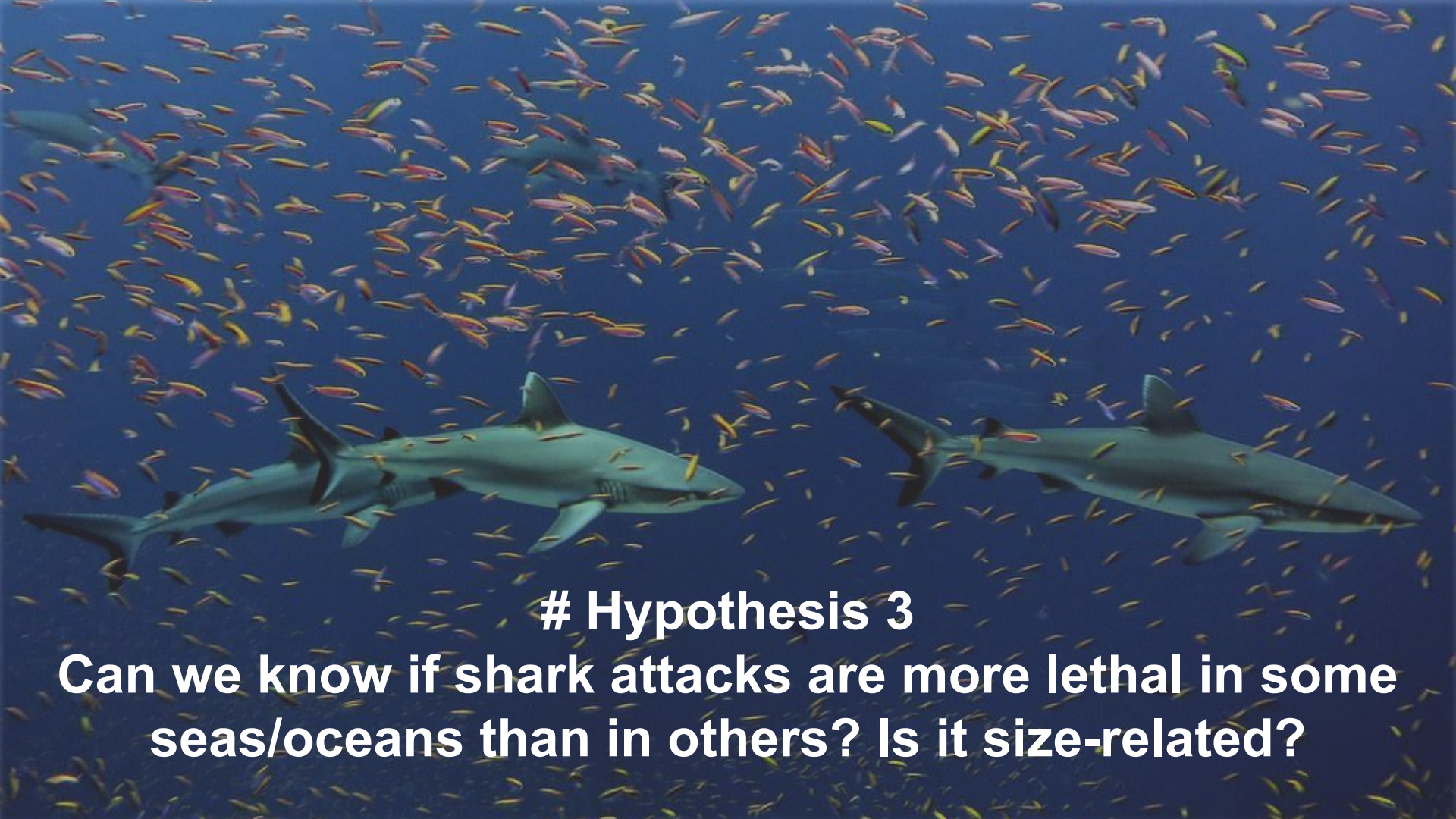
The majority of people attacked by sharks are between 15 and 35 years old, the peak being 20-25 years old.



