The role of FADs in the ecology of juvenile silky sharks

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Abstract

Silky sharks (*Carcharhinus falciformis*) are the main elasmobranch species found around drifting FADs and as such, are commonly taken by purse seiners as bycatch. Here, we investigate the role that FADs play in the ecology of this species through the use of acoustic telemetry, pop-up satellite tags (miniPATs) and dietary analysis. Residence times and vertical data were collected from 21 silky sharks (73 -112 cm TL) tagged with acoustic transmitters equating to 328.5 d of observation around 7 drifting FADs between March 2010 and May 2012 in the western Indian Ocean. Sharks were found to associate with the same FAD for several days (mean = 15.6 d, range: 2.8 - 30.6 d) and typically undertook excursions away from the FAD at night, as has been found previously. While closely associated during the day, sharks typically remained shallow (under 30 m) often reaching a maximum depth around midday. Average day and night depths were not significantly different but data from 5 sharks double tagged with miniPATs indicate that the amplitude of vertical behaviour at night, during excursions, was far greater, suggesting nocturnal foraging away from FADs. In addition, stomach samples from 240 sharks incidentally caught around FADs by purse seine vessels provided useful information on the proportion of the diet consisting of prey items that commonly associate with FADs. Combining data from the behaviour (acoustic tags and miniPATs) and diet, we show that floating objects form a key component in the pelagic habitat for these sharks during their early life stages.

Keywords: silky shark, ecology, FAD, bycatch

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