

Micronekton Community Structure On The Southern Kerguelen Axis

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1 Introduction

The fish and macrozooplankton that inhabit the Mesopelagic as a black hole in understanding of ocean systems Particularly true in the southern ocean

K-axis as a region of particular interest to Australia

This study: an overview of mesopelagic community structure

Previous studies have focused on distributions and associations of individual taxa and/or functional groups. While of great value for ... biogeography... Here we aim to provide a summary in a form that can directly inform ecosystem modelling

The aim of this study was to describe the summer composition and vertical distribution of the mesopelagic micronekton community and explore associations with biophysical...

We developed hypotheses that could explain the relationship between...

16 2 Methods

17 The mesopelagic community was sampled at 36 stations along the
18 voyage track, from the surface to 1000 m, using an International
19 Young Gadoid Pelagic Trawl net (IYGPT, with an opening of 188
20 m²) equipped with a multiple opening and closing cod-end device
21 (MIDOC). The MIDOC comprises 6 separate cod-ends (with a mesh
22 size of 20 mm, terminating in a removable "soft" codend bag made
23 of 0.5 mm mesh). The MIDOC allows cod-ends to be opened sequen-
24 tially at pre-programmed intervals, such that each cod-end samples
25 a different depth stratum. The first cod end was open as the net
26 descended from the surface to a maximum depth of 1000 m, then
27 the remaining 5 cod-ends each sampled a 200 m depth band as the
28 net returned to the surface (1000–800 m, 800–600 m, 600–400 m,
29 400–200 m, and 200 m–surface). Nets were towed for 30 min at an
30 average speed of 2.7 knots for each 200 m depth band (covering a
31 mean distance of 1.35 nautical miles, and sweeping a mean volume
32 of 450,800 m³), and at 3.9 knots for 60 to 90 minutes for the first
33 descending cod-end (covering a mean distance of 5.95 nautical miles
34 and sweeping a mean volume of 1.98×10^6 m³).

35 Catch was converted to densities by dividing numbers and weights
36 by the volume swept for each cod end. Acoustic backscatter in the
37 water column was characterised during tows using an Simrad EK60
38 echosounder operated at 38 kHz. Acoustic data were filtered and
39 quality controlled prior to the derivation of the total Nautical Area
40 Scattering Coefficient (NASC) for the time period and depth range
41 corresponding to each depth stratum. NASC is an acoustic density
42 measure, corresponding to the acoustic energy per unit distance,
43 which can be translated into biologically more meaningful biomass
44 or abundance estimates, if the species composition and the sound
45 scattering of an individual of the given species group is known.
46 TODO: say something more here

47 **3 Results**

48 `iiçç= plot() @`

49 **4 Discussion**

50 **5 Acknowledgements**

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