New study calls for society to change the way it refers to shark behaviour

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The term "shark attack" is typically used by the media, government officials, researchers and the public to describe almost any kind of human-shark interaction—even those where no contact or injury occurs between humans and sharks. For example, 38 percent of reported shark "attacks" in NSW between 1979 and 2009 did not involve any injuries.

Now, Christopher Neff of the University of Sydney, Australia, and Dr Robert Hueter, leader of Mote Marine Laboratory's Center for Shark Research in Sarasota, Fla.—the only Congressionally designated national research centre in the US focused on sharks—propose a new system of classification to support more accurate scientific reporting about shark interactions, along with more accurate public discussion about shark risk to swimmers and divers.

The international study, published this week in the peer-reviewed *Journal of Environmental Studies and Sciences*, is titled, 'Science, policy, and the public discourse of shark 'attack': a proposal for reclassifying human-shark interactions.'

In the study, the authors analysed shark statistics from around the world and found the term "shark attack" misleading in many cases. For instance, a 2009 government report from New South Wales, Australia, documented 200 shark attacks—but 38 of those involved no injuries to people. In Florida, often called the "Shark Attack Capital of the World" because of the number of reported shark attacks, only 11 fatal bites have been recorded over the past 129 years—a lower number than several

other locations in the world, and vastly lower than deaths from other types of natural events such as drowning or lightning.

"Not all shark 'attacks' are created equal, and we certainly shouldn't call bites on kayaks and bites on people the same thing," says Neff, a doctoral candidate conducting the first study on policy responses to shark bites at the University of Sydney.

Dr Hueter adds: "Nor should we equate the single bite of a 2-foot shark on a surfer's toe with the fatal bite of a 15-foot shark on a swimmer, but that's how the current language treats these incidents."

To support more accurate reporting and discussion of shark incidents, the Neff-Hueter study groups them into four categories based on outcomes that can be clearly documented, rather than speculation over what the sharks' motives and intentions were. These include:

- Shark sightings: Sightings of sharks in the water in proximity to people with no physical contact.
- Shark encounters: No bite takes place and no humans are injured, but physical contact occurs with a person or an inanimate object holding a person, such as a surfboard or boat. A shark might also bump a swimmer and its rough skin might cause a minor abrasion.
- Shark bites: Bites by small or large sharks that result in minor to moderate injuries.
- Fatal shark bites: One or more bites causing fatal injuries. The authors caution against using the term "shark attack" unless the motivation and intent of the shark are clearly established by experts, which is rarely possible.

"These new categories provide better information to the public so they

can judge their levels of risk based on local shark activity," Neff said. "If 'sightings' of sharks are increasing, or if 'encounters' with kayaks are decreasing these are important pieces of information. There simply is no value in using 'attack' language. It is time to move past Jaws."

"Our contemporary scientific understanding of sharks paints a very different picture than that current public discourse and even early research," says Hueter, who is known worldwide for his expertise in shark biology, behaviour and ecology.

"Few sharks look like the large great whites you might see on the movie screen; of about 500 shark species on Earth, most grow to less than 3-feet long. In addition, most shark species rarely, if ever, come into contact with humans. When they do, serious bites are the extremely rare exception rather than the rule."

Despite these facts, the term "shark attack" has dominated the language due to outdated historical perceptions of sharks, the researchers say.

Sharks were labelled "man-eaters" two centuries ago by scientists who had a limited understanding of shark behaviour and biology, and a researcher in the 1950s wrongly suggested sharks could go "rogue," developing a taste for human flesh.

These concepts inflamed public concern and resulting government responses. Multiple nations have used shark hunts and intensive commercial fishing targeting sharks—and even deployed naval depth charges—to kill supposed "rogue" sharks and protect the public.

Popular culture—especially the novel and film Jaws in the 1970s—has strengthened rogue-shark legends. News media reports also have contributed to misperceptions of human-shark interactions. The current study reviewed Associated Press articles in Florida during 2001—known

as the "Summer of the Shark" because of shark incidents ranging from minor to severe—and found that 79 percent of these stories used "attack" in the headline, even in the case of non-serious injuries.

Indiscriminate use of the term shark attack "can create a perception of a premeditated crime, lowering the public's threshold for accepting shark bite incidents as random acts of nature. The narrative establishes villains and victims, cause and effect, perceptions of public risk, and a problem to be solved," the authors say in the study.

In contrast, the Neff-Hueter naming system would provide an accurate and balanced way to describe shark risks, significantly adjusting reported statistics, the authors say:

- In the government report from New South Wales, Australia, the new naming system would reclassify 200 shark "attacks" between 1900 and 2009 as: 56 fatal shark bites, 106 shark bites, 37 shark encounters and 1 shark sighting.
- In Florida, the 637 confirmed cases of unprovoked shark "attacks" since 1882 would be reclassified as 11 fatal bites and 626 other interactions including bites, encounters, and a small fraction of sightings. (Shark incident data from the International Shark Attack File.)

"When public discussion centres on the idea that sharks are out there attacking humans, it doesn't reflect the reality of what we have learned over the past 40 years about shark behaviour and biology—sharks are not man eaters, and in fact, many shark species are threatened by humans who overfish them. Using the 'attack' language really hinders public discourse about the need to protect shark species, especially those vulnerable to depletion or even extinction," says Dr Hueter.

The authors write: "In short, this is a call to scientists, public officials, and the media to reconsider their discourse on the subject of sharks and to improve the accuracy of information provided to the public."

More information: rd.springer.com/article/10.1007%2Fs13412-013-0107-2

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