Business Product: Stay Safe, Dive OK!

Improving Diving Safety

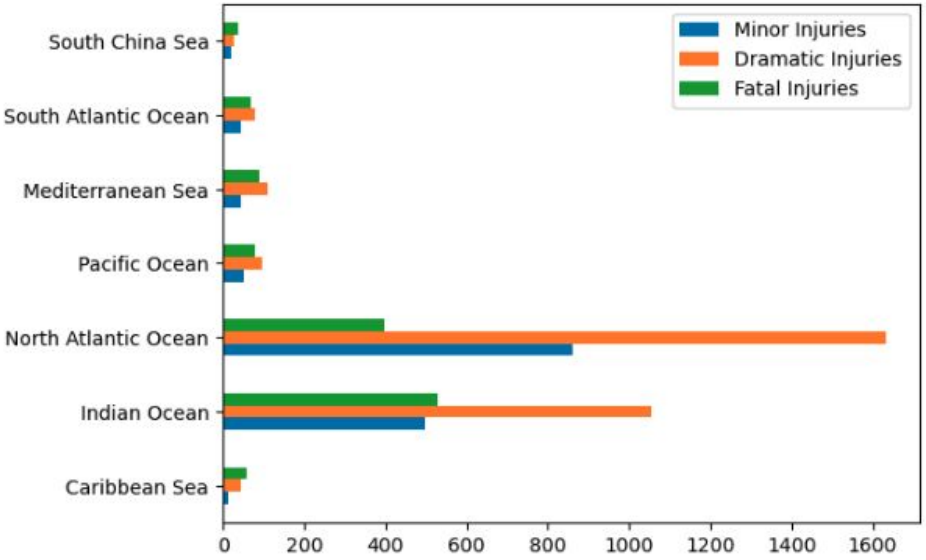
- Improving Diving safety through specialized training
- **Diving** requires **special training** and **certification**.
- We propose to enhance training with **shark attack prevention** lessons.
- A **new specialized team** should develop a **safety course** for divers.
- **Divers** are more **willing to pay** for these classes, presenting a **business opportunity**
- New Trend with the slogan “Stay Safe, Dive OK”!

