

SafeSurf:

Data-Driven Insights for Safer Surfing

**By:- Ruchika Gogia
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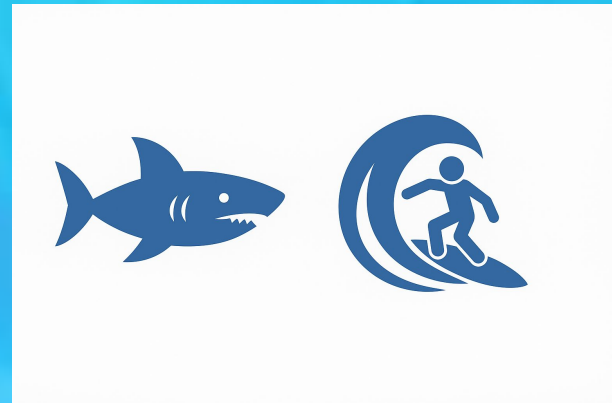
Problem

- Millions surf worldwide every year
- Shark attacks are rare but can be fatal
- Understanding attack hotspots improves surfer safety



The Opportunity — Data-Driven Surf Safety

- Surfers lack real-time, data-backed safety guidance
- Shark attack data is messy and underutilized
- Patterns hidden in locations, activities, and timing



The Vision — Smart Recommendations for Surfers

- Empower tourism boards, surf schools, insurers
- Promote safer surfing with data-driven insights
- Support local coastal economies



The Process — Cleaning & Visualizing Data

- Eliminated irrelevant or empty columns
- Removed duplicates and normalized column names
- Standardized entries in key fields (Country, Activity, Fatal)



The Process — Cleaning & Visualizing Data

- Converted ambiguous ages (e.g. “Teen”, “30s”) to numeric values
- Replaced missing or invalid ages with average age
- Fixed invalid years and filled missing ones
- Corrected inconsistent country names



Year	Type	Country	State	Location	Activity	Name	Sex	Age	Injury	Fatal Y/N	Time	Species	Source	pdf	Case Number	Unnamed: 21
2025	Unprovoked	Usa	Florida	Boca Grande	Snorkeling	Leah Lendel	F	9.0	Right hand almost torn off	N	1211 hrs	Bull shark	Kevin McMurray Trackingsharks.com: James Kings...	NaN	NaN	NaN
2025	Unprovoked	Usa	North Carolina	Sunset Beach	Swimming	Sean Barton	M	26.0	Gash to lower left leg	N	1100hrs	Not stated	Kevin McMurray Trackingsharks.com: Clay Crewel...	NaN	NaN	NaN
2025	Unprovoked	Vanuatu	South Santo	Espiitu Santo Island	Swimming	Tumas	M	14.0	Multiple injuries to body one hand and leg bit...	Y	pm	Not stated	Kevin McMurray Trackingsharks.com	NaN	NaN	NaN
2025	Unprovoked	Australia	South Australia	Port Noarlunga	Swimming	Richard Vinall	M	66.0	Injury to thigh	N	0945hrs	Not stated	Simon DeMarchi: Todd Smith: 9 News:ABC News	NaN	NaN	NaN

