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Setting Conservation Priorities for Marine Sharks in China and the Association of Southeast Asian Nations (ASEAN) Seas: What Are the Benefits of a 30% Conservation Target?

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Sharks play an important role in marine ecosystems as top predators and have been increasingly accepted in recent years as a group for priority conservation worldwide. However, as one of the regions with the highest marine shark species richness, there is still a limited understanding of shark diversity patterns and conservation needs in China and the Association of Southeast Asian Nations (ASEAN) seas. In this study, we applied an ensemble species distribution model of five algorithms to investigate the diversity distribution patterns of 149 shark species in China and the ASEAN seas for the first time. A systematic conservation planning approach involving diversity, scarcity, and biogeographical distinctiveness was used to identify and compare conservation priority settings. Our results showed that bathymetry and dissolved oxygen were the most important variables contributing to shark distribution. The distribution pattern of shark species richness peaked on the continental shelves at 22–26°N, and a hotspot of shark diversity was identified around the Taiwan Strait. The spatial distribution of shark species in the nine orders and the 72 threatened shark species varied considerably. The existing marine protected area network only protects 2.1% of the ocean, 32.9% of the shark species, and 43.1% of the threatened species, highlighting a substantial conservation gap. Among the conservation priorities identified, the high conservation target scenario (30%) protects only 10%–15% more species than the low conservation target scenario (10%). However, under the high conservation target scenario, the conservation range of species tripled. Our results show that low conservation targets were only suitable for