48 Evaluating Geomorphic Features as Surrogates for Benthic Biodiversity on Australia's Western Continental Margin

Franziska Althaus[1], Alan Williams[1], Rudy J. Kloser[1], Jan Seiler[1,2], Nicholas J. Bax[1]

[1]CSIRO Wealth from Oceans Flagship, Hobart Marine Laboratories, Hobart, Tasmania, Australia, [2]University of Tasmania, Tasmania, Australia

Abstract

We analyzed 75,349 video frames to compare megabenthos assemblages between four types of geomorphic features on Australia's western continental margin (2,000 km, ~100–1,000 m depths): undifferentiated shelf and slope, canyons, and one peak. These features were evaluated for their surrogacy potential in the context of an ecologically based, hierarchical habitat classification scheme. On this margin, characterized by few geomorphic feature types, megabenthos assemblages differed markedly between provinces—subdivisions of the marine environment determined by regional scale oceanography and differences in fauna—and between bathomes (depth zones); however, they showed weak relationships with geomorphic features. We conclude that, while some geomorphic features have high potential to act as surrogates for biodiversity at intermediate spatial scales, a hierarchical context is necessary to define and validate them within a larger, biogeographical context.

Key Words: hierarchical habitat classification, epifauna, video data, Western Australia