
Schooling behavior of juvenile yellowfin tuna around a FAD in the Philippines

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Abstract

To understand the schooling behavior of juvenile yellowfin tuna around a FAD, 13 juveniles (20.5-24.0 cm fork length) double tagged with ultrasonic transmitters (V7-2L-R256; Vemco Ltd.) and data loggers (DST-micro; Star-Oddi Ltd.) were released around a payao in the Philippines. A self-recording receiver (VR2-DEL; Vemco Ltd.) was attached on the mooring rope of the payao to follow the horizontal movements and data loggers recorded the vertical movements of tagged juveniles. Nine juveniles were recaptured simultaneously by ring net at the same payao after 4-7 days. One juvenile was recaptured by hand line at another payao 12 km away from the tagging site after 6 days. Recaptured juveniles showed a diurnal schooling pattern suggesting different school shape and foraging strategy between daytime and nighttime. Juveniles showed a diurnal horizontal moving pattern, concentrated near the payao during daytime, while they were distributed around the payao at nighttime. The fluctuations of swimming depth were synchronized among fish. Juveniles also showed a diurnal vertical movement pattern in surface mixed layer. They concentrated in a shallow and narrow range at nighttime, while they were distributed to a deep and wide range during daytime. The maximum vertical neighbor distance indicated the vertical thickness of the school and showed a peak around noon. Higher vertical movement speed during daytime indicated vertical foraging in a water column, while at nighttime the juveniles might forage horizontally following the diurnal migration patterns of prey in the surface layer.

Keywords: Yellowfin tuna / juvenile / school / FAD / payao / telemetry

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