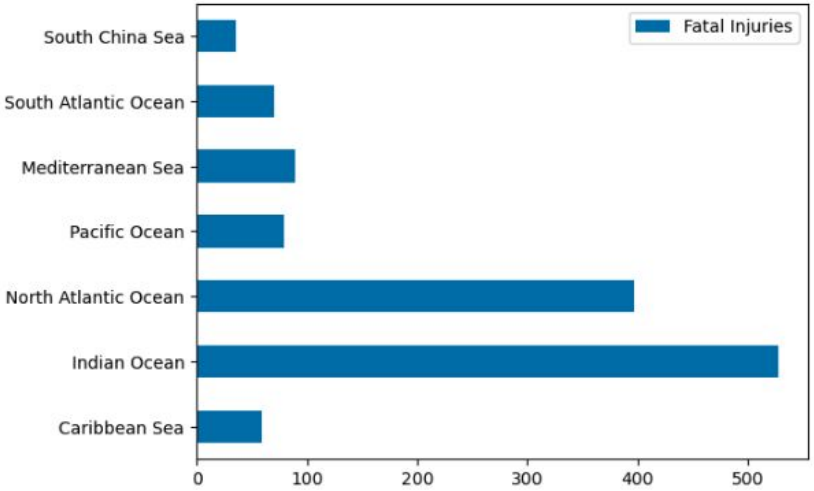


Hypothesis 3

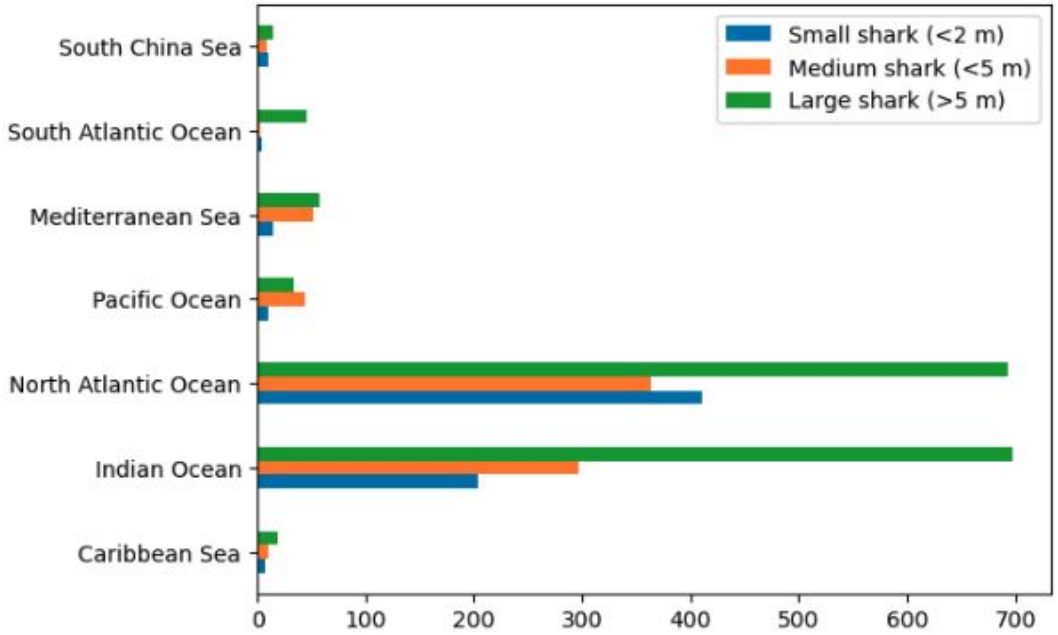
Can we know if shark attacks are more lethal in some seas/oceans than in others? Is it size-related?

