

Our Ocean Backyard — *Santa Cruz Sentinel* columns by Gary Griggs, Director, Institute of Marine Sciences, UC Santa Cruz.

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Dangers on the Coast

As both residents and summer visitors return to Monterey Bay beaches in increasing numbers, there often are the occasional shark sightings followed by questions about whether our beaches are safe. The short answer is yes, and that the odds of being attacked by a shark are exceedingly low along our coastline. The longer answer is that just about anything else you can do along the coast involves a higher potential risk than a shark attack.

My goal in this column is to provide you with some sense of the safety of our beaches from shark encounters, but also let you know that the coast does have some other hazards to keep in mind.

From 1837 to 2017, the 180 years with some history of encounters with sharks in United States coastal waters, there have been 1,343 unprovoked shark attacks, or about seven a year on average. 78% of these have taken place in Florida, Hawaii and California.

California has had 120 unprovoked shark attacks during our recorded history. The 778 in Florida dwarf this, however. Perhaps surprisingly, California's encounters haven't necessarily been greatest in the warmer waters of southern California and also haven't been greatest where there is the largest number of beach users. Los Angeles County comes in at number 10 with just 6 attacks, right behind Santa Cruz

County with 7. Remember now, this is in over 150 years of history, or for Santa Cruz County, one attack about every 20 years.

San Diego County is number one with 17 attacks, followed by Humboldt County at the opposite cooler end of the state with 16. Somewhat surprisingly, Monterey County is next and tied with San Luis Obispo and Santa Barbara counties with 11 unfortunate close encounters. And two counties with lots of beach users, where you might expect to higher numbers are very low: Ventura County only has 1 recorded shark attack and Orange County has had just four.

In the 10-year period between 2007 and 2016, with the millions of people using California's beaches, only 33 shark attacks were reported, or just 3 per year on average. Just three of those were fatal, or one death every 3 years on average. Globally there were 766 attacks during this 10-year period, and 61 of these were fatal. There are other far more risky places to swim than California.

The one shark fatality every three years compares to 19 deaths every year on average from surf zone accidents, the two most common of which are people dying in rip currents (8 per year), high surf (6 per year), and unknown or "other" causes (5 per year). One in the "other" category is commonly referred to as a sneaker wave.

Interestingly, none of my graduate school courses in coastal processes discussed sneaker waves. These are those higher than normal wave that occur when different wave fronts converge as they break, causing unexpected run-up and water depth along the shoreline.

In Australia, rip currents kill more people on average every year than bushfires, cyclones, floods and shark attacks. Twenty-one people die in an average year in rip currents compared to long-term average of 1/year from shark attacks. Another interesting fact, 85% of the shark attack victims in Australia are male.

So Santa Cruz County has had 7 fatal shark attacks in our entire recorded history, and so far this year, three people have unfortunately died from falling or jumping off rocks along the coast. A man fell to his death from cliff at Davenport in January, a teenager fell from cliff at Panther Beach in March and died, and another young soccer star died in May after jumping into water at Lighthouse Point.

And the greatest risk, drowning. From 2005-2014, there were an average of 3,536 fatal drownings each year in the United States (not-boating related), or ten deaths per day. Don't stress out about sharks, but make good decisions about other activities at the beach.