

Evaluating the Impact of Marine Protected Areas on Human-Shark Interactions at a Global Scale

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Abstract : The global number of shark bites has increased over the past four decades with, however, high regional variability both in space and time. A systematic review, aligned with the 2020 PRISMA guidelines, explored the peer-reviewed literature published between 1960 and 2023 to identify factors potentially explaining trends in human-shark interactions. Results revealed that variations in the frequency of human-shark interactions could be explained by a plethora of factors, including changes in prey availability, environmental conditions, human and shark population density and behavior, as well as habitat destruction. However, to our best knowledge, only five studies have conducted statistical assessments of the relative contribution of these factors. The increased number in human-shark interactions and the frequent clusters of shark bites within short timeframes offer opportunities to test the causative factors that may explain trends in unprovoked shark bites. This study aims to evaluate the impact of marine protected areas (MPAs) on the number of human-shark interactions, using data from the Global Shark Attack File and the World Database on Protected Areas. Results indicate contrasting effects of MPAs at different spatial scales. Enhancing our understanding of the factors contributing to shark bites is essential for improving risk reduction policies for humans and conservation plans for shark populations.

Keywords : unprovoked shark interactions, marine protected areas, attack risk, human-wildlife interaction

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