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TITLE: Deep-sea amphipod community structure across abyssal to hadal depths in the Peru-Chile and Kermadec trenches

AUTHOR: ['Toyonobu Fujii', 'NM Kilgallen', 'Ashley A. Rowden', 'Alan J. Jamieson']

ABSTRACT:

MEPS Marine Ecology Progress Series Contact the journal Facebook Twitter RSS Mailing List Subscribe to our mailing list via Mailchimp HomeLatest VolumeAbout the JournalEditorsTheme Sections MEPS 492:125-138 (2013) - DOI: https://doi.org/10.3354/meps10489 Deep-sea amphipod community structure across abyssal to hadal depths in the Peru-Chile and Kermadec trenches Toyonobu Fujii1,*, Niamh M. Kilgallen2,3, Ashley A. Rowden2, Alan J. Jamieson1 1Oceanlab, Institute of Biological and Environmental Science, University of Aberdeen, Main Street, Newburgh, Aberdeenshire AB41 6AA, UK 2National Institute of Water & Atmospheric Research (NIWA), 301 Evans Bay Parade, Wellington 6021, New Zealand 3Present address: Australian Museum, 6 College Street, Sydney, New South Wales 2010, Australia *Email: t.fujii@abdn.ac.uk ABSTRACT: Deep-sea necrophagous amphipods were sampled from 5 stations across the abyssal and hadal zones (4602 to 8074 m depth) of the Peru-Chile Trench (SE Pacific Ocean) and combined with comparative data taken from 7 stations at corresponding depths (4329 to 7966 m) in the Kermadec Trench (SW Pacific Ocean) to investigate the diversity and structure of the amphipod communities in the South Pacific Ocean. Four distinctive community groups were identified and their relationships with environmental factors were examined using a total of 6 variables (latitude, longitude, hydrostatic pressure, primary productivity, temperature, sediment characteristics), of which pressure (i.e. depth) and longitudinal (i.e. geographic isolation or dispersal distance) gradients best explained the observed variation in the amphipod assemblage structure. The composition of the abyssal community was dominated by cosmopolitan species belonging to the genera Paralicella, Abyssorchomene and Eurythenes. The 2 most dissimilar groups corresponded to the sites at deeper, hadal depths in both trenches: the hadal Kermadec sites (6890 to 7966 m), dominated by Hirondellea dubia, and the hadal Peru-Chile sites (7050 to 8074 m), characterised by the presence of E. gryllus and 3 undescribed Hirondellea species. The number of amphipod species decreased significantly with increasing depth across all the sampling stations, but the decreasing trend diverged markedly between the 2 hadal trench communities, possibly due to the stark contrast in overlying surface productivity between the 2 regions. Thus the environmental forcing exerted by the pressure and longitudinal gradients on the scavenging amphipod community structure is likely to be further influenced by the surface production and associated flux of food material to the trenches. KEY WORDS: Amphipoda · Hadal zone · Community structure · Peru-Chile Trench · Kermadec Trench · Pacific Ocean Full text in pdf format PreviousNextCite this article as: Fujii T, Kilgallen NM, Rowden AA, Jamieson AJ (2013) Deep-sea amphipod community structure across abyssal to hadal depths in the Peru-Chile and Kermadec trenches. Mar Ecol Prog Ser 492:125-138. https://doi.org/10.3354/meps10489 Export citation RSS - Facebook - Tweet - linkedIn Cited by Published in MEPS Vol. 492. Online publication date: October 31, 2013 Print ISSN: 0171-8630; Online ISSN: 1616-1599 

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