
Ghost fishing of silky sharks by drifting FADs: highlighting the extent of the problem

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Abstract

Juvenile silky sharks (*Carcharhinus falciformis*) often associate with drifting FADs throughout the world's tropical oceans. These FADs regularly include portions of submerged netting, which aid in slowing their drift and are believed to improve their aggregating efficiency. Juvenile silky sharks are known to become entangled in this netting, however the frequency of this occurrence has never been investigated. Here we adopt a multi-technique approach, including underwater surveys and acoustic and satellite tagging to provide the first quantitative assessment of silky shark mortality induced through ghost fishing by FADs. Underwater visual assessments were conducted at 53 FADs while 35 sharks were tagged at FADs with satellite tags and observed for > 1225 d (data collection on going). Additionally 7 sharks were tagged with pressure sensitive acoustic tags and monitored at 4 FADs for 55 days. By coupling visual assessment data with acoustic tagging data we were able to derive the average number of sharks entangled on a daily basis for a given number of FADs. Furthermore, by combining acoustic and satellite tag data we could estimate the conditional probability of a shark becoming entangled once associated with a FAD. Finally, through comparison with a stochastic model based on both the distribution of the number of sharks at FADs and the experimental conditional probability of entanglement, derived above, we were able to assess the accuracy of the visual assessment data as well as possible interactions between conspecifics.

Keywords: FAD, silky shark, mortality, ghost fishing

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