Dramatic, Major, Minor per sea/ocean





Size of Sharks per sea/ocean

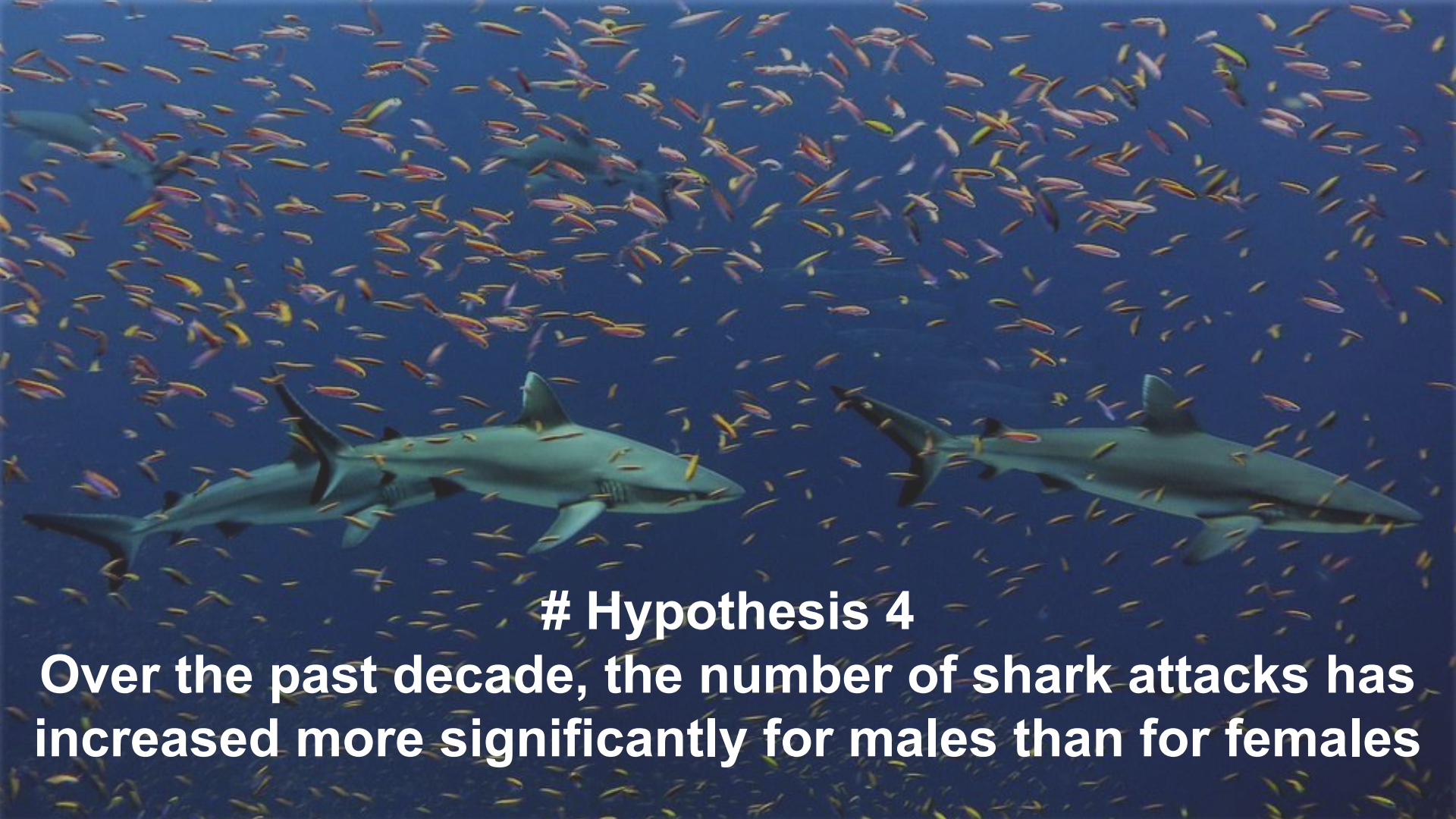


Conclusion

Hypothesis supported 

Surprising insights:

	Minor Injuries	Dramatic Injuries	Fatal Injuries
Caribbean Sea	14	44	59
Indian Ocean	499	1053	528
North Atlantic Ocean	862	1634	397
Pacific Ocean	52	97	79
Mediterranean Sea	43	112	89
South Atlantic Ocean	45	80	70
South China Sea	21	27	36

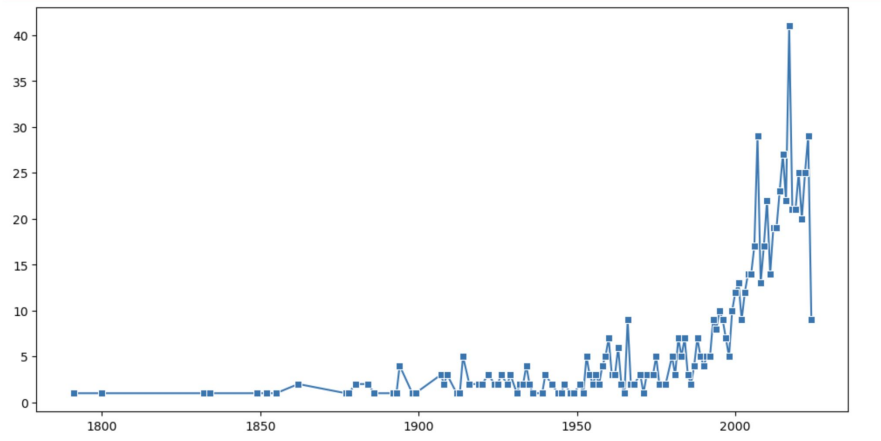


Hypothesis 4

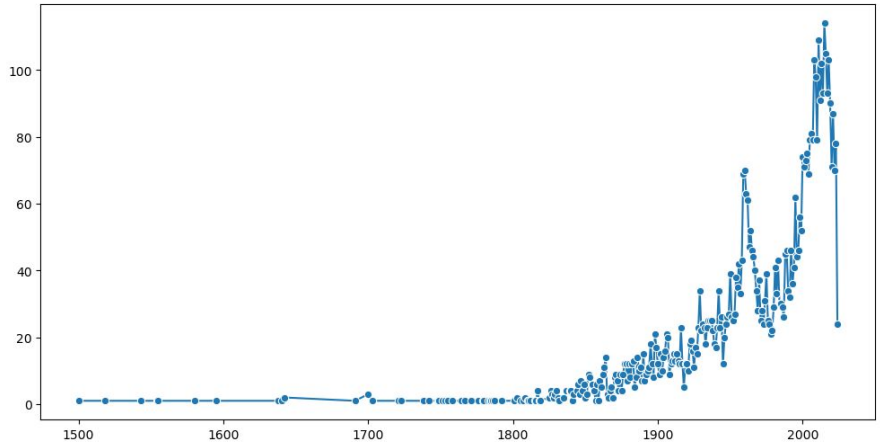
Over the past decade, the number of shark attacks has increased more significantly for males than for females

