

The distribution of key species in the NDSF (Western Australia)

Sven Gastauer, Miles Parsons

The NDSF is a trap fishery in Northwestern Australia. The fishery is characterised as a demersal trap fishery, extending over a vast area, which would traditionally require time and cost-expensive dedicated scientific surveys to gain insights into the distribution of key resources. Taking advantage of SIMRAD ES70 echosounders mounted on a commercial vessel facilitates gaining insights into distributional patterns of key resources. All recordings were taken during normal commercial fishing operations. As no dedicated fishing information was available, nor could the commercially caught fish be measured during the standard fishing trips, special tools were developed to deduce species-length information from the traps, through optical GoPro recordings. Additionally, preliminary observations were made to gain insights into trap avoidance pattern through opportunistically collected video recordings at depth while traps were *in situ*. In addition to the extraction of acoustic fish backscatter, backscatter from other key components such as fluid-like organisms and seabed characteristics have been extracted from echograms. The combination of these findings with catch information and linking resulting patterns with auxiliary environmental information aids habitat classification and the description of the distribution of key species. To further enhance target classification capabilities, target strength models of some of the main species found within the fishery are currently being generated, either based on experimental *ex-situ* measurements or *in-situ* recordings in combination with physiological information of the species in question, gained through computational tomography scans.

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Contact author: Sven Gastauer, CMST – Curtin University, sven.gastauer@postgrad.curtin.edu.au