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TITLE: Simulated larval connectivity among Australia's southwest submarine canyons

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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 539:77-91 (2015) - DOI: <https://doi.org/10.3354/meps11477> Simulated larval connectivity among Australia's southwest submarine canyons J. T. Kool\*, Z. Huang, S. L. Nichol Geoscience Australia, GPO Box 378, Canberra, ACT 2601, Australia \*Corresponding author: [johnathan.kool@ga.gov.au](mailto:johnathan.kool@ga.gov.au) ABSTRACT: A biophysical dispersal model was used to simulate hydrodynamic connectivity among canyons located within Australia's southwest marine region using ophiuroid (brittlestars) larvae as a model species. The results show that exchange among canyons in this area is greatly influenced by the Leeuwin Current, transporting larvae in a unidirectional manner around Cape Leeuwin, and continuing eastwards along the Great Australian Bight. Larvae within canyons tend to remain within them; however, if they are transported above the canyon walls, they then have the opportunity to be transported significant distances (thousands of km). Analysis of the variability in connectivity patterns reveals concentrated larval flow near the shelf break, with increasing levels of variability in larval flow leading offshore from the canyons. While the average potential larval flow distance and duration (unweighted by dispersal probability values) between canyons were approximately 550 km and 33 d, respectively, the average realized larval flow distance and duration (weighted by dispersal probability values) were approximately 20 km and 5 d, respectively. This study provides the first consideration of larval connectivity among submarine canyons and will help improve management of these features by providing a better understanding of larval movement, transboundary exchange and the potential spread of invasive species. KEY WORDS: Connectivity · Submarine canyons · Dispersal · Leeuwin Current · Southwest Australia Full text in pdf format Supplementary material PreviousNextCite this article as: Kool JT, Huang Z, Nichol SL (2015) Simulated larval connectivity among Australia's southwest submarine canyons. Mar Ecol Prog Ser 539:77-91. <https://doi.org/10.3354/meps11477> Export citation RSS - Facebook - Tweet - linkedIn Cited by Published in MEPS Vol. 539. Online publication date: November 12, 2015 Print ISSN: 0171-8630; Online ISSN: 1616-1599 Copyright © 2015 Inter-Research.

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