Comparing attacks on males and females throughout the years

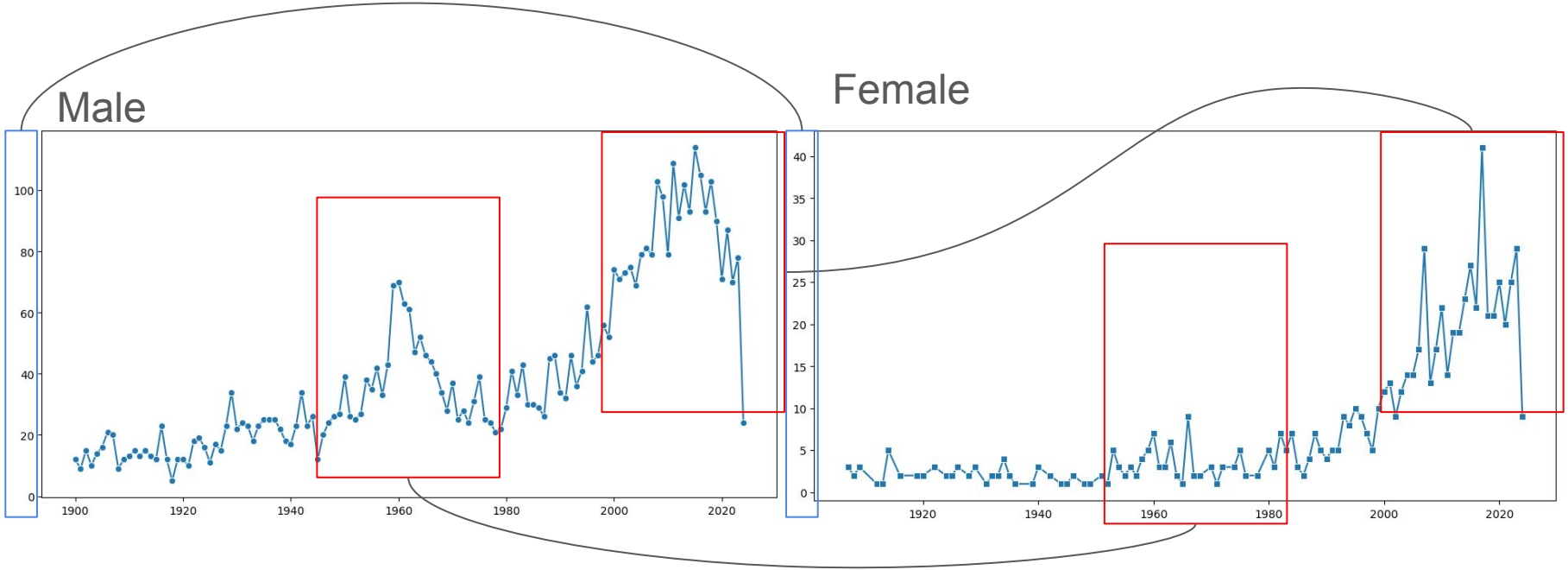
Male

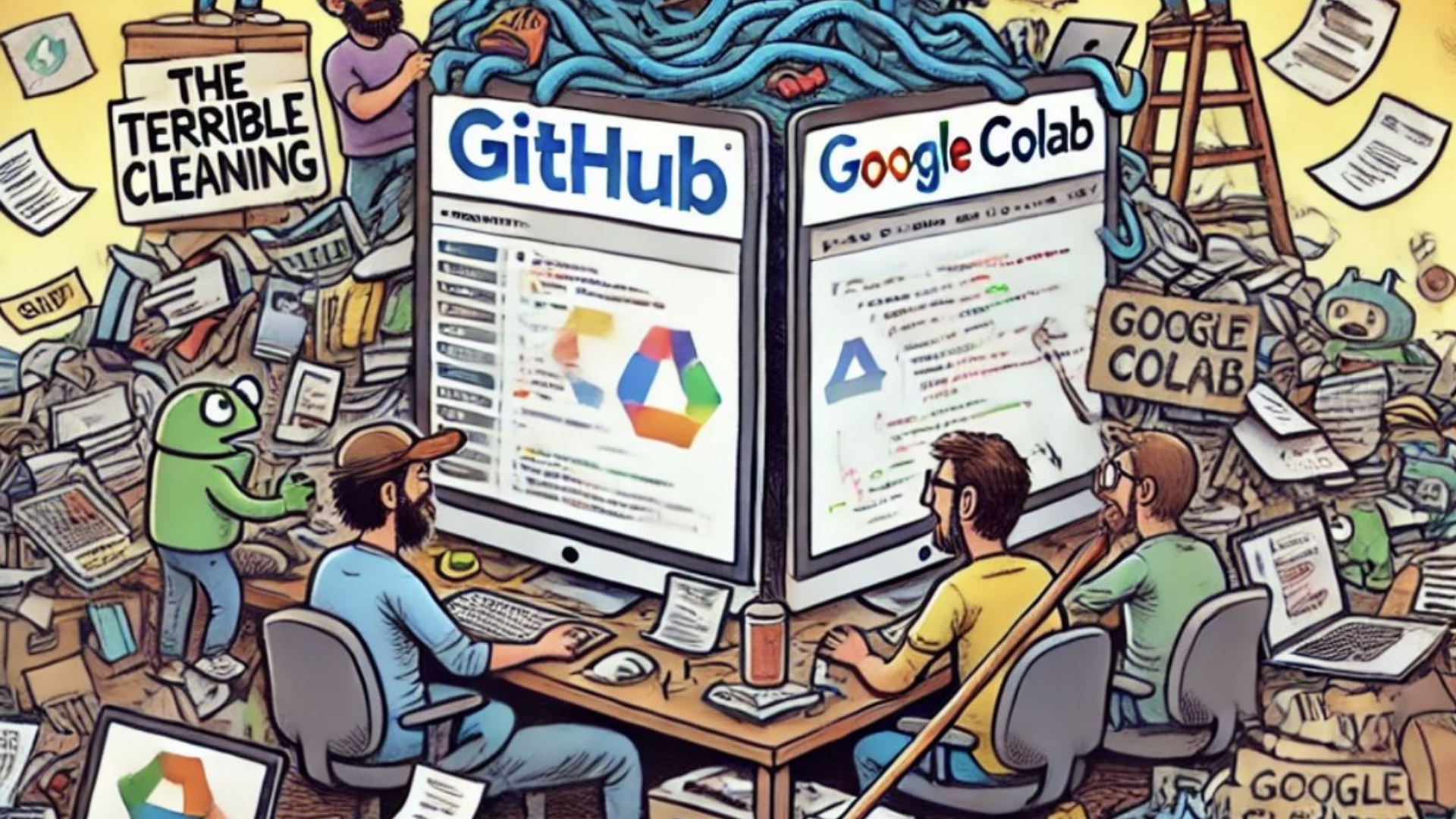


Female



Graph Males & Females throughout the year 1900 - 2023

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