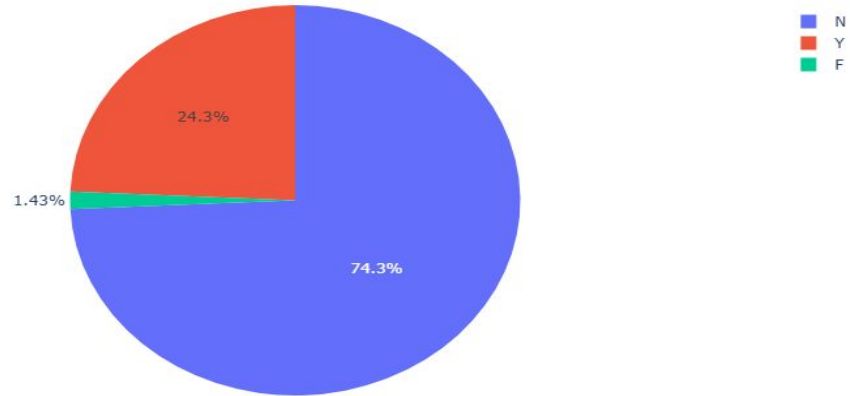
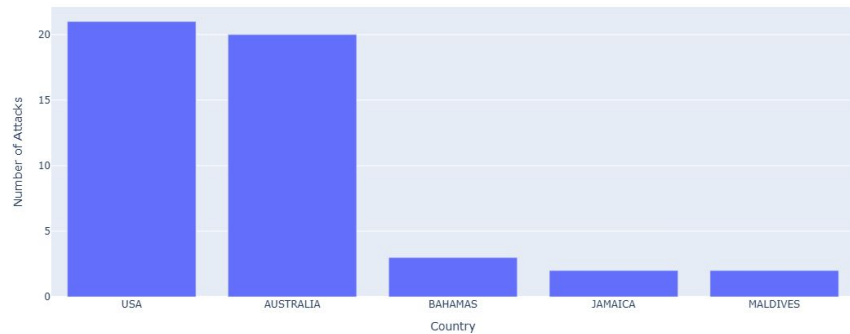
	Date	Type	Country	Activity	Name	Sex	Age	Injury	Fatal Y/N	Time	Species	Source
1	2025-06-11	Unprovoked	USA	Snorkeling	Leah Lendel	F	9.000000	Right hand almost torn off	N	1211 hrs	Bull shark	Kevin McMurray Trackingsharks.com: James Kingsley: Fox 4 News
2	2025-05-29	Unprovoked	USA	Swimming	Sean Barton	M	26.000000	Gash to lower left leg	N	1100hrs	Not stated	Kevin McMurray Trackingsharks.com: Clay Crewell:Scott Curatolo-Wageman
3	2025-05-26	Unprovoked	VANUATU	Swimming	Tumas	M	14.000000	Multiple injuries to body one hand and leg bitten off	Y	pm	Not stated	Kevin McMurray Trackingsharks.com
4	2025-05-15	Unprovoked	AUSTRALIA	Swimming	Richard Vinall	M	66.000000	Injury to thigh	N	0945hrs	Not stated	Simon DeMarchi: Todd Smith: 9 News:ABC News
5	2025-05-08	Unprovoked	JAMAICA	Paddling	Rachel Smith	F	26.000000	minor injuries to fingers of left hand	N	Not stated	Small shark 1m (3ft) long	The sun News: Metro: Kevin McMurray Tracking sharks.com
6	2025-04-24	Unprovoked	ISRAEL	Diving	Barak Track	M	45.000000	Remains recovered several days	Y	1500hrs	Dusky shark	Ynetnews.com: Dailymirror.co.uk: Todd Smith Alexandra Moddelman: Andrew

Insights — Where, When, and How It's Risky

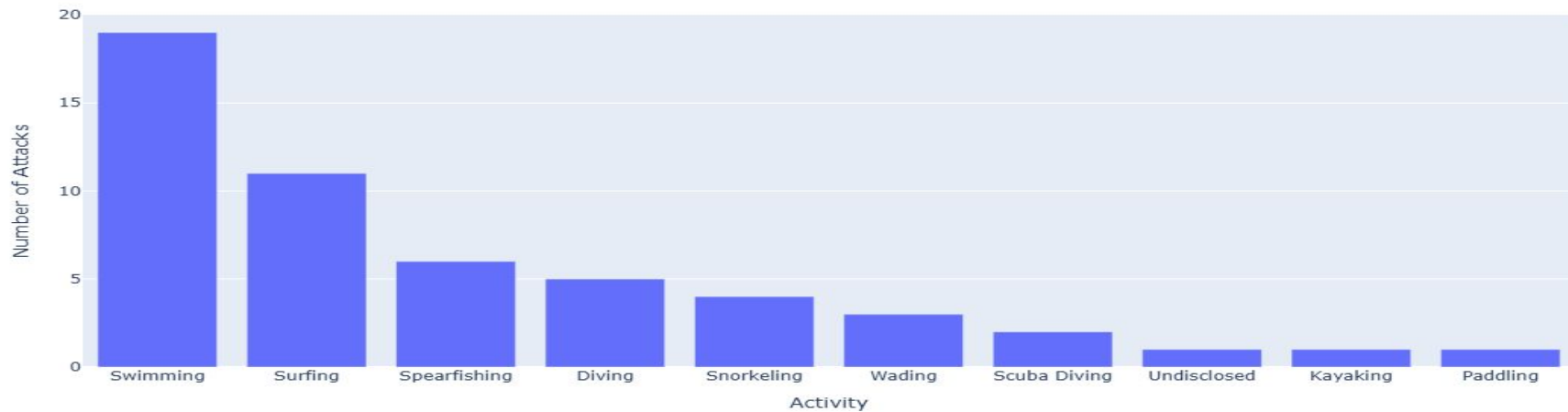
- Countries with the most shark attacks
- Most exposed activities identified
- Pie chart according to the fatality of the attack



Top 5 Countries by Shark Attacks



Top 10 Activities During Shark Attacks



MAIN CHALLENGES

- Parsing and extracting usable date formats, especially Year
- Converting age values from strings into numerical
- Creating a styled table that highlights fatal cases and top-risk countries



BIG MISTAKES

- Grouping injuries using an `apply()` function, but the logic was flawed
- Mapping fatality values to labels like “Dead”, “Alive”, or “Unknown”, but the logic didn’t produce consistent results



Conclusion & Key Insights

- **Most attacks are non-fatal, but fatality rates differ by country**
- **Surfing is the most frequent activity involved**
- **Age and group size showed little impact**
- **Enables smarter safety warnings for surf schools & tourism**



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