



# Using a multi-frequency echo-sounder to map fish distribution and benthic habitat in Fremantle Harbour, Western Australia

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## ABSTRACT

A multi-frequency echo-sounder and baited remote underwater video systems (BRUVS) were used in May 2016 and March 2017 to identify types and spatial distribution of fish and benthic habitats in the Fremantle Inner Harbour, Western Australia. One of the main motivations for this study is to better understand the distribution of potential dolphin prey. The echo-sounder used was a Biosonics DTX scientific echo-sounder with three frequencies 38, 120 and 400 kHz towed by a 4.6 m vessel. The echo-sounder survey covered the range of the Inner Harbour. Five BRUVS stations were positioned strategically in locations within the echo-sounder surveyed area and those anticipated to have high fish activity. Individual targets and small aggregations of fish were identified by the echo-sounder at locations near the wharf walls and other topographic features. Initial analysis of the BRUVS, identified: weeping toadfish (*Torquigener pleurogramma*), tarwhine (*Rhabdosargus sarba*), and western butterfish (*Pentapodus vitta*) as dominant species. The next stage of this work is investigated how well the acoustic and video data can be integrated to best understand the fish distribution, and assess the usefulness of this technique for studying potential dolphin prey.