Identifying and mapping local bycatch hotspots of loggerhead sea turtles using a GIS-based method: implications for conservation

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ABSTRACT

Fisheries bycatch of marine megafauna is a worldwide conservation issue. In this study, we propose a method for generating reliable maps of sea turtle bycatch hotspots. Based on a well-defined area of fishing effort determined from the longline sets monitored in 2007 and 2010, we calculated the fishing area with the highest turtle bycatch density for both years. Our results show that it is important to consider all the components of fishing effort (area, number of hooks and soak time) in order to standardize the bycatch events, and thus the spatial density of the captures can be considered an index of abundance and aggregation of the species. Moreover, the high-resolution level of the analyses was useful for investigating the cumulative effect of the longline sets, which often overlap, and made it possible to correctly map the capture density and the intensity of the fishing effort at any given location.

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