Ecology of Sharks

and Human Attitudes Towards Shark Conservation

in the Galapagos Marine Reserve

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David Acuña Marrero

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Abstract

In this thesis, I used a multi-disciplinary approach to study both the spatial ecology of coastal sharks and human attitudes towards sharks at the Galapagos Marine Reserve (GMR). Benthic and pelagic baited remote underwater stereo-video systems recorded coastal shark assemblages that displayed high spatial variation, with the relative importance of environmental and biological drivers differing among shark species according to their mobility. Telemetry data (both acoustic and satellite) from tagged tiger sharks (*Galeocerdo cuvier*) showed a high degree of philopatry, with movements of adult tiger sharks concentrating at the most important nesting areas for sea turtles at the GMR. Using diver-operated stereo-video systems (DOVs) I demonstrated that non-instantaneous surveys yield estimates of shark densities that can almost double the ones obtained from instantaneous surveys. Furthermore, I proposed a new methodological approach to study attitudes towards sharks that proved to be reliable and informative, showing that attitudes were shaped by a range of psychological factors, such as aesthetics, and also by the socio-economic context of individual respondents. Strong correlations were found between attitudes and behavioural responses, such as tolerance or support for shark protection.

In conclusion, I demonstrated that sharks at the GMR have species-specific and size-specific spatial requirements for particular habitats and food resources. Indeed, the presence of a predictable source of prey and suitable habitats at the GMR might reduce the spatial extent of the potential areas used by large and highly mobile shark species, such as tiger sharks, thereby enhancing the potential effectiveness of the GMR for their protection. I also propose the use of non-instantaneous DOV surveys to provide more accurate estimates of shark densities than underwater visual techniques. In addition, the multivariate methods used here for the first time to study human perspectives on sharks

allowed me to identify specific attitudes and associated factors having the greatest influence on human behaviours towards shark conservation. In summary, with mounting anthropogenic pressures on shark populations, this thesis provides timely and critical information for the global objective of identifying effective strategies for the management and conservation of sharks to ensure their long-term survival.

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