

Author's Accepted Manuscript

Detection and characterisation of deep-sea benthopelagic animals from an autonomous underwater vehicle with a multibeam echosounder: a proof of concept and description of data-processing methods

Katherine M. Dunlop, Toby Jarvis, Kelly J. Benoit-Bird, Chad M. Waluk, David W. Caress, Hans Thomas, Kenneth L. Smith



www.elsevier.com

PII: S0967-0637(17)30211-X
DOI: <https://doi.org/10.1016/j.dsr.2018.01.006>
Reference: DSR12875

To appear in: *Deep-Sea Research Part I*

Received date: 15 June 2017
Revised date: 20 November 2017
Accepted date: 18 January 2018

Cite this article as: Katherine M. Dunlop, Toby Jarvis, Kelly J. Benoit-Bird, Chad M. Waluk, David W. Caress, Hans Thomas and Kenneth L. Smith, Detection and characterisation of deep-sea benthopelagic animals from an autonomous underwater vehicle with a multibeam echosounder: a proof of concept and description of data-processing methods, *Deep-Sea Research Part I*, <https://doi.org/10.1016/j.dsr.2018.01.006>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting galley proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Detection and characterisation of deep-sea benthopelagic animals from an autonomous underwater vehicle with a multibeam echosounder: a proof of concept and description of data-processing methods

Katherine M. Dunlop^a, Toby Jarvis^{b*}, Kelly J. Benoit-Bird^a, Chad M. Waluk^a, David W. Caress^a, Hans Thomas^a, Kenneth L. Smith, Jr^a

^aMonterey Bay Aquarium Research Institute, 7700 Sandholdt Road, Moss Landing, CA 93940, USA

^bEchoview Software Pty Ltd, GPO Box 1387, Hobart, Tasmania 7001, Australia

***Corresponding author.** toby.jarvis@echoview.com

Abstract

Benthopelagic animals are an important component of the deep-sea ecosystem, yet are notoriously difficult to study. Multibeam echosounders (MBES) deployed on autonomous underwater vehicles (AUVs) represent a promising technology for monitoring this elusive fauna at relatively high spatial and temporal resolution. However, application of this remote-sensing technology to the study of small (relative to the sampling resolution), dispersed and mobile animals at depth does not come without significant challenges with respect to data collection, data processing and vessel avoidance. As a proof of concept, we used data from a downward-looking RESON SeaBat 7125 MBES mounted on a Dorado-class AUV to detect and characterise the location and movement of backscattering targets (which were likely to have been individual fish or squid) within 50 m of the seafloor at ~800 m depth in Monterey Bay, California. The targets were detected and tracked, enabling their numerical density and movement to be characterised. The results revealed a consistent movement of targets downwards away from the

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات