

# Baited videography reveals remote foraging and migration behaviour of sea turtles

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Studying sea turtles when they leave coastal areas is a particular challenge for research and conservation. As part of a large-scale fish-monitoring programme, we have deployed mid-water stereo baited remote underwater video systems (BRUVS, Letessier et al. 2013) at 181 sites around northwestern Australia. From 27 turtle observations, we identified 11 green turtles (*Chelonia mydas*) around Dirk Hartog Island, west of Shark Bay (April 2012) and three olive ridley turtles (*Lepidochelys olivacea*) on the Australian shelf of the Timor Sea (September 2012, Fig. 1). Turtle encounter rates were 37 % inside the shallow Dirk Hartog pass (mean depth 11 m) compared with 0 % on the seaward side of the island, and 2.5 % in the Timor Sea (mean depth 113 m). Straight carapace length (SCL) was measured for one olive ridley (70.0 cm, an adult female) and four green turtles (SCL = 40.6–89.5 cm). At least two olive ridleys and three greens actively inspected the bait (see [electronic supplementary material](#)).

Our observations provide novel insights into the animals' fine-scale habitat usage within Shark Bay and of hitherto suspected deep foraging grounds along the banks and shoals of the Timor Sea (Whiting et al. 2007), confirming the importance of these

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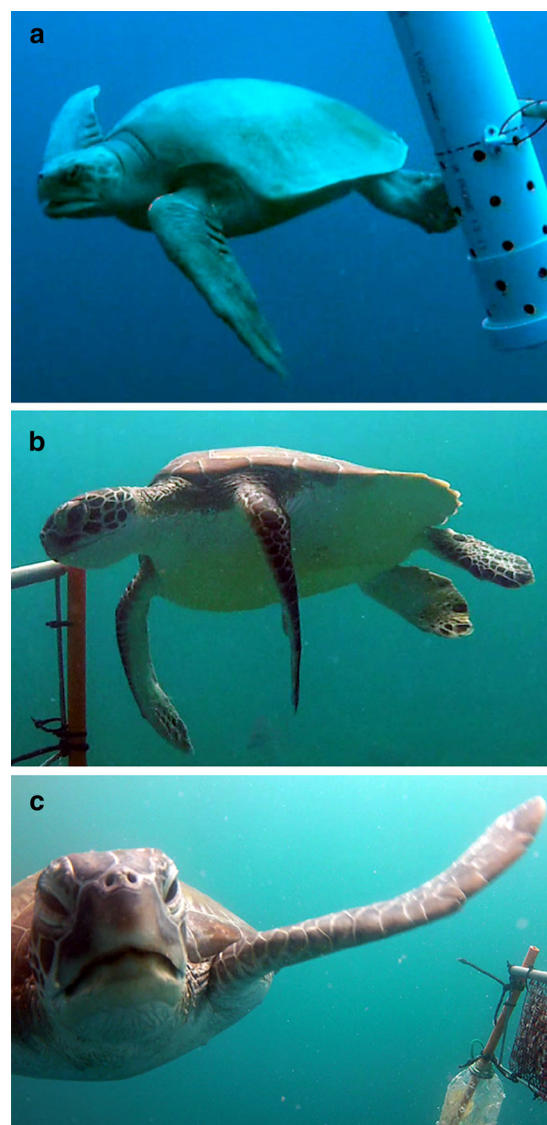
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**Fig. 1** Olive ridley (a) and green turtles (b, c) recorded by BRUVS deployed in the Timor Sea (a) and near Dirk Hartog Island, Australia (b, c)

habitats for greens and olive ridleys, respectively. The innovative use of BRUVS to study turtles can also help validate in situ size estimations (Houghton et al. 2003), ground-truth telemetry tracks (Whiting et al. 2007), and assess the sex ratio of wild populations (Hays et al. 2010). Moreover, video records may assist identifications through photo ID algorithms ([www.reijns.com/i3s/](http://www.reijns.com/i3s/)).

BRUVS are increasingly used for assessing the distribution, diversity, and abundance of marine life in a non-intrusive manner and, as our observations demonstrate, may support the conservation of sea turtle populations by providing strategic knowledge on feeding grounds and migration corridors in pelagic and coastal areas.

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