



Non-song communication of pygmy blue whales from biologging tags in the eastern Indian Ocean

Andrew M Davenport (1), K Curt S Jenner (2), Micheline-Nicole M Jenner (2), Michele Thums (3), Christine Erbe (1), Luciana C Ferreira (3), Grace Russell (2), and Robert D McCauley (1)

(1) Centre for Marine Science and Technology, Curtin University, Bentley, Australia

(2) Centre for Whale Research (WA) Inc., Fremantle, Australia

(3) Australian Institute of Marine Science, University of Western Australia, Crawley, Australia

ABSTRACT

Despite extensive datasets of passively recorded pygmy blue whale (*Balaenoptera musculus brevicauda*) sounds from the eastern Indian Ocean (EIOBP), a poor understanding of sound function inhibits our interpretations to primarily presence confirmation. To begin addressing this deficit we deployed sound and movement biologging tags on 5 pygmy blue whales off Western Australia between March and June 2025, including 4 at the Perth Canyon and 1 at Ningaloo. CATS diary and DTAG3 instruments were used, with sensors including hydrophones (96 and 120 kHz), triaxial accelerometers (400 and 250 Hz), triaxial magnetometers, pressure sensors, and thermistors (50 and 10 Hz). The tags were attached to whales with suction cups after dropping them from a SwellPro Fisherman MAX remotely piloted aircraft. Once tagged, whales were followed to collect contextual data including photo ID, body condition, social observations, surface behaviour, and biopsy samples. Pygmy blue whale vocalisations were recorded by the tagged individual or a nearby conspecific on three deployments, including grunt-like sounds made during social interactions and the EIOBP downswEEP call from a solo animal. Dead-reckoned tracks were calculated from the tag sensors and known whale locations to enable accurate three-dimensional analysis of feeding behaviour. Feeding behaviour with high patch fidelity was observed in the Perth Canyon, while at Ningaloo a migrating whale was revealed to be feeding as it travelled, without disruption to horizontal speed or heading. The preliminary results presented here demonstrate the effectiveness of these high-resolution datasets to interpret EIOBP behaviour and communication.